Project Description

Project title
Line Handling for Watch Standers

Information about the organization

The United States Coast Guard (USCG) is one of the five military armed forces in the United States and the only one under the Department of Homeland Security. For more than two centuries, the USCG has fulfilled a myriad of civil and military responsibilities, both domestically and internationally. The USCG is comprised of numerous different units with local offices scattered both across the United States and the globe. A Coast Guard Sector, which is a shore-based operational unit, is responsible for the execution of all Coast Guard (CG) missions within a specific geographical area. Due to the complexities of the mission, the different Departments and Divisions at each individual CG Sector routinely work together and support each other. Figure 1, below, shows the overall organization of Sector San Juan.

Sector San Juan is located in beautiful San Juan, Puerto Rico and is comprised of three major Departments: Response, Prevention, and Logistics (see Figure 1). Our team, consisting of current U.S. Coast Guard personnel and design professionals, will work closely with the Logistics Department (site client) as well as the Response Department (stakeholder). The Logistics Department provides administration/personnel, finance, supply, and engineering support to the Sector. The Response Department provides support to all of the operational units and manages all of Sector’s missions and operations.

Figure 1. Sector organization. ("United States Coast Guard Sector", n.d.)
Information about the site client

The site client will be the Personnel Division Chief who works for the Logistics Department Head at Sector San Juan. The Logistics Department is responsible for a wide range of support services that are integral to mission execution including administrative, finance, security and engineering support. The Logistics Department Head is also responsible for the management, coordination, and training of the daily Sector watch standers that provide security and logistical support for the Sector. The client will be an important source of extant data and will provide our team access to exemplary performance level watch standers, subject matter experts, and other target learners that may be useful as data sources. The client will also assist our team in the distribution of a survey, if necessary.

Information about the project

The Sector’s daily watch standers are critical to the safety and security of the Sector. Members stand a 24-hour duty or ‘watch’ and provide a variety of logistical needs and services to maintain a continuity of operations. Some of the duties of a watch stander include: providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line handling assistance to the cutters.

In summary, the line handling duties of watch standers and more specifically line handling during a mooring operation will be the focus of this project. A mooring evolution requires a cutter to maneuver close enough to a pier to allow the cutter’s line handlers to throw the cutter’s lines to the pier. The pier personnel, or watch standers in this case, receive the cutter’s lines and affix them to the specific pier attachments requested by the cutter. Each evolution typically requires a minimum of two watch standers and requires the quick identification of proper terminology and effective actions in regards to the cutter’s lines.

Sector San Juan currently has a total of 6 cutters permanently home ported at its waterfront. In addition, numerous CG cutters from other Sectors, government research vessels and foreign Navy/Coast Guard vessels frequently moor at Sector San Juan. Every time one of these vessels arrives to Sector San Juan, it must successfully complete a mooring evolution. Due to the dynamic operational environment at Sector San Juan, there is an average of one mooring evolution every day. These evolutions can be very dangerous for cutters due to the various mechanical, navigational and environmental factors present. With that, Sector watch standers who participate in cutter line handling evolutions must be well trained. Within the last 3 months, there have been numerous reported incidents where the improper line handling of Sector watch standers almost resulted in a cutter accident. These reports were made by the cutter Commanding Officers (a sub-group of the Response Department) and validated by the site client within Logistics Department. Our team validated the Commanding Officers’ reports through interviews with mooring evolution supervisors (subject matter experts) and found that over the last three months, there has been about one line handling mistake made per every 2 mooring evolutions. Several documented cutter accidents have occurred in the USCG’s history from the mishandling of mooring lines by pier personnel, which have yielded serious personnel injury and/or property damage; Sector San Juan has had four minor cutter accidents within the last four years. Sector San Juan is receiving 6 new Fast Response cutters between 2015 and 2016, worth an estimated total of $240 million. Additionally, in preparation for the arrival of these new cutters, Sector San Juan recently completed an $11 million pier renovation project. Sector San Juan is concerned about Sector San Juan is responsible for both the safety of its personnel and the protection of the government property it oversees and is very concerned with the recent trend of poor line handling performance.
Project Description Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

The members of the watch standing team who perform the line handling duties are usually the Sector’s most junior members. Upon arriving to Sector San Juan (typically from boot camp), they immediately begin the Sector watch stander qualification process, which involves the demonstration of numerous knowledge and performance based tasks, which includes line handling. The CG does not currently have specific instructional methods addressing the line handling requirements for Sector watch standers. Unqualified watch standers learn about each task from either a qualified watch stander while on-the-job or by referring to applicable CG policies, instructions, directives, or training. In the case of on-the-job training, the level of interaction is typically very informal and varies depending on the qualified member resulting in experienced personnel demonstrating skills to newer inexperienced CG personnel without regard to correctness of the line handling demonstration.

The sponsoring client based on recent incidents of improper line handling operations seeks to increase the performance of line handlers to reduce any dock-side/ship-located damage. Due to the complexity of the psychomotor skill and the advanced level of communication involved in mooring a vessel, practice and feedback in the way of formal training is deemed the appropriate intervention.

Team members

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthew Romano</td>
<td>Team Leader - Author</td>
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<td><a href="mailto:matthewromano@u.boisestate.edu">matthewromano@u.boisestate.edu</a></td>
</tr>
<tr>
<td>Kyle Weist</td>
<td>Team Co Author</td>
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<td><a href="mailto:kyleweist@u.boisestate.edu">kyleweist@u.boisestate.edu</a></td>
</tr>
<tr>
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<tr>
<td>Daphne Lee</td>
<td>Team Member</td>
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<td><a href="mailto:daphnelee@u.boisestate.edu">daphnelee@u.boisestate.edu</a></td>
</tr>
</tbody>
</table>

Project schedule

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Team Meeting</th>
<th>Internal Team Review</th>
<th>Pass 1 Due (Submitted Draft)</th>
<th>Pass 2 (Final)</th>
<th>Project Status Review</th>
<th>Site Client Review</th>
<th>Dr. V Team Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Description and Team Charter</td>
<td>2 FEB</td>
<td>23 JAN- 01FEB</td>
<td>01FEB</td>
<td>08FEB</td>
<td>01FEB</td>
<td>24JAN</td>
<td>2FEB</td>
</tr>
<tr>
<td>Performance Analysis</td>
<td>8 FEB</td>
<td>03FEB- 16FEB=</td>
<td>17FEB</td>
<td>07MAR</td>
<td>N/A</td>
<td>If requested</td>
<td>Consider, if needed</td>
</tr>
<tr>
<td>Learning Analysis</td>
<td>15FEB</td>
<td>17FEB- 23FEB=</td>
<td>20FEB</td>
<td>07MAR</td>
<td>N/A</td>
<td>If requested</td>
<td>Consider, if needed</td>
</tr>
<tr>
<td>Task Analysis</td>
<td>22FEB</td>
<td>24FEB- 29FEB=</td>
<td>27FEB+</td>
<td>07MAR^</td>
<td>27FEB+</td>
<td>26FEB</td>
<td>28FEB*</td>
</tr>
</tbody>
</table>
### Project Description Handout

**Objectives**

<table>
<thead>
<tr>
<th></th>
<th>29FEB</th>
<th>29FEB-12MAR</th>
<th>07MAR</th>
<th>16MAR%</th>
<th>N/A</th>
<th>If requested</th>
<th>Consider, if needed</th>
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<tbody>
<tr>
<td><strong>Performance Assessment</strong></td>
<td>7MAR</td>
<td>13MAR-22MAR</td>
<td>20MAR</td>
<td>27MAR</td>
<td>N/A</td>
<td>If requested</td>
<td>Consider, if needed</td>
</tr>
<tr>
<td><strong>Instructional Plan Worksheet</strong></td>
<td>14MAR-28MAR</td>
<td>23MAR-04APR</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>28MAR</td>
<td>Consider, if needed</td>
</tr>
<tr>
<td><strong>Instructional Plan</strong></td>
<td>4APR</td>
<td>05APR-09APR</td>
<td>09APR+</td>
<td>16APR</td>
<td>09APR+</td>
<td>If requested</td>
<td>10APR*</td>
</tr>
<tr>
<td><strong>Formative Evaluation</strong></td>
<td>11APR</td>
<td>10APR-17APR</td>
<td>18APR#</td>
<td>N/A</td>
<td>N/A</td>
<td>If requested</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Wrap-up</strong></td>
<td>18APR</td>
<td>18APR-02MAY</td>
<td>29APR$</td>
<td>29APR$</td>
<td>N/A</td>
<td>If requested</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Final Review</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>02MAY</td>
<td>02MAY Reviews of Plan returned</td>
</tr>
</tbody>
</table>

**Notes:**

- #: Team will be working on analysis deliverables in parallel.
- ^: Team is considering submitting all analysis documents at once for Pass 2.
- *: Per syllabus deliverable or meeting must be scheduled by that day.
- +: Deliverable must be submitted at least 24 hours prior to meeting.
- %: Complete Pass 2 prior to submitting Pass 1 of Performance Assessment Instrument.
- #: Instructional Plan due for another ID’s team review.
- $: All project assignments V1 and V2 must be posted by that day.

Per our Team Charter, the client will have a 24 period to review the individual assignment prior to final draft review. In addition, all team members will be provided with at least 24 hours to review the final draft and make comments and recommendations prior to culmination into the final document. Furthermore, the team is provided an opportunity to revise documents based on instructor feedback. In order to allow for these review periods, the team will begin this review process before the date listed above. Once all team members have agreed upon the final document, it will be submitted before the dates listed above. The team recognizes that they must maintain some small level of flexibility to adapt to feedback from the client, each other, and the instructor. However, the joint team meeting with Dr. Villachica and final project remain hard due dates.

**References**

Performance Analysis

Descriptive Title:
Line Handling for Watch Standers

Gap analysis

<table>
<thead>
<tr>
<th>Desired Performance</th>
<th>Actual Performance</th>
<th>Performance</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>We want our Sector San Juan watch standers</td>
<td>Our Sector San Juan watch standers</td>
<td>To demonstrate proficiency in handling lines during mooring evolutions</td>
<td>That result in an average of 0.1 errors or less per evolution.</td>
</tr>
</tbody>
</table>

An error is categorized as:
A. Mishandling of line
   1. Dropping line on the pier while handling
   2. Dropping line in the water while handling
   3. Getting the line snagged/hooked on an obstruction
   4. Improper pulling technique causing line to drag in water or rub on the pier
   5. Misidentification of line weight when dry/wet.
   6. Placing knuckles between line and pier attachment
B. Improper attachment of line to pier attachment
   1. Causing line to slip off attachment
   2. Causing line to surge
   3. Improper dipping of line
C. Communication misidentification
   1. Running towards the bow when line 4 is called over
   2. Running towards the stern when line 1 is called over
   3. Running towards the bow when line 2 is called over
   4. Running towards the stern when line 3 is called over
   5. Not responding to command "Heads up on the pier"
   6. Not responding to command to "Release" line

<table>
<thead>
<tr>
<th>Actual Performance</th>
<th>Performance</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Sector San Juan watch standers</td>
<td>Are improperly handling lines during cutter mooring evolutions</td>
<td>Which is resulting in an average of 0.44 errors per evolution.</td>
</tr>
</tbody>
</table>

*Over the last three months.

The United States Coast Guard (USCG) Sector San Juan seeks to achieve an average 0.1 errors per evolution rate. The current error per mooring evolution rate is 0.44. Line handlers are committing errors on 44% of mooring evolutions. The .44 error rate is concerning because mooring evolutions have a high probability of causing injury and property damage.

The client provided the following definitions:

- A personnel injury is defined as any injury that leads to any loss of work.
- Government property damage is defined as any monetary damage incurred by cutter or pier infrastructure as a result of the evolution.

To validate the organization's concern regarding performance, Team USCG conducted an informal group interview with 8 subject matter experts (SME) (4 Cutter and 4 Sector watch supervisors) to
determine a list of errors that could be made by Sector watch stander line handlers (pier side). See Table 5 below for interview summaries detailing this information.

An error is categorized as:

A. Mishandling of line
   1. Dropping line on the pier while handling
   2. Dropping line in the water while handling
   3. Getting the line snagged/hooked on an obstruction
   4. Improper pulling technique causing line to drag in water or rub on the pier
   5. Misidentification of line weight when dry/wet.
   6. Placing knuckles between line and pier attachment

B. Improper attachment of line to pier attachment
   1. Causing line to slip off attachment
   2. Causing line to surge
   3. Improper dipping of line

C. Communication errors
   1. Running towards the bow when line 4 is called over
   2. Running towards the stern when line 1 is called over
   3. Running towards the bow when line 2 is called over
   4. Running towards the stern when line 3 is called over
   5. Not responding to command “Heads up on the pier”
   6. Not responding to command to “Release” line

D. Improper use of personal protection equipment
   1. Not wearing hard toed boots
   2. Not wearing a hard hat
   3. Not wearing a life jacket
   4. Not wearing safety goggles
   5. Wearing rings, watches or jewelry

E. Tardiness
   1. Showing up to the pier more than 5 minutes late than the scheduled moor time
   2. Not responding to an ordered command for more than 5 seconds

F. Misidentification of prevailing elements
   1. Improper anticipation of heaving line ball during on the dock winds
   2. Improper anticipation of heaving line ball during off the dock winds
   3. Improper anticipation of heaving line ball during up the dock winds
   4. Improper anticipation of heaving line ball during down the dock winds
   5. Improper anticipation of heaving line ball during no wind
   6. Improper identification of hide tide
   7. Improper identification of low tide
   8. Improper identification of ebbing current
   9. Improper identification of flooding current

The above error list was too expansive for this project and was minimized with the concurrence of the SMEs and the client to include only the mishandling of line (“A”), the improper affixment of line to the pier attachment (“B”) and communication errors (“C”). The SMEs concluded that the errors from categories “A” through “C” are the most crucial to the overall success of the evolution and would prevent injuries and government property damage from occurring.

The site client, based on the organization’s culture of operational safety and compliance, requested an average 0.1 errors per evolution rate (explained in further detail in the ‘Organizational Analysis’ section below). To quantify and validate this request, Team USCG interviewed and later observed
two accomplished performers (provided by the client) in their execution of line handling duties. Both Accomplished Performer “A” and “B” noted that they consistently perform pier line handling duties, with little or no error. This was supported by two watch section supervisors during interviews as well as during observations by two Team USCG members. From the consolidation of the interviews and observations, Team USCG determined that the client’s request for this average of 0.1 errors per evolution rate is justifiable.

To quantify the current line handling performance of Sector San Juan watch standers, Team USCG used this same group interview to determine and validate the average number of errors committed by watch standers per evolution within the last 3 months (see Table 2).

Table 2: Line handling error rate

<table>
<thead>
<tr>
<th>Role</th>
<th>Error Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutter Commanding Officer</td>
<td>1 error per 2 evolutions</td>
</tr>
<tr>
<td>Cutter Commanding Officer</td>
<td>1 error per 3 evolutions</td>
</tr>
<tr>
<td>Cutter Executive Officer</td>
<td>1 error per 1 evolution</td>
</tr>
<tr>
<td>Cutter Executive Officer</td>
<td>1 error per 3 evolutions</td>
</tr>
<tr>
<td>Watch Section Supervisor</td>
<td>1 error per 3 evolutions</td>
</tr>
<tr>
<td>Watch Section Supervisor</td>
<td>1 error per 2 evolutions</td>
</tr>
<tr>
<td>Watch Section Supervisor</td>
<td>1 error per 2 evolutions</td>
</tr>
<tr>
<td>Watch Section Supervisor</td>
<td>1 error per 2 evolutions</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.44 errors per evolution</td>
</tr>
</tbody>
</table>

To supplement the above interview, two of Team USCG’s members visited Sector San Juan and observed Sector watch standers while performing line handling duties (see Table 5 for summary of observations). Team USCG’s members observed the evolutions with the watch supervisor and tallied the number of errors committed with the assistance and concurrence of the watch supervisor. During these observations, the team members did not interrupt the evolution and did not pre-brief the Sector watch standers in an effort to preserve a realistic environment (see Table 3).

Table 3: Observed evolution results

<table>
<thead>
<tr>
<th>Date</th>
<th># of errors</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 February 2016</td>
<td>1 error – A4</td>
<td>A. Mishandling of line</td>
</tr>
<tr>
<td>Note: The evolution consisted of two Sector San Juan watch standers; one of the watch standers was Accomplished Performer “A”. The other member committed the error and the Accomplished Performer “A” assisted in the error’s resolution.</td>
<td>1. Dropping line on the pier while handling</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Errors</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------</td>
<td>--------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>16 February 2016</td>
<td>0</td>
<td>Errors: The evolution was completed by Accomplished Performer “A”.</td>
</tr>
<tr>
<td>17 February 2016</td>
<td>0</td>
<td>Errors: The evolution included Accomplished Performer “B”</td>
</tr>
<tr>
<td>18 February 2016</td>
<td>1</td>
<td>Errors: B3, No accomplished performers were part of the evolution.</td>
</tr>
</tbody>
</table>

**TOTAL: 2 errors per 4 evolutions (50%)**

Therefore, .50 error per evolution

Note: Observed error rate very similar to stated error rate of .44 by SMEs

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**Organizational analysis**

**Why is the USCG so worried about this problem?**

Several major accidents have occurred in the USCG’s history, which can be fully or partially attributed to the mishandling of mooring lines by pier personnel. These accidents have yielded death, serious personnel injury and/or property damage.

In April 2011, Coast Guard Sector Houston closely examined various marine casualties that occurred in their area of responsibility. They identified two deaths and nine serious injuries from poor line handling procedures in the maritime industry within a two-year period. In response, this Sector released a Marine Safety Alert expressing a concern for safety (United States Coast Guard Sector Houston, 2011). Highlights from this Alert include:

- “Mooring line handling is a basic, everyday component of the shipping industry. Formal line handling training and supervised on the job training is strongly encouraged. Being knowledgeable in your job is very important but learning does not stop with just completed training.”
- “Mariners must understand doing whatever it takes to get the job done does not necessarily get the job done faster; and in fact, can actually create setbacks and hazardous situations. Past investigations have revealed mariners are likely to be injured when they are in a rush, willing to do whatever it takes to get the job done, or fail to stop operations when they see a mooring line fouled on rotating machinery or other unsafe acts.”
- “Training and familiarization concerning deck equipment/machinery should be periodically reviewed and documented. More importantly, the value of proper supervision cannot be overstated. Supervisors should serve as observers and avoid the temptation of engaging in line handling.”
- “Proper use of deck fittings provides near unlimited mooring arrangements; they also create the potential for dangerous conditions. Casualty investigations have revealed the improper application of deck fittings has caused mooring lines to spring/slip free off the
fitting.”

In addition, highlights from the Commandant of the USCG’s Direction and Philosophy include important statements regarding the USCG’s organizational goals and missions (Zukunft, 2016).

- “The well-being of our people is critical to the success of our Service. The Coast Guard relies on cutters, boats, and aircraft to safely operate in the maritime environment, but it is our people who deliver truly unique capabilities to the Nation.”
- “We must strive to achieve the highest standards of readiness and proficiency.”
- “Excellence in mission support is essential to our operational success. As Coast Guard mission demand increases, we will always emphasize the safety of our people. We will ensure operations are carefully planned to maximize effectiveness and minimize risk.”

The Commandant of the USCG’s Philosophy includes (Zukunft, 2014):

- “Upholding standards is a hallmark of military service – they transcend rank or position. The standards you walk past are the standards you accept, on or off duty.”
- “Good ideas, the right solution and the way forward come from all levels of the organization; actively seek out these ideas and empower people to come forward.”
- “Open, honest communication is central to empowerment, which in turn helps teams reach their potential.”
- “Situations evolve and we must adapt swiftly; as a leader your decision-making will be tested.”
- “Learn, adapt and execute your mission.”

The Commandant of the USCG further delegates this responsibility to the USCG Office of Safety and Environmental Health (2014), which is responsible for ensuring that the “organization’s members, systems, infrastructure, and processes are safely integrated to maximize mission effectiveness, mitigate workplace hazards and sustain healthy operations.” This office provides the organization “effective and relevant safety and environmental health policies, programs, and expertise that enable the Coast Guard to achieve and sustain mission readiness and execution based on an operational risk reduction approach.” Furthermore, the office strives to “align safety and environmental health programs with evolving mission needs and provide oversight of program implementation in support of all five Coast Guard mission sets, while cultivating a system safety culture embedded in mission execution” (United States Coast Guard Office of Safety and Environmental Health, 2014). The USCG’s operational units and the land-based support units, per the direction of the USCG Commandant, are required to adhere to the regulations and standard established by the Office of Safety and Environmental Health.

Why is Sector San Juan, specifically, so worried about this problem?

Sector San Juan has had 4 minor cutter accidents within the last 12 months. To validate these recent accidents and assess damage and injury data, the Sector’s Facilities Engineer was interviewed (See Table 4 below for a summary of these accidents/damage and Table 5 for a summary of the interview.)
Table 4: Accident Summary Sector San Juan Cutters

<table>
<thead>
<tr>
<th>Year</th>
<th>Summary*</th>
<th>Estimated Equipment Damage &amp; Personnel Injury</th>
<th>Legend</th>
</tr>
</thead>
</table>
| January 2015 | Island Cutter A slammed into the pier after not responding quickly enough after one of the pier line handlers dropped the mooring line in the water. The allison (e.g. collision of a boat with a fixed structure) with the pier caused two of the cutter’s fenders to pop and its hull to be damaged and dented. | Popped fenders - $500  
Damaged/dented hull - $500 | A. Mishandling of line  
1. Dropping line on the pier while handling  
2. Dropping line in the water while handling  
3. Getting the line snagged/hooked on an obstruction  
4. Improper pulling technique causing line to drag in water or rub on the pier  
5. Misidentification of line weight when dry/wet.  
6. Placing knuckles between line and pier attachment |
| February 2015 | Island Cutter B successfully approached the pier and the pier line handlers properly affixed the single set of mooring lines. The cutter then sent over the second set of mooring lines, but the pier line handlers improperly “dip the lines” during their attachment. To correct the problem, one of the cutter’s personnel ran from the cutter to the pier to assist and rolled his ankle causing it to fracture. | Fractured Ankle – loss of 60 days of cutter duty | B. Improper attachment of line to pier attachment  
1. Causing line to slip off attachment  
2. Causing line to surge  
3. Improper dipping of line |
| May 2015     | Island Cutter C slammed into the pier after one of the pier line handlers misidentified and improperly pulled a wet mooring line, which caused it to get snagged on the pier. The snagged line pulled the cutter’s bow towards the pier and caused it to strike a light post on the pier. | Damaged light post - $1000 | |
| January 2016 | Fast Response Cutter D slammed into the pier after one of the pier line handlers improperly attached the cutter’s mooring line to a pier attachment causing the line to surge and the cutter to be pulled towards the pier and strike a power box. | Damaged pier power box - $7500 | |

*These accidents have only been partially attributed to the poor line handling skills of Sector watch standers since the cutter’s responsive actions may have thwarted the incident.*
Sector San Juan is receiving six new Fast Response cutters between 2015 and 2016, worth an estimated total of $240 million. Additionally, in preparation for the arrival of these new cutters, Sector San Juan recently completed an $11 million pier renovation project. Within the last 3 months, one accident, as noted in Table 4, has already occurred. In addition, there have been numerous complaints, separate from that incident, regarding the poor line handling performance of Sector watch standers. These reports were made by the Commanding Officers of the Fast Response Cutters, who are concerned about the condition of their new multi-million dollar assets. These complaints were verified in interviews by Team USCG and validated through interviews with Sector watch supervisors (see Table 5 for interview summaries).

Sector San Juan, who is responsible for both the safety of its personnel and the protection of the government property it oversees, is very concerned with the recent trend of poor line handling performance and requested two members of Team USCG to investigate and possibly resolve.

**Cause analysis**

**Date Sources**

Team USCG collected data from the sources listed below to analyze both the performance and causes of the stated performance gap.

<table>
<thead>
<tr>
<th>Data sources</th>
<th>Data gathering methods</th>
<th>Data</th>
</tr>
</thead>
</table>
| 4 Cutter Commanding Officers and 4 Watch Section Supervisors | In-Person Unstructured Group Interview | • Provided error list noted in above 'Gap Analysis' section  
• Provided estimated error per evolution commitment rate as displayed in Table 2 |
| Mix of Accomplished Performers (AP) and Typical Performers (2 APs and X Typical Performers) | In-Person Observation | • This observation provided a sample size snapshot of current performance.  
• The team ensured that multiple Typical Performers (TP) were observed as well as the two APs.  
• This observation allowed the team members to personally observe the necessary nuanced psychomotor skills to ensure a successful evolution. The observation also highlighted the high level of dynamic communications that accompany the complex nature of the evolutions.  
• The team members observed the evolutions with the on-duty watch supervisor and tallied the number of errors committed.  
• The errors committed were identified with the assistance and the concurrence of the watch supervisor.  
• The team members did not interrupt the evolution and did not pre-brief the Sector watch standers in an... |
Cutter CO (SME) | In-Person Unstructured Personal Interview | This interview focused on understanding exemplary performance.

Topics covered included:
- Cutter’s desired expectations of Sector watch standers during line handling evolutions
- Noted exemplary performances that thwarted a potential accident
- Expected skills that every Sector line handler should possess
- Noted performances and committed errors that almost resulted in a cutter accident

Watch Supervisor (SME) | In-Person Unstructured Personal Interview | This interview focused on understanding exemplary performance:

- Watch supervisor's desired expectations of Sector watch standers during line handling evolutions
- Watch supervisor’s observation of current performance of Sector watch standers during line handling evolutions
- Expected skills that every Sector line handler should possess
- Information available to Sector line handlers
- Mentor, coaching and feedback process
- Understanding of qualification process
- Resources available to Sector line handlers
- Incentives available to Sector line handlers
- Noted capacity of Sector’s accomplished line handlers
- Observed motivation of Sector's accomplished line handlers

Accomplished Performer #1 | In-Person Unstructured Personal Interview | This interview focused on understanding exemplary performance:

- AP’s understanding of the expectations upon him/her during line handling evolutions
- Noted exemplary performances that thwarted a potential accident
- Mentor, coaching and feedback process
- Understanding of qualification process
- Information available to Sector line handlers
- Resources available to Sector line handlers
- Incentives available to Sector line handlers
- Capacity of the AP
- Motivation of the AP

Accomplished Performer #2 | In-Person Unstructured | This interview focused on understanding exemplary performance:
### Performance Analysis Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

| Personal Interview | • AP’s understanding of the expectations upon him/her during line handling evolutions  
|                     | • Noted exemplary performances that thwarted a potential accident  
|                     | • Mentor, coaching and feedback process  
|                     | • Understanding of qualification process  
|                     | • Information available to Sector line handlers  
|                     | • Resources available to Sector line handlers  
|                     | • Incentives available to Sector line handlers  
|                     | • Capacity of the AP  
|                     | • Motivation of the AP  

### Facilities Engineer Interview

This interview provided the accidents that have occurred in Sector San Juan in the past twelve months, which can be fully or partially attributed to the error(s) of Sector watch line handlers. He/she also provided the team members the estimated damage assessments and noted personnel injuries during these incidents.

### Sector San Juan watch stander qualification process Extant Data Review

Watch standers are required to complete a personal qualification standard (PQS) as part of the certification process. PQS is a mix of knowledge based and performance task. There is only a single line item that references line handling and there is no requirement to demonstrate the task or any criteria/standard for proficiency.

### Coast Guard cutter line handler qualification process Extant Data Review

Cutters address line handling proficiency through a comprehensive qualification standard that involves knowledge, execution, and assessment.

### Coast Guard cutter mooring grade sheet Extant Data Review

Cutters use grade sheets for mooring evolutions. These grade sheets have specific task completion items and specific factors that must be completed or avoided for a successful evolution. The sheets encompass all aspects of a mooring; ship handling, line commands, navigation, and communications.

### Gilbert’s Behavior Engineering Model (BEM)

The Team applied the components of Gilbert’s Behavior Engineering Model to identify casual factors of the performance problem. Behavior Engineering Model, as described in his book, *Human Competence: Engineering Worthy Performance*, demonstrates “the six essential components of behavior that can be manipulated to effect performance” (Taylor, 2013, para. 6); see Figure 1.
The major trends of the analysis of the BEM:

**Data:** Sector San Juan watch standers lack the Information/Data to fully understand what is expected of them regarding line handling. The USCG does not provide any detailed or clear outline of the proper techniques for pier-side line handling or expectations of performance in any written form. Furthermore, information in the form of techniques is often informally passed from watch stander to watch stander during the qualification process. There is no official document that indicates the proper methods of line handling and is subject to interpretation by individual watch standers. This is further exacerbated by the lack or inconsistent nature of formal feedback and guidance provided to individual watch standers regarding their performance by supervisors. Other deficiencies in the environment that contribute to this gap include lack of preparation time provided to watch standers in some cases.

**Resources:** The performance of line handlers may be affected by problems with deck fittings leading to slipping or springing of mooring lines. Though these factors do appear to play a role in the line handling performance gap, they are small and would warrant further investigation.

**Incentives:** There is an inconsistent reward/punishment system for good/bad performance during line handling operations. Furthermore, consequences for poor performance are in place, but rarely used because most supervisors feel that watch standers don’t have proper training or understanding of how to line handle. Thus, the individual should not be held accountable for poor performance. Supervisors view this as an organizational issue and one that might be addressed in the Individual Knowledge portion of the BEM.

**Knowledge:** One area that appears to primarily contribute to the line handling performance gap lies in the area of individual knowledge. As noted in Table 6 below, training for watch standers is often left to chance depending on the knowledge, skills, and abilities of the person training him/her. The
main purpose of on-the-job training is to achieve a “sign off” on the watch stander qualification form. This type of informal, non-standardized training does not focus on teaching watch standers to meet exemplary performance standards as discussed in the gap analysis (average 0.1 error rate). Furthermore, it does not meet the needs of the individual watch stander or organization as-a-whole noted by the high 0.44 errors per evolution error rate. Line handling includes nuanced psychomotor skills in handling the rope and complex decision making skills based on dynamic inputs and multiple factors that is best addressed through training that includes guided practice with feedback.

**Capacity:** There were some minor deficiencies found in the area of performer capacity regarding fatigue and scheduling of watch standers for optimal performance. The USCG may not appropriately schedule the best line handlers based on performance of the job. This scheduling with variable cutter schedules may also lead to watch stander fatigue. These issues appear to be small and would warrant further investigation.

**Motives:** Through observations and interviews, watch standers do not appear to have a clear understanding of the importance of line handling skills and instead see it as a task distracting them from other more important tasks. Furthermore, the USCG may not schedule line handlers based on their preference for the job resulting in less than optimal motivation levels. However, motives and recruitment do not appear to be significant barriers in this performance problem.

Table 6 provides more specific details of casual analysis.

**Table 6: Completed BEM**

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Information</th>
<th>Instrumentation</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data</strong></td>
<td>Are the roles and performance expectations for the Sector San Juan watch standers when line handling for the cutter clearly defined?</td>
<td>Resources Are the materials, tools and time needed to successfully handle lines provided?</td>
<td>Incentives What incentives do they have for performing well? Does this improve their performance?</td>
</tr>
<tr>
<td><strong>Do you provide them</strong></td>
<td>There are clear guidelines for the cutter line handlers, but NOT the pier line handlers. There is no manual, instruction or directive dictating expected performance. However, most watch section supervisors expect them to perform flawlessly, due to the high potential for danger.</td>
<td>Yes. All safety gear and other necessary tools and resources are provided by the Sector. Time can sometimes be a factor due to a breakdown in communication or in an emergency situation, but the watch standers and watch supervisors can overcome it. They are typically given 30-60 minutes heads up, but can respond within 5 minutes in an emergency.</td>
<td>Minimal and indirect incentives are provided to watch standers for exemplary performance. Supervisors can give them a positive written report or an award, but it is typically done if his/her actions prevented an accident. Informal verbal acclaim can be given, but again, is up to the discretion of the supervisor. There is no guidance for the supervisors to provide this incentive. Excellence in line handling factors into their semi-annual performance reports, but is not the only factor. These semi-annual...</td>
</tr>
</tbody>
</table>
### Relevant and Frequent Feedback About the Adequacy of Their Performance to Improve Their Performance and Development?

Varies. Guidance and feedback is dependent on the watch supervisor or qualified watch stander. Some supervisors conduct a pre and post brief while others, do not because it is not required. Some supervisors will perform individual counseling or feedback if they identify poor performance while others do not because it is not required.

### Are They Provided Relevant Guides to Describe Their Duties as Line Handlers? If Yes, Are They Using It?

No, as mentioned above. The unqualified members learn by doing. Some supervisors follow a watch stander allowing them to do it with assistance and then alone, while others do not because it is not required.

### Does the Overall Physical and Psychological Work Environment Contribute to Improved Performance? I.e., Are the Work Conditions Safe, Clean, Organized, and Conducive to Performance?

No, there are varying and complex, yet uncontrollable factors. Fatigue is a factor during busy workdays. Also, darkness during night operations adds a level of complexity. Even during the day, rain, heavy winds or currents add a level of complexity and increase the difficulty of the evolution. These complex evolutions are not well suited for training unqualified members.

### Individual Knowledge

**Do they have the necessary knowledge, experience and skills to do the desired behaviors?**

When they report from boot camp, they have minimal knowledge, skills and experience. It is the job of the watch supervisors and the qualified watch standers to use their

### Capacity

**Do they have the capacity to learn and do what is needed to perform successfully?**

Yes, watch standers would not have graduated boot camp if they did not possess the necessary psychomotor skills necessary to perform line-handling.

### Motives

**What drives and motivates them? Is there a difference, in motivation, between your exemplary and poor performers?**

The high possibility of danger drives and motivates the line handlers to perform well. They all want the evolution to be a success and with no one getting injured and with no property damage.

### Reports Result in Their Advancement and Their Next Assignment/Location.

### What Consequences Are Available for Poor Performance? Are You Implementing These Measures?

Poor performance could lead to a verbal counseling, a poor semi-annual performance report, or a negative report. Multiple negative reports and/or a negative trend in performance could lead to an administrative board resulting in performance probation, pay deduction, liberty restriction or even separation. It also affects their ability to advance and their next assignment/location of choice. However, there is no set punishment schedule or guidance for supervisors to follow.

### Is the Overall Work Environment Positive, Where They Believe They Have an Opportunity to Succeed?

Yes, the organization wants them to succeed and perform well. The organization wants the cutter to moor safely with no injuries or property damage.
general knowledge and properly develop them, even though they are not professional trainers. Boot camp does not provide them with the knowledge and skills necessary to perform well immediately upon arriving.

Line Handlers are ONLY required to discuss proper procedures for line handling within their qualification process, not perform the function.

The members who are experienced are typically members have who previous served on a cutter and went through the cutter's formal line handler qualification process. Though the performance tasks are different, these members can better transfer their knowledge and skills from the cutter to the pier. These exemplary performers rely on their prior experience of learning from their mistakes or prior experiences on a cutter to guide their performance.

Is training left to chance?
Yes. Sector line handlers ONLY need to "describe" how to properly handle lines as part of their qualification process. Some watch supervisors and qualified watch standers require them to perform the task before "signing-off" the performance task as part of their qualification process, but some do not because is not a duty. However, by not requiring the members to perform the tasks before obtaining the "sign-off," there is a chance that watch standers do not have the necessary skills to perform the duties. Furthermore, the potential for danger is high when some supervisors are allowing new line handlers to learn while conducting actual operations.

Are their motives aligned with the work and the work environment?
Yes. They all want the cutters to moor safely with no sustained injuries or property damage.

Are line handlers scheduled in ways that reduce their performance?
Sometimes. Most mooring operations occur during the day, however, some due occur at night. These operations occur regardless of weather conditions. Fatigue and heat may affect performance. Watch standers are generally provided with 30 – 60 minutes notice of a mooring evolution. However, sometimes there may be a breakdown in damage. The exemplary performers are more motivated because they have a better understanding of the potential dangers that exist within the evolution (maybe because they've personally experienced it).

Do line handlers find the working conditions adequate for the task?
Yes. Exemplary performers have no problems with completing the mooring evolution.

Are incentives present that line handlers perceive as desirable to perform to the desired level?
Yes. If a line handler consistently performs well or exceeds performance expectations preventing an incident/accident, he/she will receive a positive report, positive performance marks, and/or an award leading to a promotion and/or choosing of his/her next assignment. By performing to the desired level, the watch stander will avoid negative performance marks, verbal warnings, and/or probation that may prevent promotion and related salary increase, choosing next assignment, etc.

Are line handlers chosen on
requirement. Though there are detailed guidance that outlines the necessary performance for the cutter line handlers, the proper procedures for *land based watch standers* are not outlined.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Communication or change in the cutter schedule that surprises the watch stander potentially leading to reduced performance.</th>
</tr>
</thead>
</table>

**Are the employees with the necessary knowledge, experience and skills properly placed to use and share what they know?**

No, if a member is on watch and a cutter is mooring, then that member is required to assist in the evolution. The watch schedule rotates and consistently changes. Exemplary members are not hand selected for particular moorings.

- **Are line handlers selected based on their ability to achieve exemplary performance?**
- No, a watch standers must handle the lines for cutters; it is one of their required responsibilities.

**Are they cross-trained to understand each other’s roles?**

No, there is no cross training requirement. Some supervisors will ensure that line handlers can perform the functions of the bow and stern line, perform the functions for a large and small cutter and perform the functions at the large or small pier, but some supervisors do not because there is no requirement.

**Are they free of emotional limitations that would interfere with their performance?**

The evolutions can be very complex and dynamic. The exemplary performers perform better in these conditions because they have more experience, are better trained and understand the evolution and its potential dangers better. It is very hard to train new members in this dynamic environment.

- **Do they desire to perform the required jobs?**
- The exemplary performers enjoy handling lines for the cutters because they enjoy the challenge. The poor performers do not enjoy handling lines for the cutters.

**Is there a significant knowledge, experience or skill difference between your exemplary and poor performers?**

Yes, typically members

- **Are they free of emotional limitations that would interfere with their performance?**
- The evolutions can be very complex and dynamic. The exemplary performers perform better in these conditions because they have more experience, are better trained and understand the evolution and its potential dangers better. It is very hard to train new members in this dynamic environment.

- **Do they desire to perform the required jobs?**
- The exemplary performers enjoy handling lines for the cutters because they enjoy the challenge. The poor performers do not enjoy handling lines for the cutters.
who have previously
served on a cutter and
previously completed a
formal training program
are the better performers.
They have prior
experience, which trumps
the "learning on the fly"
system that is currently
implemented. Watch
supervisors also notice that
the members who were
trained by better watch
standers and the members
who followed the "watch it,
do it with help and do it
alone" process typically
perform better. They
perform better because
they learn by doing, in a
safe and controlled
environment while
receiving feedback which is
more effective than
learning by doing during
actual evolutions where the
stakes are high.

Reference: (Chevalier, 2003, p. 3; Gilbert, 1978 as cited in International Society for Performance
Improvement, n.d.)

As noted above, the results of the BEM analysis show significant deficiencies in the Environmental-
Information/Data and Individual – Information/Knowledge. As part of this project, the team will
work with USCG Sector San Juan to further investigate and contribute to current written
documentation that exists regarding line handling procedures for watch standers. By ensuring that
there is clear written documentation regarding line handling performance, watch standers can
access and review as needed information regarding exemplary task performance. In addition, this
review of information/data available to watch standers may extend into more formal de-brief and
performance review processes providing watch standers with important guidance and feedback
regarding their continued task performance and deviation from exemplary performance standards.

In the opinion of Team USCG, these recommendations would be helpful in closing the performance
gap and reduce the line handling error rate to 0.01 errors/evolution. Furthermore, clearly defining
and communicating these standards with a higher level of detail would help line handlers better
align their performance with the strategic goals of achieving the highest standards of proficiency as
outlined in the USCG Commandant’s Direction (Zukunft, 2016) and upholding standards as outlined
in the USCG Commandant’s Philosophy (Zukunft, 2014).
Team USCG believes that there is a valuable opportunity to address deficiencies in watch stander line handling knowledge and skills. By addressing some of these deficiencies through a training program, the team can contribute to closing the performance gap bringing Sector San Juan closer to 0.1 errors/evolution and better aligning with its strategic goals of improved safety, minimization/elimination of injury, minimization of property damage, and mission completion. Furthermore, by addressing the training of watch standers in line handling duties, Sector San Juan would be directly addressing the concerns presented in the Marine Safety Alert issued by USCG Sector Houston (2011) including encouragement of formal line handling training, supervised on-the-job training, and periodic review and re-familiarization with deck equipment, machinery, and line handling operations.

This BEM Analysis was followed by a Job Aid/EPSS analysis to determine if a job aid would fulfill the Information/Knowledge deficiency as found in the BEM analysis or if filling this gap would require training.
Job Aid / EPSS analysis

Table 7: Job Aid/EPSS Analysis

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>How do you know? What evidence of information can you provide to support your answer?</th>
</tr>
</thead>
</table>
| 1. Is it important for people to practice the task to mastery?            | X   |    | Mooring line handling is a frequent task and when performed correctly moors and secures maritime vessels. Failure to perform mooring activities correctly has resulted 4 minor cutter accidents within the last 12 months at Sector San Juan. Organization-wide, it has resulted in numerous fatalities, serious injuries, and damage to maritime vessels and deck equipment. The knowledge and skill-types Stepich, Villachica, & Conley (2015) discuss necessary to execute a flawless evolution include:  
  • Nuanced psychomotor actions  
  • Complex cognitive operations including situation recognition, decision-making, and problem solving  
  • Dynamic, often “messy” communications with people  
  In the case of nuanced psychomotor actions, line handlers must make decisions based upon and then respond to a variety of dynamic inputs including wind speed, current, location of the vessel to the pier, location of other watch standers, number of ropes, etc. The cumulative presence of these factors in varying amounts will require the watch stander to make variable and fine-tuned psychomotor actions since each mooring operation becomes an entirely different experience. The processes through which line handlers observe and make decisions on the presence of these variables is often invisible to the individual line handler.  
  Due to the number of dynamic variables at play, watch standers must practice under a variety of conditions (daytime, nighttime, calm winds, choppy current, etc.) in order to fully achieve exemplary performance levels. The number of practice sessions needed to achieve mastery is highlighted in the interview with AP #2 “Yes, I do now because I learned from my mistakes and by completing many, many evolutions. What I learned in boot camp wasn’t too helpful. I guess it gave me general knowledge.” (See Personal Interview with Exemplary Performer (AP) #2 on page 31). |
| 2. Is it important for people to obtain both:                             | X   |    | As mentioned above, the processes through which line handlers observe the presence of variables such as wind speed, current, pressure on or movement of the rope, |
  ◦ Coaching (including |
  ◦ Training |
  ◦ On-the-job training |
  ◦ Experience |

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<table>
<thead>
<tr>
<th>error detection and correction) as they perform a task?</th>
<th>etc. are often invisible to the individual line handlers. Since there a nearly infinite number of combinations of variables in any one mooring evolution, static presentation of information in a classroom setting cannot possibly present all of these combinations of variables that line handlers may come in contact with on-the-job. Instead, coaching line handlers, providing them with feedback, and numerous practice situations will create an environment for the line handlers to build skills to perform the tasks required to execute line handling operations with an average 0.1 error rate per evolution. As line handlers are engaged in and perform the pier-side line handling duties at the task level as part of a mooring operation under the guidance of trainers/exemplary performers, errors are noted and corrected real-time minimizing faulty mental model development. Furthermore, Merrill’s first principles can be leveraged to direct line handler attention to what is relevant, complex, and/or difficult about the particular evolution through coaching and feedback, include varied and multiple problems as part of the dynamic USCG pier side environment, and include multiple demonstrations/performances that can then be compared to one-another through coaching and feedback. All of these opportunities along with faded coaching/guidance and after-action feedback and reflection will act to improve and strengthen performer learner of line handling duties.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed feedback (about the extent to which performance met standards and how to improve it) after they perform a task?</td>
<td></td>
</tr>
<tr>
<td>3. <strong>Is it important to provide learners with a safe, controlled environment in which to learn?</strong></td>
<td>X</td>
</tr>
<tr>
<td>In resolving the skills/knowledge deficits in line handling evolutions, learners must practice to “install the rules for the task in the memory of the trainee by using the known teaching strategies and techniques of instructional technology: stimulus discrimination, eliciting responses, series of repetitions, fading of cues, feedback, practice exercises...” (Harless, 1986, p. 110). In addition, there is a potential for personal injury and/or property damage during line handling operations as noted in the four serious incidents at Sector San Juan within the last 12 months. Thus, learners require a safe and controlled environment in which to learn and make mistakes without unnecessary potential for bodily injury or unnecessary property damage.</td>
<td></td>
</tr>
<tr>
<td>4. <strong>Is there an expectation of interactive learning?</strong></td>
<td>X</td>
</tr>
<tr>
<td>Interactive learning including practice, coaching, and feedback supports increasing the skills/knowledge of watch standers in performing the task of line handling where situational characteristics are present including:</td>
<td></td>
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</table>
|   | Situational awareness  
Team work  
Quick and complex decisions  
Problem solving  
Standardized communications |
| Interactive learning is crucial to task performance as noted by AP #2 “Because I learned by doing and I learned from my mistakes and from the feedback of my watch supervisors. “(See Personal Interview with Exemplary Performer (AP) #2 on page 31). This emphasis on learning by doing, doing repetitively, and including a variety of situational characteristics in those task performances as mentioned above is also highlighted in the personal interview with the watch supervisor with the emphasis on task frequency as an important part of cutter line handler success when compared to pier-side line handler success (see page 27). |
| 5. Are people required to perform the task quickly and smoothly? | X |
| As noted above (Organizational Analysis) in the USCG’s Philosophy (Zukunft, 2014): “Situations evolve and we must adapt swiftly…” Performing an efficient execution of mooring a maritime vessel to securing it and ready the deck for activity both quickly and smoothly prevents marine casualties including injury and damage to USCG assets.  
In order to achieve a quick and smooth evolution, line handlers must draw on current and working skills/knowledge. As Harless (1986) explains, building a training implementation for recall may be preferred when the task “demands short latency between stimulus and response (must be performed rapidly)” (pp. 113-114). Therefore, there would/should be little if any time for line handlers to draw on an external repository of knowledge/information by referencing written/electronic materials or job-aids for guidance on task performance/completion without unnecessarily increasing the time involved in mooring the vessel, risk for personal injury, property damage, and/or unnecessary errors. |
| 6. Are people required to perform the task in situations that are unpredictable? | X |
| Line handlers perform mooring evolutions in dynamic conditions involving natural elements (weather and coastal environments), maritime vessels, deck conditions, and are among a team of individuals whose responsibility it is to moor a vessel without damage or injury. |
| 7. Does one or more of the following reasons for NOT relying on a job aid | X |
| The marine environment constitutes an environmental barrier to using a job aid. This may include windy, wet, slippery, and reduced visibility conditions. |
alone exist in the on-the-job environment:
- A physical barrier that makes it difficult to use a job aid on the job
- A social barrier that makes it difficult to use a job aid on the job

Additionally, the cultural importance placed on adherence to military standards represents an example of "a task in which employing a job aid would be embarrassing to the performer" (Harless, 1986, pp. 113-114). This emphasis on professional readiness and proficiency is noted above (Organizational Analysis) in the Commandant of the USCG's Direction and Philosophy: "we must strive to achieve the highest standards of readiness and proficiency" (Zukunft, 2016).

Reference: Stepich et al., 2015, pp. 8-9

Based on the information noted in the EPSS/Job Aid analysis above, Team USCG concludes that an EPSS/Job Aid would not be appropriate for watch standers in the completion of line handling tasks. Utilization of such tools would unnecessarily increase the potential for personal injury, property damage, and errors during task completion.

**Summary: State the case for training**

In summary, there is a clearly defined gap in the actual and desired watch stander performance of line handling duties. Current performance of watch standers has been identified as an average of 0.44 errors per evolution and desired performance at 0.00 errors per evolution through interviews and observations. Team USCG believes that eliminating this performance gap will contribute to the USCG’s strategic goals of minimizing risk, ensuring safety of its people, adhering to the highest standards of proficiency, minimizing property damage, and contributing to effective mission support.

Based on the BEM analysis and Job Aid/EPSS Analysis described above, Team USCG has established a need for training. Watch standers must acquire knowledge and skills to improve line handling performance. Line handling tasks are a well-choreographed 'dance' of people, equipment, procedures, cognitive processes, and standardized communications. Line handling tasks involve a number of nuanced psychomotor actions in response to numerous dynamic inputs resulting in complex and often subtle decisions based on factors such as current direction, size of the vessel, winds, etc. This requires the line handler to maintain a high level of situational awareness, work in a team environment, make quick and complex decisions, problem solve, and engage with others through standardized communications that at times can be complicated (Stepich, et al., 2015).

When exemplary performance is present, these individual and often invisible efforts culminate in a mooring operation that is free from error reducing the potential for risk, personal injury, and/or property damage. These tasks are performed in a dynamic environment that cannot easily or safely be stopped to reference a job aid for guidance in task completion. Thus, the knowledge necessary to complete line handling tasks must reside in the “head of the learner” and be available for immediate recall as opposed to being housed external to that learner in a job aid (Harless, 1986). Furthermore, the complexity of knowledge used in these subtle decisions and psychomotor actions made second-by-second by line handlers cannot be captured in whole nor supported through an external repository of knowledge or represented in a job aid alone.

The result is a need for line handlers to first be provided with the necessary information to perform these tasks and followed by the opportunity for practice where they will be provided feedback.
regarding errors and how they might correct for those errors in future line handling operations. Providing this feedback and correcting errors in real-time addresses those errors in the moment not allowing for cumulative failures, which not only unnecessarily increases the complexity of the task, results in frustration and ineffective learning, but also may be considered socially/cultural unacceptable in a standards-based military environment. Furthermore, this information cannot be provided to watch standers in the form of an external or assistive repository of information in the form of an EPSS/Job Aid. Using this tool to support watch stander knowledge would unnecessarily increase the potential for personal injury, property damage, and/or error.

By providing information, supervision, and feedback in a controlled and safe environment, not only will Sector San Juan be addressing concerns outlined in the Sector Houston’s Marine Alert and reduce the performance gap, but also improve the safety of personnel and equipment on the heels of significant infrastructure improvements and on the eve of new equipment delivery to the Sector.
References


https://www.uscg.mil/seniorleadership/

https://www.uscg.mil/seniorleadership/
Information

1. Are the roles and performance expectations for the Sector San Juan watch standers when line handling for the cutter clearly defined?

They have to follow the PQS, which has a line item about line handling. Also, as supervisors, we expect the line handlers to perform flawlessly; there is little room for error during mooring evolutions.

1A. Follow-up: The PQS only asks the watch stander to describe proper line handling procedures. Is there any performance based expectations before gaining their qualification?

I typically have my break-in (i.e. unqualified) watch standers watch a mooring evolution, then participate in the evolution under the supervision of the qualified watch stander and then I trust them to complete the task alone, whether they are qualified or not; as long as I know that they can adequately complete the task safely.

1B. Follow-up: Do all watch supervisors follow this practice? Is this the expectation?

No, there is no formal expectation. Other watch supervisors do it differently. Some think that you learn by doing, from your mistakes, which I disagree with, but it is their watch section, I can not tell them what to do.

2. Do you provide them relevant and frequent feedback about the adequacy of their performance to improve their performance and development?

Yes, I typically conduct a quick pre-brief and risk assessment and follow-up with a post-evolution debrief, regardless of the success of the evolution. I do not provide individual feedback or instruction unless I observe poor performance.

2A. Follow-up: Are all watch supervisors required to conduct a pre and post brief?

No, but as a cutterman, it is ingrained in me.

3. Are they provided relevant guides to describe their duties as line handlers? If yes, are they using it?

No, only the PQS. They learn by observing and eventually by doing.

Resources

1. Are the materials, tools and time needed to successfully handle lines provided?
Yes, the Sector has all the appropriate safety gear (hardhats and life jackets). Time is sometimes a concern, but only if we have multiple evolutions at one time OR the cutter does not give us adequate head up.

1A. Follow-up: Do the cutters typically give you a heads-up?

Yes, more times than not, they do. I understand that sometimes they have emergencies or there is a breakdown in communication with the Command Center.

2. Does the overall physical and psychological work environment contribute to improved performance? I.e., are the work conditions safe, clean, organized, and conducive to performance?

Especially during night evolutions, the line handlers can get really fatigued, but it rarely, if ever, affects their performance. We are Coasties, we are bred for this. The evolutions can be very complicated and hectic sometimes, especially in the rain or heavy winds or if the cutter has a casualty, but it is part of the job. However, it is tough to teach a new member in these complex and dynamic environments. I ensure that all of my watch standers wear the correct safety gear.

Incentives

1. What incentives do they have for performing well? Does this improve their performance?

No, not specifically for the task of line handling. If they perform in such a way that an accident is prevented, then I could write them a positive page 7.

Line handling is one of the many roles that the watch standers fulfill. Overall performance factors into their semi-annual evaluation, which affects their A-school of choice, their advancement or their next assignment.

I think they do the job well because we are in the military and they are required to do their job well. Also, we support the cutters and we all want them to moor safely.

2. What consequences are available for poor performance? Are you implementing these measures? Example?

If they perform poorly, then I could write them a negative page 7, but I would probably warn and counsel them first. Multiple negative page 7’s could lead to an admin board or performance probation, which could affect their chances at going to A-school or advancing or receiving an undesirable billet.

3. Is the overall work environment positive, where they believe they have an opportunity to succeed.

Yes, we support the cutters and we all want them to moor safely.

Knowledge / Skills

1. Do they have the necessary knowledge, experience and skills to do the desired
behaviors?
When they report from boot camp, they have limited experience, knowledge or skills with line handling. It is our job as watch supervisors to train them. Some of the rated members have previous experience and some of the non-rated members are on their second tour and have prior cutter experience.

1A. Follow-up: What is the estimated breakdown of experienced vs. non experienced folk?
I would say that 50% of the line handlers report from boot camp, 25% of the non-rates report from one of the cutters and have A LOT of experience and 25% of the rated members have minimal experience or have not done line handling for quite some time.

1B. Follow-up: How do you develop their knowledge, experience and skills of the line handlers?
I think I answered that earlier. One of the first questions.

1B1. Follow-up: So training is left to chance. Is it possible that a poor performing qualified member can teach a new member?
Yes, it is left up to chance. There are definitely qualified members signing off practical factors that are poor performing line handlers.

1C. Follow-up: Are the members who previously reported from a cutter performing better than the one's who didn't?
Yes, absolutely. They were trained on the cutter and performed that task frequently. Also, unlike the pier line handlers, the cutter line handlers have a separate qualification PQS specific to the line handling position. Though the requirements are different, they are able to take what they learned on the cutter and perform as a pier line handler.

2. Are the employees with the necessary knowledge, experience and skills properly placed to use and share what they know?
No, there is no thought into that stands watch with who. It is a consistent rotation, which always changes.

3. Are they cross-trained to understand each other's roles?
I typically ensure that the line handlers have performed both the bow and stern line in the pre-brief. If they haven't then I will have them try it and closely supervise them.

4. Is there a significant knowledge, experience or skill difference between your exemplary and poor performers?
Yes, the folks who come from the cutter get it and are the best performers. They have the experience, which trumps the "learning on the fly" system that we have. I have also noticed that the members who were trained by better watch standers perform better.
Capacity

1. **Do they have the capacity to learn and do what is needed to perform successfully?**
   Yes, they would not be able to graduate boot camp if they were not able to perform line-handling duties.

2. **Are they recruited and selected to match the realities of the work situation?**
   No, the watch schedule follows a rotation and the watch section becomes almost a random grouping of folks.

Motives

1. **What drives and motivates them? Is there a difference, in motivation, between your exemplary and poor performers?**
   The high potential for danger drives and motivates them. The exemplary performers are more driven because I think they have a better understanding of the potential dangers, maybe because they've personally experienced it.

2. **Are their motives aligned with the work and the work environment?**
   Yes, we all want the cutters to moor safely.

3. **Do they desire to perform the required jobs?**
   The exemplary performers enjoy handling lines. They enjoy the challenge. The poor performers do not. They are usually slower to respond because they typically do not enjoy handling lines and have no interest in cutters.

4. **Are they recruited and selected to match the realities of the work situation?**
   No, the watch schedule follows a rotation and the watch section becomes almost a random grouping of folks.
Personal Interview with Exemplary Performer #1

Information

1. Are your performance expectations as a Sector San Juan watch standers when line handling for the cutter clearly defined?

No, all we have is the PQS. I use the performance expectations that I previously had on the cutter to guide my performance on the pier. The new members are not even required to demonstrate proficiency before receiving the task “sign off”, all they have to do is describe how to properly handle mooring lines, which is very different than actually handling mooring line.

2. Do you receive relevant and frequent feedback about the adequacy of your performance? Do the supervisors attempt to professionally develop you?

We sometimes do evolution debriefs where the watch supervisor will provide feedback, but it is a rare occurrence and only specific to a one or two watch supervisors. Some of us experienced members will help train the members who are struggling, but we are not always paired up on the same watch.

3. Are you provided relevant guides to describe your duties as a line handler? If yes, are you using it?

Not for handling lines on the pier. I do not know of any specific guidance, besides the watch stander PQS that only requires us to “describe.” The cutter had a separate PQS for the line handling position.

Resources

1. Are the materials, tools and time needed to successfully handle lines provided?

Yes, everything is provided for us. The cutters sometimes surprise us, but we understand; it is not a common occurrence.

2. Does the overall physical and psychological work environment contribute to your improved performance? I.e., are the work conditions safe, clean, organized, and conducive to performance?

No, some of those evolutions can be sketchy; especially during adverse weather or at night. But these are mainly uncontrollable factors.

Incentives

1. What incentives do you have for performing well? Does this improve your performance?

I perform well because I want the cutter to moor safely. I do not want anyone, including myself, getting hurt. Also, if I perform well then I will get good performance marks and then I will be able to
Performance Analysis

2. What consequences are available for poor performance? Who is implementing them?
I guess I can get a negative page 7 if I mess up. And if I keep messing up, I guess they could put me on performance probation.

3. Is the overall work environment positive?; do you believe that you have an opportunity to succeed?
Yes, the adverse conditions sometimes make it hard to succeed,

Knowledge / Skills

1. Do you feel that you have the necessary knowledge, experience and skills to perform well?
Yes, I completed my line handler PQS on the cutter and had no problem transferring my skills to the pier. Also, we did some line handling in boot camp, but it was so long ago, but it did help me, but only a little when I got to the cutter.

2. Are you placed on a certain evolution or line based on your knowledge, experience and skills?
No, I line handle if a cutter needs to moor on my duty day.

3. Do you share your knowledge with your peers?
Yes, I make sure I share my experience with my peers. I make sure that I not only explain to new members how to properly line handle, but I show them. I walk through the evolution with them, on the actual pier. And everyone talks, so if someone messes up on an evolution, the committed mistake is typically talked about amongst us line handlers so we ensure that it is not repeated.

4. Do you cross-train to understand how to handle other lines? I.e. bow vs. stern line, large vs. small cutter, large pier vs. small pier?
Personally, I like changing it up, but it depends where the watch supervisor puts me.

5. Why do you perform better than the typical performer?
Probably because of my cutter experience. I had to go through the cutter line handler PQS, which is very thorough. I had to research how to do it first, then I practiced under the instruction of a supervisor, then I practiced it alone and then I performed during an actual evolution under instruction of a supervisor, then I did it alone during an actual evolution. I consistently revert back to that qualification process to assist me with handling lines for the cutters now.

Capacity

1. Do you feel that you have the capacity to learn and do what is needed to perform successfully?
Yes. Learning on the cutter developed my skills.

2. Are you recruited or selected to particular evolutions? I.e. more complex ones?
No, I line handle if a cutter needs to moor on my duty day.

3. Are you free of any emotional limitation that would interfere with your performance?
The evolutions get complicated and stressful at times, but I like the stress, it's healthy. I miss being on the cutter, this is as close as it gets.

Motives

1. What drives and motivates you to perform well?
When I was on the cutter, we collided with the pier and damaged the cutter. Doing my part to prevent this from happening is my motivation.

2. Is there a difference, in motivation, between you and a typical line handler?
I like working with the cutters, others do not, I think that is the major difference. We all want the cutter to moor safely though.

3. Do like or look forward to line handling for the cutters?
Yes, as a said earlier.
Personal Interview with Exemplary Performer (AP) #2

Information

1. Are your performance expectations as a Sector San Juan watch standers when line handling for the cutter clearly defined?
No, just the PQS. The PQS does not require us to perform the task, only talk about it. I learned how to line handle from line handling. I was immediately thrown into the role handling lines for the cutters without any prior knowledge or experience, but I learned from my own minor mistakes over the past 2 years.
The watch supervisors expect perfection from us, but I understand why, these evolutions are complicated and it can turn ugly fast.

2. Do you receive relevant and frequent feedback about the adequacy of your performance? Do the supervisors attempt to professionally develop you?
We debrief sometimes as a group, but not always. I received feedback from the watch supervisor after messing up back in the day.

3. Are you provided relevant guides to describe your duties as a line handler? If yes, are you using it?
No, only the PQS. I have heard some other watch standers talk about the PQS they had while they were on the cutter.

Resources

1. Are the materials, tools and time needed to successfully handle lines provided?
Yes, everything is provided for us. The cutters sometimes call in a panic and we need to rush, but it’s rare.

2. Does the overall physical and psychological work environment contribute to your improved performance? I.e., are the work conditions safe, clean, organized, and conducive to performance?
No, the prevailing conditions make it harder to perform well.

Incentives

1. What incentives do you have for performing well? Does this improve your performance?
I perform well because I want the cutter to moor safely. I do not want anyone, including myself, getting hurt. I want to go to Boatswain mate “A” school, so I perform well so I can get good marks and a recommendation to advance.
2. What consequences are available for poor performance? Who is implementing them?
I was verbally counseled by my watch supervisor a few years ago when I was new. He said that it could turn into a negative page 7, but luckily it never did. I was also yelled at a few times from the Cutter CO’s after messing up back in the day.

3. Is the overall work environment positive?; do you believe that you have an opportunity to succeed?
Yes, I learned from doing and luckily got away with a few minor mistakes like dropping the line in the water, getting the line snagged in the pier and not putting the line on the mooring properly. Trying to learn during actual evolutions adds A LOT of unnecessary stress. I wish I could have learned in a controlled environment.

Knowledge / Skills

1. Do you feel that you have the necessary knowledge, experience and skills to perform well?
Yes, I do now because I learned from my mistakes and by completing many, many evolutions. What I learned in boot camp wasn’t too helpful. I guess it gave me general knowledge.

2. Are you placed on a certain evolution or line based on your knowledge, experience and skills?
No, I line handle if a cutter needs to moor on my duty day.

3. Do you share your knowledge with your peers?
Yes, I always share my mistakes with my peers.

4. Do you cross-train to understand how to handle other lines? I.e. bow vs. stern line, large vs. small cutter, large pier vs. small pier?
No.

5. Why do you perform better than the typical performer?
Because I learned by doing and I learned from my mistakes and from the feedback of my watch supervisors.

Capacity

1. Do you feel that you have the capacity to learn and do what is needed to perform successfully?
Yes. It was tough to learn by making mistakes, but I eventually perfected my skills.
2. **Are you recruited or selected to particular evolutions? I.e. more complex ones?**

No, I line handle if a cutter needs to moor on my duty day.

3. **Are you free of any emotional limitation that would interfere with your performance?**

I used to get really nervous and anxious when I was new to line handling, especially at night and especially in off the dock winds. Again, I wish I could have been taught before being thrown into the fire – I think I would have been less stressed.

**Motives**

1. **What drives and motivates you to perform well?**

Doing my job well will get me to A-School and will keep the cutter from crashing.

2. **Is there a difference, in motivation, between you and a typical line handler?**

Yes, I like line handling with the cutters now; it is exciting and challenging. When I was new, I was motivated to master the skills, which luckily, I eventually did.

3. **Do like or look forward to line handling for the cutters?**

Yes, I do now that I have experience and am confident in my ability.
What qualities and performance skills do you expect of an exemplary line handler?

- I expect them to report to the pier on time.
- I expect them to arrive wearing the proper safety gear.
- I expect them to understand the difference between line 1, 2, 3 and 4.
- I expect to understand common commands like “put over,” “heads up on the pier” and etc. I expect them to acknowledge commands with proper phraseology.
- I expect them to prevent the mooring line from dipping into the water when they are pulling the heaving line to the pier.
- I expect them to put the mooring line on the bit or cleat AS QUICKLY AND SAFELY AS POSSIBLE, which means they can’t drop it in the water or drop it on the pier or get it caught on an obstruction. The time between when the line is thrown to the pier and when the line handler places the line on the bit or cleat is the MOST DANGEROUS part of the mooring evolution; we need quick action.
- I expect them to put the line on the bit or cleat the proper way so it doesn’t slip off or cause the cutter to surge or to be pulled uncontrollably to the pier.
- I expect them to recognize if the wind is on the dock or off the dock.
- I expect them to recognize the difference in weight between a wet and dry mooring line.
- I expect them to know how to properly dip the line when we are doubling up our lines.
- I expect them to know when to let go of a line and let it fall, even into the water, if the cutter can not control its movements; I don’t want them to get hurt.

Can you provide an example of an experience where the pier line handler really helped the cutter out and possibly prevented an accident?

Yes, after experiencing an engine casualty, we were forced to moor the cutter with one engine. Luck have it, the winds were intense and were “off the pier.” We needed the lines put on quickly and the line handlers were able to grab the heaving line after my cutter line handler made a bad throw and was able to pull the mooring line quite the distance while avoiding obstructions and quickly affix it to the pier.

Can you provide an example of poor performance that you have witnessed?

Yes
- Arriving to the pier 20 minutes late after having advance notice.
- Dropping the line in the water.
- Not grabbing the heaving line after a perfect throw by the cutter line handler
- Getting the line caught on a pier fender
- Getting the line caught on the pier power box
- Falling over while pulling the line
- Pulling the line at a low angle that causes the line to drag on the concrete pier.
- Not properly putting the line on the cleat/bit
- Not dipping the line when doubling up lines.
Learner Analysis

Line Handling for Sector San Juan Watch Standers in Calm and Daytime Conditions

Introduction

Sector San Juan’s daily watch standers are critical to the safety and security of the unit. Members stand a 24-hour duty or ‘watch’ and provide a variety of logistical needs and services to maintain operations. Some of the duties of a watch stander include: providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line-handling assistance to the cutters.

The focus of this learner analysis is on the watch standers who perform mooring evolutions with the term watch stander referring to line handlers when they are working in that capacity. Each line handler is expected to be proficient in handling cutter heaving and mooring lines from the pier. Each line handler can be called upon to participate in a cutter mooring evolution from the pier at any time that they are on watch with each watch stander usually standing watch approximately once per week.

This training will focus on the performance of the line handlers in calm daytime conditions.

Brief Description of the Learners

The target audience for this training are the daily Sector San Juan watch standers who handle lines for cutter mooring evolutions from the pier and do NOT possess a previous cutter line handling qualification within the last 2 years. The 2-year limitation was established following a Watch Section Supervisor interview and our team’s performance observations. During this interview and observations, the Sector San Juan watch standers line handlers who possessed a cutter line handling qualification within the last 2 years were found to meet exemplary performance levels. Therefore, they are excluded from this training’s target audience.

All Sector San Juan line handlers are high school graduates who attended the United States Coast Guard’s (USCG) 8-week boot camp. At boot camp, they were taught general line handling knowledge and skills. Subsequently, they enter this training with the following prerequisite skills:

- Basic familiarity and prior experience with handling lines for a general cutter mooring evolution (from the cutter’s perspective, not the pier’s). Knowledge includes: basic line handling techniques, commands, and line placement (in relation to cutter and pier).
- Mooring and heaving line handling experience in a controlled facility/environment and not with an actual cutter or at an actual pier (e.g. previous experience is void of any environmental conditions and actual communications with a cutter.) Experience includes: practice in tying heaving lines to a mooring line’s eye, throwing heaving lines, and tending mooring lines on a replica of a cutter’s attachment structure (bits, chocks and cleats). Experience does NOT include practice in receiving, handling or affixing heaving or mooring lines from a pier.
Experience with personal protective equipment (i.e. hard toes boots, life jackets and hard hats) required for the evolution and mastery in donning them.

The population of Sector San Juan line handlers is composed of several different sub-groups based on rank and line handling experience:

- **50%** of the population are non-rated personnel (rank E-3 and below) who reported to Sector San Juan immediately after graduating boot camp. **No members of this group** have received additional line handling training or experience after boot camp. **Furthermore, a majority (75%)** of this group desire to be stationed on a Coast Guard cutter in the future and want to master their line handling skills. This group is included within the target population due to their lack of prior qualification.

- **25%** of the population are non-rated personnel (rank E3 and below) who previously served on a Coast Guard cutter homeported in San Juan before transferring to Sector San Juan. All members of this group qualified as line handlers **on their cutter** after completing a thorough structured on-the-job training process. **This group is NOT included within the target population due to their recent cutter line handling qualification.** These members will be made available to support instructors in the execution of the training.

- **25%** of the population are rated personnel (E4 and E5) whose primary duties are administrative in nature. **Half of this group** previously qualified as a line handler on a cutter within the last two years. Therefore, the group that previously qualified more than 2 years ago or have never qualified are included in the target population.

All Sector San Juan line handlers have demonstrated enthusiasm during line handling evolutions and expressed motivation in wanting to performing well and ensure the success of the evolution. **All members of the target audience** try to perform well to receive high performance evaluations marks and further advance their career. **75% of the target audience has expressed personal satisfaction in completing this task.**

All Sector San Juan line handlers are confident in handling cutter mooring lines during evolutions in calm and daytime conditions.

All members of the target audience prefer an on-the-job instructional format as opposed to a classroom instruction or a self-directed learning format. The watch section supervisor reported during an interview that **all of the line handlers** who previously qualified as a line handler on a cutter performed better than the members who had not received any additional training. The team’s also validated this trend through additional data collection.

### Sources and Methods

<table>
<thead>
<tr>
<th>Data Sources</th>
<th>Data Collection Method(s)</th>
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<tbody>
<tr>
<td>Watch Section Supervisor</td>
<td>Team USCG conducted a 15-minute semi-structured interview with a Sector San Juan Watch Section Supervisor on 17 February 2016.</td>
</tr>
<tr>
<td>Accomplished Performer (AP) #1</td>
<td>Team USCG conducted a 15-minute semi-structured interview with an AP #1 on 17 February 2016.</td>
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<tr>
<td>AP #2</td>
<td>Team USCG conducted a 15-minute semi-structured interview</td>
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with an AP #2 on 17 February 2016.

<table>
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<tr>
<th>Group of 4 Cutter Commanding Officers and 4 Watch Section Supervisors</th>
<th>Team USCG conducted a short unstructured group interview with a group of 8 SMEs (4 Cutter Commanding Officers and 4 Watch Section Supervisors) on 16 February 2016.</th>
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<td>Group of 12 Sector watch standers (sample of entire population)</td>
<td>Team USCG conducted a short informal interview with a group of 12 Sector watch standers (all rates included) on 17 February 2016 with a follow-up interview on 29 February 2016.</td>
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<tr>
<td>Group of 7 Sector watch standers (sample of target audience)</td>
<td>Team USCG conducted a short informal interview with a group of 7 Sector watch standers (only E3 and below with no additional line handling experience) on 17 February 2016.</td>
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<tr>
<td>Line Handlers</td>
<td>Team USCG conducted four observations of cutter mooring operations from 15-18 February 2016.</td>
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**Data-Gathering Instruments**

*Semi-structured interview:* Semi-structured interviews were conducted with the Sector San Juan Watch Section Supervisor as well as AP #1 and #2 to gather data on watch stander behaviors, skill levels, attitudes, knowledge gained from previous training (boot camp and cutter), and training preferences.

*Informal interviews:* Short group informal interviews were conducted with Sector San Juan watch standers (all rates and varied experience levels) to gather data on watch stander behaviors, skill levels, attitudes, knowledge gained from previous training (boot camp and cutter), and training preferences.

A short group informal interview was also conducted with cutter Commanding Officers and Watch Section supervisors to develop a list of errors that a line handler could make:

**A. Mishandling of line**
1. Dropping mooring or heaving line on the pier while handling
2. Dropping mooring or heaving line in the water while handling
3. Getting the mooring or heaving line snagged/hooked on an obstruction
4. Improper pulling technique causing mooring line to drag in water or rub on the pier
5. Misidentification of mooring line weight when dry/wet.
6. Placing knuckles between mooring line and pier attachment
7. Getting struck by heaving line ball

**B. Improper attachment of line to pier attachment**
1. Causing line to slip off attachment
2. Causing line to surge
3. Improper dipping of line

**C. Communication errors**
1. Walking towards the bow when line 4 is called over
2. Walking towards the stern when line 1 is called over
3. Walking towards the bow when line 2 is called over
4. Walking towards the stern when line 3 is called over
5. Not responding to command “Heads up on the pier”
6. Not responding to command to “Release” line
During this interview, this group also estimated the average error per evolution rate for line handlers.

**Observations:** Observations were conducted of 4 separate mooring evolutions at Sector San Juan to gather data on watch stander behaviors and attitudes. This involved use of an observation protocol, which defined who we were observing, when we were observing them and for how long, what we were looking for, and the particular location of the observation. During the observations, we identified various errors committed by the watch standers useful in the instructional design process.

**Findings and Implications:**

Data collected through interviews and observations provided information about specific learner characteristics and relevant instructional implications:

**Relevant Skills:**

<table>
<thead>
<tr>
<th>Learner Characteristic</th>
<th>Findings: What you found out about each characteristic</th>
<th>Data Source/Method: List a data source/method for each finding</th>
<th>Instructional Implications: Ideas for the instruction in the form of “therefore” statements</th>
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</table>
| **Prior Knowledge:** Prior line handling knowledge and skills from boot camp | 100% of the population graduated from high school and attended USCG boot camp. | Semi-structured interviews of AP#1 and AP#2 Semi-structured interview of Watch Section Supervisor Informal group interview of 12 Sector San Juan line handlers | The learners have prior knowledge and experience from boot camp with handling heaving and mooring lines from the cutter and the general communication during the evolution. **Therefore,** in the training, we will:  
  - **Activate** prior knowledge with flipped classroom exercise prior to structured on-the-job training. The flipped training will focus on the similarities between cutter and pier-side line handling and the potential hazards (e.g. loss of life, severe injury and property damage) that can accompany failed evolutions.  
  - **Activate** prior knowledge with quick initial group discussion prior to structured on the job training (at the pier) highlighting importance of evolution and introducing importance of developing mastery in psychomotor and communication |
• **Activate** prior learner knowledge and attention by viewing a **demonstration** at the pier from the exemplary performers illuminating the similarities and emphasizing the differences between handing lines from the cutter and handling lines from the pier.

• Build on prior knowledge and prerequisite skills. A key factor in designing a realistic line handling **demonstration** is highlighting relevant differences in the performance environment between boot camp and Sector San Juan. Differences between the two environments include: pier construction (finger piers vs. non-finger piers), layout [bollard vs. cleats], typical weather conditions (wind, seas, currents), etc.

• Discuss and reflect upon the newly mastered skills in the final group discussion, which will consolidate learning and allow learners to **integrate** knowledge/skills in the workplace.

| Prior Knowledge: Prior line handling knowledge and skills from prior cutter experience | 37.5% of the population previously qualified as a line handler on a Coast Guard cutter within the last 2 years. Note 1: This group is not included within the target audience. Note 2: From the SME interviews, this group is considered to be the exemplary |
| Semi-structured interviews of AP#1 and AP#2 Semi-structured interview with Watch Section Supervisor Informal group interview of 12 Sector San Juan line handlers |
| Therefore, during training, we will utilize these exemplary performers to: |
| • **Demonstrate** the proper process of line handling for Sector San Juan cutters at a Sector San Juan pier. |
| • Provide mentoring, coaching and feedback during the practice scenarios and **application** phase. |
| • Share their dual perspective (cutter and pier) experiences to improve substance of the final group discussion during the **integration** phase. |
Targeted Skills: Nuanced psychomotor skills

Major Tasks:

1. Receive the heaving and mooring line
2. Handle the mooring line
3. Affix the mooring line

Therefore, in the training, we will:

• Develop mastery of psychomotor skills by creating numerous realistic, "problem centered" practice problems that vary and increase in difficulty during the application phase (on-the-pier session). For example, though focused on calm weather and daytime conditions, learners will begin training with a simple evolution (e.g. flawless heaving line toss, no pier obstructions, no line tension issues, etc.) and progress to a complex evolution (e.g. poor heaving line toss, obstructions on pier, heavy tension issues, etc.).

The major tasks are deemed critical due to the threat of injury to the line handler and property damage to the cutter/pier if lines are mishandled (e.g. dropping mooring line in water, getting mooring line snagged on obstruction, improperly affixing line causing it to snap off affixment structure, etc.). Considered a necessity for line handlers, nuanced psychomotor actions and decision-making in response to numerous dynamic inputs (other individuals, large cutter, communications, the environment, etc.) are complex and difficult.

Targeted Skills: Communication skills

Sub-tasks:

Walking towards correct location of pier when line called over

Releasing line when

Therefore, in the training, we will:

• Develop mastery of communication skills by creating numerous realistic, "problem centered" practice problems that vary and increase in difficulty during the application phase (on-the-pier session). For example, by focusing on calm weather and daytime conditions, we can start with simple evolutions (e.g. correct line number called out
Relevant Contextual Factors:

**Orienting Context: Motivation & Attitude**

| 100% of the population express motivation in performing well to ensure the success of the evolution. They want the evolution to be successful (0% error rate, no injuries, and no property damage to cutter or Sector infrastructure). |
| Informal interview with 12 Sector San Juan line handlers. |
| Semi-structured interview with AP #1 and AP#2 |
| Therefore, in the training, we will: |
| • **Activate** and reinforce the learner’s motivation and strong desire to succeed in the evolution by highlighting and reemphasizing the potential dangers of the evolution and how their skills can apply to their future career assignments as part of introductory content in the individual self-study portion of a flipped classroom approach as well as briefly re-emphasized during the short initial group discussion. Including this information as part of the short group discussion in the on-the-pier training session will reinforce the knowledge gained in |

commanded

Notifying cutter when line or affixment structure is obstructed

committed an average of 2 errors in 4 evolutions (0.5 errors per evolution); errors attributed to nuanced psychomotor skills and/or communication skills.

Watch Section Supervisor

Semi-structured interviews of AP #1 and AP#2

when thrown, proper command given prior to tossing heaving line, and clear guidance provided regarding line placement, etc.) and increase to complex evolutions (e.g. incorrect line number called out when thrown, no commands given before tossing heaving line, no task direction given for line placement, etc.)

The major tasks are deemed critical due to the threat of injury to the line handler and property damage to the cutter/pier if communications are mishandled (e.g. not being attentive when hearing “heads up on the pier” or not “releasing” line when commanded by cutter, not speaking up when line or affixment structure is obstructed, etc). Considered a necessity for line handlers, communication skills and decision-making in response to numerous dynamic inputs (other individuals, large cutter, nuanced psychomotor skills, the environment, etc.) are complex and difficult.
population desire to be stationed on a Coast Guard cutter in the future and want to master their line handling skills.

100% of the population try to perform well to receive high performance evaluations marks and further advance their career.

Orienting Context: Satisfaction

75% of the learners state that they enjoy performing line handling.

100% of the population demonstrated enthusiasm during the line handling evolution.

Orienting Context: Confidence

All Sector San Juan line handlers are confident in

the flipped classroom delivery.

- **Activate** and include examples of mishaps that have resulted in serious damage and injury in the individual self-study portion of the flipped classroom approach. To make this relevant to line handling at Sector San Juan highlight present worth and future usefulness examples of recent incidents/accidents at Sector San Juan and the expensiveness of the Fast Response Cutters and the recent construction at Sector San Juan.

- **Demonstrate** and **apply** interactive, challenging, and stimulating practice scenarios that vary and increase in difficulty, maintaining the learner’s high level of motivation and positive attitude during the in-person on-the-pier training session.

- Discuss and reflect on the training in the final group discussion during the on-the-pier training session, which will allow learners to continue to **integrate** high levels of motivation and a positive attitude in the workplace.

<table>
<thead>
<tr>
<th>Orienting Context: Satisfaction</th>
<th>Observation of line handling evolutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>75% of the learners state that they enjoy performing line handling.</td>
<td></td>
</tr>
<tr>
<td>100% of the population demonstrated enthusiasm during the line handling evolution.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orienting Context: Confidence</th>
<th>Informal interview with 12 Sector San Juan line handlers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sector San Juan line handlers are confident in</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Therefore during training we will:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintain learner’s confidence and attention levels by focusing the</strong></td>
</tr>
</tbody>
</table>

• Design interactive, challenging, and stimulating practice application scenarios that vary and increase in difficulty, which will motivate learners by providing an opportunity to achieve satisfaction through natural consequences and positive outcomes as part of the on-the-pier training session.

• Discuss and reflect the training in the final group discussion during the on-the-pier training session, which will allow learners to continue to integrate high levels of satisfaction in the workplace.
| handling cutter mooring lines during evolutions in calm and daytime conditions. |
| handlers. Semi-structured interview with Watch Section supervisor |
| demonstration and application phases in conditions that are comfortable working in (e.g. calm and daytime). |
| • Improve their confidence levels by varying and increasing the difficulty of the practice scenarios. Start with simple evolutions and progress towards complicated evolutions. |
| • Provide feedback and mentorship during the application of line handling and communication skills with a slow removal of that guidance from the instructors and on-site exemplary performers (e.g. shaping) until mastery is achieved. |
| • Discuss and reflect on the training in the final group discussion. This will allow learners to continue to integrate their high levels of confidence gained during basic evolutions including calm and daytime conditions and transfer this confidence towards more complex evolutions involving nighttime and rough conditions. |

**Instructional and Transfer Context:**

**Delivery Preference**

100% of the target audience prefers an on-the-job instruction format than a classroom instruction format or a self-directed learning format. The interviewed watch section supervisor reports that all members of the target audience that completed a structured on-the-job training process on the cutter perform better than the members who had not received

| Informal interview with 12 Sector San Juan line handlers. Semi-structured interview with AP#1 and AP#2 |
| Informal interview with 12 Sector San Juan line handlers. Semi-structured interview with AP#1 and AP#2 |

**Therefore** during training we will:

• Use Merrill’s First Principles of Instruction as a basic framework for structuring on-the-job training including:

  **TELL:** Tell the learners why they must perform well.
  **ASK:** Ask the learners what they know.
  **SHOW:** Show the learners how to perform well.
  **DO:** Have the learners do the task until they perform well
  **REFLECT:** Reflect upon how and why they performed and emphasize the necessity of exemplary performance.
any additional training.

**Both** exemplary performers (AP #1 and AP #2) interviewed at the Sector served on a San Juan cutter before transferring to the Sector.

| Though learner preferences are not a primary concern of Team USCG in the instructional design process, utilizing a hybrid (flipped classroom/structured on-the-job) approach will not only meet the needs of the performance gap, but also satisfy some of the learner’s preferences. The flipped classroom approach in this context will include a short **activation** and **demonstration** phase as part of an individual self-study portion containing, but not limited to, written content, PowerPoint presentation, e-learning, and/or video. Then, at the structured on-the-job training, there will be a small group discussion (while on-the-pier) followed by the demonstration phase in which learners will observe a mooring evolution performed by exemplary performers. The training will then transition to an **application** phase (practice with feedback/guidance) followed by an **integration** phase (discussion, reflection) as the learners begin to master the nuanced psychomotor and communication skills necessary to perform at a high level after training. |
# Mode of Delivery

<table>
<thead>
<tr>
<th>Delivery Mode (select one or more)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured on-the-job training</td>
<td>Structured on-the-job training has proven to work with the learners who previously served on a USCG cutter. This performance-focused learning format will allow the learners to discuss, observe, and practice mooring evolutions in a safe and controlled, but realistic environment aiding the learner’s transfer of knowledge at the conclusion of the training. During the training, the instructors and on-site exemplary performers will provide guidance through immediate feedback (both positive and negative) when nuanced psychomotor actions and communication are required as a part of decision making process. This will not only increase the learner’s confidence level, but also allow the learners to do the actual task that they are being trained to do. This will also support transfer of knowledge and ultimately help develop knowledge and skill mastery.</td>
</tr>
</tbody>
</table>
| Flipped Classroom Approach         | In flipped classroom learning, watch standers will be provided access to detailed task-specific content formatted in one of the following ways: written, PowerPoint presentation, e-learning, and/or video. The learner will engage with this content independently. By using this instructional delivery method, Team USCG can activate the learner’s prior knowledge from boot camp and highlight the importance of a successful evolution as well as the potential dangers of a failed evolution. In addition, the learner will be introduced to a basic demonstration of a typical mooring operation in calm and daytime conditions.  

This will be followed by a in-person on-the-pier session where learners will again engage in a short activation and demonstration phase where they will observe a typical mooring evolution from the pier at Sector San Juan performed by exemplary performers highlighting that which is complex, difficult, and/or confusing. This will be followed by application (practice) and integration phases where learners will receive guidance, feedback, and work towards task mastery.  

The flipped learning delivery method is beneficial in several ways. It reduces the amount of in-person on-the-pier time spent by instructors on reviewing basic knowledge from boot camp and introducing new terminology and steps of a basic mooring evolution. Instead, this time will be spent practicing application of knowledge/skills under guidance of exemplary performers. In addition, this method will allow Team USCG to standardize the information provided to the target audience, remove the possibility of variations/errors in presentation of information by instructors/exemplary performers, and address the desire of the target audience for and previous success with an on-the-job structured training component. |
Task Analysis

Descriptive Title for the Project
Line Handling for Watch Standers

Introduction
The Sector San Juan daily watch standers are critical to the safety and security of the unit. Members stand a 24-hour duty or ‘watch’ and provide a variety of logistical needs and services to maintain operations. Some of the duties of a watch stander include: providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line-handling assistance to the cutters.

The focus of this task analysis is on the line handling performance of watch standers during mooring evolutions. Watch standers are referred to as line handlers when they are working in that capacity.

Method, Rationale, and Data Sources

<table>
<thead>
<tr>
<th>Selected Task Analysis Method</th>
<th>Rationale</th>
<th>Data</th>
</tr>
</thead>
</table>
| Procedural task analysis with simple decision tables | This task analysis:  
• Uses observed and discussed exemplary performance on-the-job as a benchmark to be achieved by all line handlers.  
• Consists of a set of observable tasks that are supplemented with simple (if/then) decision-making tables to assist line handlers in their decision-making processes while performing their duties. | • Interviews of accomplished performers (AP): (2 line handlers)  
• Interview of subject matter experts (SME): (1 cutter commanding officer and 1 watch section supervisor)  
• Unstructured group interview with 4 cutter commanding officers and 4 watch section supervisors  
• Observations of AP performance during task completion  
• Pictures of pier and line handling equipment |

(Villachica, 2016, p.1)
Task Analysis Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

Task Characteristics
The line handling process involves activities, tasks, and decisions that result in mooring a cutter safely to a pier with minimal errors (e.g. average 0.1 errors per evolution rate) and no personnel injury or property damage.

The Big Picture
What happens on-the-job that tells you that line handlers experience errors in line handling?

- From an unstructured group interview of 4 cutter commanding officers and 4 watch section supervisors, the group discussed and identified the following list of errors that they commonly observe line handlers commit:
  
  A. Mishandling of line
     1. Dropping mooring or heaving line on the pier while handling
     2. Dropping mooring or heaving line in the water while handling
     3. Getting the mooring or heaving line snagged/hooked on an obstruction
     4. Improper pulling technique causing mooring line to drag in water or rub on the pier
     5. Misidentification of mooring line weight when dry/wet.
     6. Placing knuckles between mooring line and pier attachment
     7. Getting struck by heaving line ball
  
  B. Improper attachment of line to pier attachment
     1. Causing line to slip off attachment
     2. Causing line to surge
     3. Improper dipping of line
  
  C. Communication errors
     1. Walking towards the bow when line 4 is called over
     2. Walking towards the stern when line 1 is called over
     3. Walking towards the bow when line 2 is called over
     4. Walking towards the stern when line 3 is called over
     5. Not responding to command “Heads up on the pier”
     6. Not responding to command to “Release” line

How often do line handlers need to do complete this task?
On average, line handlers perform at least one line handling evolution per watch, which occurs on average once a week.

How hard is line handling relative to other tasks that they complete on watch?
From the AP and SME interviews, line handling is the most difficult task that Sector watch standers experience on a typical watch.

What happens if there are errors in the line handling?
- Potential or actual damage to United States Coast Guard (USCG) cutters.
- Potential or actual damage to the Sector San Juan infrastructure (pier and associated equipment).
- Potential or actual injury or fatality of USCG personnel.
What do line handlers need in order to limit the errors they commit while handling lines?

- The cutter to maneuver close enough to send over mooring and heaving line.
- The cutter personnel to successfully throw the heaving line to the pier and to successfully attach the mooring line to the heaving line.
- Properly maintained pier with unobstructed pier attachments (cleats and bollards).
- Nuanced psychomotor skills involving handling heaving and mooring lines and affixing mooring lines.
- Identification of proper line handling commands from cutter personnel.
- Requesting additional guidance from cutter or watch section supervisor when in need of assistance.

Assumptions

This task analysis makes several assumptions related to the prerequisite skills of the target audience. These prerequisite knowledge/skills are key for this task analysis.

From boot camp, each learner gains familiarity with a basic cutter mooring evolution and with that learns:

- Basic line handling techniques (i.e. hand over hand, avoiding heaving line, grabbing and holding mooring line)
- Basic line handing terminology (i.e. heaving line, mooring line, eye of line, stem of line, bit, cleat and etc.)
- Commands (i.e. “Heads up on the pier,” “Put over,” “Release” and etc.)
- Line placement in relation to cutter and pier (i.e. Line 1 corresponds to cutter’s bow, Line 2 runs from bow to stern, Line 3 runs stern to bow and Line 4 corresponds to stern)
- Donning methods of personal protective equipment (i.e. hard hat, life jacket, hard toed boots)

At boot camp, the learners practice and simulate in a controlled facility with no actual cutter or pier:

- Line-handling evolutions focused on the cutter’s aspect of the evolution not the pier’s
- Tying heaving lines to mooring lines
- Throwing heaving lines
- Tending mooring lines that are attached to a replica of a cutter’s attachment structures (bits, chocks and cleats)
- Donning of personal protective equipment

At boot camp, learners do not practice receiving, handling or affixing lines from the pier.

Major Tasks as Part of a Mooring Operation

<table>
<thead>
<tr>
<th>Task Characteristic</th>
<th>Description</th>
</tr>
</thead>
</table>
| Major tasks         | 1. Receive the line  
|                     | 2. Handle the line  
|                     | 3. Affix the line  |
| Goals for each major task | 1. Receive the line  
|                         | Organizational Goals:  
<p>|                         | Cutter and watch standers are in position to start the mooring |</p>
<table>
<thead>
<tr>
<th>Task Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>and line handling evolution. No personnel injury or property damage while line is in transit.</td>
</tr>
<tr>
<td></td>
<td><strong>Individual Goals:</strong> Receive heaving line and pull excess line until mooring line is in hand. Commit no errors and have no personnel injuries while receiving line.</td>
</tr>
</tbody>
</table>

2. **Handle the line**

Organizational Goals: No personnel injury or property damage while line is in being handled.

Individual Goals: Commit no errors and have no personnel injuries or property damage.

3. **Affix the line**

Organizational Goals: Cutter is safely and securely moored to pier without personnel injuries or property damage.

Individual Goals: Commit no errors while placing the line to pier attachment and have no personnel injuries or property damage.

### Cues

1. **Receive the line**
   - Observe pier is clear of obstructions.
   - Instructed by cutter or watch section supervisor when heaving line will be thrown.
   - Observing the cutter personnel throw heaving line from the cutter to the pier
   - Observing the heaving line ball hit the pier before moving to handle it.
   - After receiving heaving line, pull excess line until mooring line can be recovered.
   - Focus attention on the strain of the heaving line to determine if it is obstructed.

2. **Handle the line**
   - After receiving mooring line, identify if it is dry or wet.
   - Focus attention on the strain of the mooring line to determine if it is obstructed.
   - Instructed by cutter personnel regarding the specific location to affix the line.

3. **Affix the line**
   - Observe pier attachment is clear of obstructions.
Task Analysis Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

<table>
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<tr>
<th>Task Characteristic</th>
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</tr>
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<tbody>
<tr>
<td>Focus attention on the strain of the mooring line to determine if it is obstructed.</td>
<td></td>
</tr>
</tbody>
</table>

Resources
Exemplary performers:
- Receive and handle heaving and mooring lines while committing no errors
- Identify pier and pier attachment obstructions and inform cutter
- Identify and follow commands issued by cutter
- Use pier attachments (cleats, bollards) while committing no errors.

Standards that the completed task should meet
The task has been completed correctly when:
- Heaving and mooring lines are retrieved and placed on pier attachment with minimal errors (e.g. average of 0.1 errors per evolution rate)
- Cutter is safely and securely moored to pier
- No personnel injuries occur.
- No sustained damage to pier.
- No sustained damage to cutter.

Prerequisite skills
- Graduate of Coast Guard boot camp
- See to Assumptions Section above

Focus
To limit the duration of the training to no more than 3 hours, Team USCG focused on three major tasks and simulated the beginning and end of the entire evolution to limit the scope of the training:
- Receive the mooring line
- Handle the line
- Affix the line

Simulate beginning of evolution:
- We are beginning the task analysis when the line handlers are already in position on the pier and are waiting for the cutter to begin the mooring process.

Simulate end of evolution:
- We are ending the evolution after the line handler affixes one mooring line to the appropriate cleat/bollard. The entire mooring evolution will not be completed as they typically affix four lines and then double each line up.

Completed Task Analysis
Note 1: None of these tasks or sub-tasks can be completed with the use of a EPSS/job aid, as they require nuanced psychomotor skills that must be practiced until mastery is achieved.

Note 2: Green highlighting represents tasks that line handlers should be able to perform using their prior knowledge obtained in USCG boot camp.

Note 3: All three tasks, which are bolded, are considered critical tasks and will be addressed in the training.
1.0 Receive the mooring line

1.1 Avoid incoming heaving line and ball.

Note: You will hear the Cutter supervisor order its line handler to “put over line X). Then, you will hear the line handler call out “heads up on the pier” before throwing heaving line.

Caution: Avoid the heaving line ball that is thrown from the cutter as they travel at a high rate of speed and can injure you if they strike you. This is the major reason why the USCG requires you to wear proper PPE while line handling.

Hot tip: If handling lines alone, start walking towards bow of cutter, in anticipation, if line 1 or 3 are called over and start walking towards stern, in anticipation, if line 2 or 4 are called over.

1.2 Briskly walk towards the closest section of the heaving line.

Hot tip: Wait for heaving line ball to hit the pier before walking towards it to recover.

1.3 Recover the heaving line.

1.3.1 Grab the heaving line with both hands.

<table>
<thead>
<tr>
<th>If a heaving line</th>
<th>Then</th>
<th>And you should</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separates from mooring line</td>
<td>Pull in heaving line as quickly as possible</td>
<td>Wait for another heaving line to be passed by cutter. Repeat Task 1.1.</td>
</tr>
<tr>
<td>Does not reach the pier or cannot be recovered</td>
<td>Wait for another heaving line to be passed</td>
<td>Repeat Task 1.1.</td>
</tr>
</tbody>
</table>
1.3.2 Lift heaving line to waist level.
1.3.3 Pull in heaving line.

*Hot tip: Use hand over hand technique to pull in heaving line.*

1.3.3.1 Remove all slack in heaving line until line is taught.
1.3.3.2 Pull heaving line and attached mooring line until it becomes close enough to grab the eye of the mooring line.

*Hot tip: You will need to pull quick and hard to ensure the line does not fall into the water. A wet line is heavier and is harder to pull and maneuver!*

2.0. Handle the mooring line

2.1. Transition both hands from heaving line to the eye of mooring line.
2.1.1 Maintain positive control of the eye of the mooring line at all times.
2.1.2 Move one hand at a time from heaving line to the eye of the mooring line.

2.2. Hold eye of mooring line with both hands.

2.2.1 Determine if mooring line is wet or dry

<table>
<thead>
<tr>
<th>If the eye of the mooring line</th>
<th>Then</th>
<th>And you should</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is dry to the touch</td>
<td>Look to see if remainder of mooring line is submerged in water</td>
<td>If rest of mooring is NOT submerged, then use normal amount of force in task 2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If rest of mooring line is submerged in water, then use additional force in task 2.3.</td>
</tr>
<tr>
<td>Is wet to the touch</td>
<td>Treat line as wet</td>
<td>Use additional force in task 2.3.</td>
</tr>
</tbody>
</table>
2.3 Lift mooring line to waist level while bending at the knees.

Caution: Mooring lines vary in size, weight (especially if it is wet) and length. Therefore, bend your knees and avoid lifting with your back to prevent injury.

2.4 Determine tension of mooring line.

<table>
<thead>
<tr>
<th>If a mooring line</th>
<th>Then</th>
<th>And you should</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is under heavy tension (force greater than a firm handshake)</td>
<td>Check to see if it is snagged on the pier</td>
<td>If <strong>snagged to the pier</strong>, slack the line enough to release it from obstruction. Proceed with evolution. OR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If <strong>not snagged to the pier</strong>, immediately notify the cutter and watch section supervisor, release the line, stop the evolution, and await instruction.</td>
</tr>
<tr>
<td>Is not under heavy tension (force equal to or less than a firm handshake)</td>
<td>Maintain your two handed grip with consistency of firm handshake</td>
<td>Proceed to next step.</td>
</tr>
</tbody>
</table>

Caution: Cutters use engines to reposition the ship during the evolution, which can cause the line to be put under heavy tension and snap. This can cause you serious injury.

2.5 Briskly walk mooring line to pre-determined cleat or bollard.

Caution: Do not run to prevent tripping or falling; instead, walk at a brisk pace.

2.5.1 Identify cutter’s desired location of mooring line via voice communication

Note: Cutter will pre-determine where the mooring line needs to go and pass that directly to you through voice communications.

<table>
<thead>
<tr>
<th>If pre-determined location</th>
<th>Then</th>
<th>And you should</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is not determined</td>
<td>Attempt to get cutter’s attention and request line placement location.</td>
<td>If cutter <strong>does not respond</strong>, walk the line to the closest cleat or bollard and proceed to task 3.0. If cutter <strong>responds</strong>, follow their direction and proceed to task 3.0.</td>
</tr>
<tr>
<td>Is obstructed</td>
<td>Immediately notify cutter and watch section supervisor</td>
<td>Walk the line to the closest cleat or bollard that is accessible. Begin task 3.0.</td>
</tr>
</tbody>
</table>
3.0 Affix mooring line to pier (cleat or bollard).

3.1 Stand behind pre-determined cleat or bollard with both hands on the mooring line eye.

⚠️ Caution: Maintain a safe distance from the cleat and/or bollard to avoid tripping on or snagging your clothing.

3.1.1 Bend knees.

⚠️ Caution: Mooring lines vary in size, weight (especially if it is wet) and length. Therefore, bend your knees and avoiding lifting with your back to prevent injury.

3.2 Transition hands from the eye of the mooring line to the stem of the eye of the mooring line.

⚠️ Caution: Doing this properly will help you avoid having you place your hands/fingers between mooring line and cleat/bollard to avoid high risk of injury.
3.3 Place eye of mooring line over the cleat or bollard with two hands.

3.4 Release hands from mooring line once it is placed at the base of cleat or bollard.

Note: It is critical that the mooring line is placed at the base of the cleat or bollard to avoid the line detaching or slipping of attachment.

3.5 Step away from cleat or bollard.

Instructional Design Note: The training ends when one of the mooring lines are affixed to the pier attachment, even though the evolution would actually require four lines to be affixed. As previously mentioned, this is done to limit the scope and duration of the training.

List (3-5 things) of What Is Critical, Difficult, and Complex

This task analysis highlighted many parts of the line handling tasks that are critical, difficult, or complex for learners as part of ask completion.

The first area represents things that are critical to the line handling tasks and may pose injury to the line handler. These were noted by the team in the form of a caution icon 🚨 and corresponding information. Some of the steps/sub-steps that made use of this cautionary information that is critical to line handlers completion of the task include:

- 1.1 Avoid incoming heaving line and ball – avoiding the heaving line that is weighted at one end (ball) and can act as a projectile can cause serious personnel injury if hit.
• 3.2 Transition hands from the eye of the mooring line to the stem of the eye of the mooring line – avoiding placing one’s fingers or hands between the mooring line and cleat/bollard is important as hands/fingers can get caught causing serious injury to personnel

The second area represents things that are **difficult** because of the necessity for line handlers to employ nuanced psychomotor actions and decision-making in response to numerous dynamic inputs (other individuals, communications, the environment, etc.). To highlight these areas, Team USCG made use of a hot tip icon 🔥 and corresponding message and/or simple If-Then decision tables. Some of the steps/sub-steps that highlighted difficult parts of the task for line handlers include:

• 1.3.1 Grab the heaving line with both hands (If-Then decision table) – grabbing the heaving line may result in parting of the heaving line from the mooring line or the line handler may not be able to grab it. Using a simple If-Then decision table illustrates the decision that the line handler must make and corresponding action.

• 1.3.3 Pull in heaving line. – pulling the heaving line and mooring line may be difficult for the line handler. A hot tip is included to help the line handler with this difficult task by providing the learner with some “tricks of the trade” from exemplary performers including having line handlers use a hand-over-hand technique (learned in boot camp) that can assist with pulling in the heaving line task.

In addition to critical and difficult, the following step is considered **complex** for learners not only because of the nuanced psychomotor actions required, but also the decisions and complicated communications that may also be required. In this step, Team USCG made use of an If-Then decision table to assist in helping the learner to reduce the complexity.

• 2.4 Determine tension of mooring line – determining if the tension of the mooring line is appropriate is a more complex decision that the line handler must make. For this step, Team USCG made use of an If-Then decision table having the learner gauge the tension of the line and determining whether or not it was snagged to a pier. With this information, the learner can then make the appropriate decision based on that information. The team also used a caution to supplement this information and help the learner avoid personal injury or property damage.
Task Analysis Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

References
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   listContent.jsp?conte nt_id=_3468196_1&course_id=_71797_1&mode=view#_3468209_1
   OPWL537 4202/4203 Blackboard course site
Job-Focused Objectives

Line Handling for Watch Standers

Introduction

The United States Coast Guard (USCG) Sector San Juan daily watch standers are critical to the safety and security of the unit. Members stand a 24-hour duty or 'watch' and provide a variety of logistical needs and services to maintain operations. Some of the duties of a watch stander include: providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line-handling assistance to the cutters.

This project focuses on pier-side line handling during a cutter mooring evolution for watch standers at Sector San Juan. Watch standers are referred to as line handlers when they are working in that capacity. The instruction will begin with line handlers in position on the pier awaiting the cutter to begin the mooring process. The project will focus on three sequential and critical tasks including: receiving the line, handling the line, and affixing the line. The instruction will end after the line handler affixes one mooring line to the pier’s cleat/bollard though a typical mooring operation might require that several lines be affixed.

Critical Tasks (behaviors) that the Training Will Address

1. Receive the line (Task Analysis 1.0)
2. Handle the line (Task Analysis 2.0)
3. Affix the line (Task Analysis 3.0)

Learner Pre-Requisite Knowledge:

During boot camp, each learner gains familiarity with a basic cutter mooring evolution and learns:

- Basic line handling techniques (i.e. hand over hand, avoiding heaving line, grabbing and holding mooring line)
- Basic line handing terminology (i.e. heaving line, mooring line, eye of line, stem of line, bit, cleat and etc.)
- Commands (i.e. “Heads up on the pier,” “Put over,” “Release” and etc.)
**JOB-FOCUSED OBJECTIVES**

Line Handling for Watch Standers

**Introduction**

The United States Coast Guard (USCG) Sector San Juan daily watch standers are critical to the safety and security of the unit. Members stand a 24-hour duty or ‘watch’ and provide a variety of logistical needs and services to maintain operations. Some of the duties of a watch stander include: providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line-handling assistance to the cutters.

This project focuses on pier-side line handling during a cutter mooring evolution for watch standers at Sector San Juan. Watch standers are referred to as line handlers when they are working in that capacity. The instruction will begin with line handlers in position on the pier awaiting the cutter to begin the mooring process. The project will focus on three sequential and critical tasks including: receiving the line, handling the line, and affixing the line. The instruction will end after the line handler affixes one mooring line to the pier’s cleat/bollard though a typical mooring operation might require that several lines be affixed.

**Critical Tasks (behaviors) that the Training Will Address**

1. Receive the line (Task Analysis 1.0)
2. Handle the line (Task Analysis 2.0)
3. Affix the line (Task Analysis 3.0)

**Learner Pre-Requisite Knowledge:**

During boot camp, each learner gains familiarity with a basic cutter mooring evolution and learns:

- Basic line handling techniques (i.e. hand over hand, avoiding heaving line, grabbing and holding mooring line)
- Basic line handing terminology (i.e. heaving line, mooring line, eye of line, stem of line, bit, cleat and etc.)
- Commands (i.e. “Heads up on the pier,” “Put over,” “Release” and etc.)
Objectives Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

- Line placement in relation to cutter and pier (i.e. Line 1 corresponds to cutter’s bow, Line 2 runs from bow to stern, Line 3 runs stern to bow and Line 4 corresponds to stern)
- Importance of personal protective equipment (PPE); i.e. hard hat, life jacket, hard toed boots

At boot camp, while in a controlled facility with no actual cutter or pier, the learners practice:

- Line-handling evolutions focused on the cutter’s aspect of the evolution not the pier’s
- Tying heaving lines to mooring lines
- Throwing heaving lines
- Tending mooring lines that are attached to a replica of a cutter’s attachment structures (bits, chocks and cleats)
- Donning of personal protective equipment

At boot camp, learners do not practice receiving, handling or affixing lines from the pier.

**Job-Focused Instructional Objectives**

Note: The **BOLDED** items are critical to learner performance. If the **BOLDED** items in the criteria section are not met, the learner automatically fails the performance assessment; on-the-job, this would require the completion of a formal USCG Mishap report.

<table>
<thead>
<tr>
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<th>Conditions on the job</th>
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</thead>
</table>
| 1 | Receive the line (Task Analysis 1.0) | **Given:** Cues:  
  - Line handlers are in position to handle lines *(visual)* *(output of preparation for Task 1.0)*  
  - Instruction from cutter Commanding Officer to cutter line handlers, “Put over line X” *(audio)*  
  - Instruction from cutter/watch section supervisor of incoming heaving line, “Heads up on pier” *(audio)* |  
  - Walks towards bow of cutter when Line 1 or 3 is called over OR walks towards stern of cutter when Line 2 or 4 is called over  
  - Avoids being hit by heaving line/ball  
  - Receives heaving line/ball before it falls into the water.  
  - Without running to recover heaving line  
  - Without dropping heaving line in the |
### Objectives Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

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<tr>
<td></td>
<td></td>
<td>• Incoming heaving line/ball from cutter soars through air and hits the pier <em>(visual)</em></td>
<td>water</td>
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<td></td>
<td></td>
<td>Resources:</td>
<td>Uses “hand-over-hand” pulling technique</td>
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<tr>
<td></td>
<td></td>
<td>• Pier clear of obstructions</td>
<td>Without dragging the mooring line on the pier while pulling the heaving line</td>
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<tr>
<td></td>
<td></td>
<td>• Pier attachment structures (i.e. cleat or bollard)</td>
<td>Without snagging the heaving line on the pier</td>
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<tr>
<td></td>
<td></td>
<td>• Watch Section Supervisor providing supervision</td>
<td><strong>Wears all PPE items correctly</strong></td>
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<td></td>
<td></td>
<td>• USCG Cutter situated close to the pier</td>
<td><strong>Without falling into the water</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Heaving and mooring line provided by cutter</td>
<td><strong>Without personal injury</strong></td>
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<tr>
<td></td>
<td></td>
<td>• PPE</td>
<td><strong>Without damage to pier</strong></td>
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<td></td>
<td><strong>Without damage to cutter</strong></td>
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</table>

#### 2 Handle the line (Task Analysis 2.0)

**Given:**

**Cues:**
- Eye of mooring line is close enough to grab *(visual)* *(output of Task 1.0)*
- Mooring line is wet or dry *(touch)*
- Instruction from cutter of specific location to affix the mooring line *(audio and/or visual)*

**Resources:**
- Mooring line eye *(output of Task 1.0)*
- Heaving and mooring line provided by cutter
- Pier clear of obstructions
- Pier attachment structures (i.e. cleat or bollard)
- Watch Section Supervisor providing

**Criteria on the job:**
- Handles mooring line with both hands
- Bends knees while handing mooring line
- Avoids lifting mooring line with back
- Uses extra force if mooring line is wet
- Without running to pier attachment structure (i.e. cleat or bollard)
- Without dropping mooring line on the pier
- Without snagging mooring line on the pier
- Without dropping mooring line in the water
- **Wears all PPE items correctly**
### Objectives Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

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<td><strong>Given:</strong></td>
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<tr>
<td></td>
<td>Cues:</td>
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</table>
|    | • Specific pier structure identified by cutter (i.e. cleat/bollard) is close enough to affix mooring line eye to (audio/visual) *(output of Task 2.0)*
|    | • Mooring line is wet or dry *(touch)* | • Without falling into the water
|    | Resources:                | • Without personal injury
|    | • Pier attachment structures (i.e. cleat or bollard)
|    | • Pier clear of obstructions
|    | • Watch Section Supervisor providing supervision
|    | • USCG Cutter situated close to the pier
|    | • Mooring line provided by cutter
|    | • PPE                      | • Without damage to the pier
|    |                            | • Without damage to the cutter |
| 3  | Affix the line (Task Analysis 3.0) | • Handles mooring line with both hands
|    |                            | • Bends knees while handing mooring line
|    |                            | • Avoids lifting mooring line with back
|    |                            | • Uses extra force if mooring line is wet
|    |                            | • Avoids placing hands/fingers between mooring line and pier attachment
|    |                            | • Without dropping mooring line on the pier
|    |                            | • Without snagging mooring line on the pier
|    |                            | • Without dropping mooring line in the water
|    |                            | • Without mooring line slipping off attachment structure (i.e. cleat or bollard)
|    |                            | • Without the cutter surging while the mooring line is attached to structure (i.e. cleat or bollard)
|    |                            | • Moves away from pier attachment structure after mooring line is affixed (more than 5 feet)
|    |                            | • Wears all PPE items correctly
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<td></td>
<td></td>
<td>• Without personal injury</td>
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<td></td>
<td></td>
<td>• Without damage to pier</td>
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<td></td>
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<td></td>
<td>• Without damage to cutter</td>
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</table>
Performance Assessment Instrument

Descriptive Title for the Project
Line Handling for Watch Standers

Introduction
The United States Coast Guard (USCG) Sector San Juan daily watch standers are critical to the safety and security of the unit. Members stand a 24-hour duty or ‘watch’ and provide a variety of logistical needs and services to maintain operations. Some of the duties of a watch stander include: providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line-handling assistance to the cutters.

This project focuses on pier-side line handling during a cutter mooring evolution for watch standers at Sector San Juan. Watch standers are referred to as line handlers when they are working in that capacity. The instruction will begin with line handlers in position on the pier awaiting the cutter to begin the mooring process. The project will focus on three sequential and critical tasks including: receiving the line, handling the line, and affixing the line. The instruction will end after the line handler affixes one mooring line to the pier’s cleat/bollard though a typical mooring operation might require that several lines be affixed.

Objectives

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| 1 | Receive the line (Task Analysis 1.0) | **Given:**

  **Cues:**
  - Line handlers are in position to handle lines (visual) (output of preparation for Task 1.0)
  - Instruction from cutter Commanding Officer to cutter line handlers, “Put over line X” (audio)
  - Instruction from cutter/watch section supervisor of incoming heaving line, “Heads up on pier” (audio)
  - Incoming heaving line/ball from cutter soars through air and hits the pier (visual)

  **Resources:**
  - Pier clear of obstructions
  - Pier attachment structures (i.e. cleat or bollard)
  - Watch Section Supervisor providing supervision
  - USCG Cutter situated close to the pier
  - Heaving and mooring line provided by cutter
  - PPE

| | | | • Walks towards bow of cutter when Line 1 or 3 is called over OR walks towards stern of cutter when Line 2 or 4 is called over
  • Avoids being hit by heaving line/ball
  • Receives heaving line/ball before it falls into the water.
  • Without running to recover heaving line
  • Without dropping heaving line in the water
  • Uses “hand-over-hand” pulling technique
  • Without dragging the mooring line on the pier while pulling the heaving line
  • Without snagging the heaving line on the pier
  • **Wears all PPE items correctly** |
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<tr>
<td>2</td>
<td>Handle the line (Task Analysis 2.0)</td>
<td><strong>Given:</strong>&lt;br&gt;<strong>Cues:</strong>&lt;br&gt;• Eye of mooring line is close enough to grab <em>visual</em> (output of Task 1.0)&lt;br&gt;• Mooring line is wet or dry <em>touch</em>&lt;br&gt;• Instruction from cutter of specific location to affix the mooring line <em>audio and/or visual</em>&lt;br&gt;<strong>Resources:</strong>&lt;br&gt;• Mooring line eye *output of Task 1.0&lt;br&gt;• Heaving and mooring line provided by cutter&lt;br&gt;• Pier clear of obstructions&lt;br&gt;• Pier attachment structures (i.e. cleat or bollard)&lt;br&gt;• Watch Section Supervisor providing supervision&lt;br&gt;• USCG Cutter situated close to the pier&lt;br&gt;• PPE</td>
<td>• Handles mooring line with both hands&lt;br&gt;• Bends knees while handing mooring line&lt;br&gt;• Avoids lifting mooring line with back&lt;br&gt;• Uses extra force if mooring line is wet&lt;br&gt;• Without running to pier attachment structure (i.e. cleat or bollard)&lt;br&gt;• Without dropping mooring line on the pier&lt;br&gt;• Without snagging mooring line on the pier&lt;br&gt;• Without dropping mooring line in the water&lt;br&gt;• *Wears all PPE items correctly&lt;br&gt;• Without falling into the water&lt;br&gt;• Without personal injury&lt;br&gt;• Without damage to the pier&lt;br&gt;• Without damage to the cutter</td>
</tr>
</tbody>
</table>
| 3  | Affix the line (Task Analysis 3.0) | **Given:**<br>**Cues:**<br>• Specific pier structure identified by cutter (i.e. cleat/bollard) is close enough to affix mooring line eye to (audio/visual) *output of Task 2.0*<br>• Mooring line is wet or dry *touch*<br>**Resources:**<br>• Pier attachment structures (i.e. cleat or bollard)<br>• Pier clear of obstructions<br>• Watch Section Supervisor providing supervision | • Handles mooring line with both hands<br>• Bends knees while handing mooring line<br>• Avoids lifting mooring line with back<br>• Uses extra force if mooring line is wet<br>• Avoids placing hands/fingers between mooring line and pier attachment<br>• Without dropping mooring line
### Performance Assessment

#### Conditions on the job

- USCG Cutter situated close to the pier
- Mooring line provided by cutter
- PPE

#### Criteria on the job

- on the pier
- Without snagging mooring line on the pier
- Without dropping mooring line in the water
- Without mooring line slipping off attachment structure
- Without the cutter surging while the mooring line is attached to structure (i.e. cleat or bollard)
- Moves away from pier attachment structure after mooring line is affixed (more than 5 feet)
- Wears all PPE items correctly
- Without falling into the water
- Without personal injury
- Without damage to pier
- Without damage to cutter

### Type of performance assessment and rationale

<table>
<thead>
<tr>
<th>Type of assessment</th>
<th>Rationale</th>
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<tbody>
<tr>
<td>Process assessment</td>
<td>Line handlers must rely on complex skills and knowledge that resides in the “head of the learner,” including subtle decision making in conjunction with numerous nuanced psychomotor actions based on a number of dynamic inputs (current direction, size of vessel, winds, etc.) during the performance process. The performance assessment for line handling for watch standers includes observing the actions, behaviors, and decisions of the learner throughout the performance process.</td>
</tr>
<tr>
<td>Product assessment</td>
<td>The desired performance outcome is a safely moored cutter to a pier without injury to personnel and/or property damage to the cutter or pier, which can be evaluated and associated with a tangible product. Though the desired product is a safely moored cutter without injury to personnel and/or property damage, the primary focus of this training will be on the process since using the process assessment will automatically assess the results of the affixed line (product). The process is defined through the tasks of receiving the line, handling the line, and affixing the line.</td>
</tr>
<tr>
<td>Post-assessment instrument: Checklist</td>
<td>A checklist was created as the post-performance assessment instrument to enable the instructors to determine whether learners meet objective criteria (e.g. what appears in the checklist) and</td>
</tr>
</tbody>
</table>
determine their specified levels of mastery (e.g. the overall level of performance required to pass the test and perform the job).

Post-Assessment Instrument

General Guidelines:

- The maximum class size for this training is 6 learners. During the Application phase, divide the learners into two equal, but separate groups (e.g. Group 1 and 2).
- Ensure each group is assigned at least one instructor and at least two exemplary performer line handlers. The first exemplary performer line handler will role-play as the cutter line handler and will be staged on the moored cutter at pier Charlie South (a.k.a. exemplary performer “A”) and the second exemplary performer line handler will act as an assistant grader and additional safety observer and will stage on pier Delta North with the instructor (a.k.a. exemplary performer “B”).
- Learners will wear the USCG working uniform (e.g. Operational Dress Uniform).
- In order to simulate the cutter underway for assessment purposes, you will ensure there is a cutter moored at pier Charlie South and that pier Delta North is open. See below Figure 1.
- The scenarios will alternate lines for Group 1 and 2 to ensure their consistent placement at opposite ends of the pier.
- Ensure that Group 1 and 2’s assessments are conducted simultaneously.
- Each assessment should not require more than 3 minutes to complete; therefore each learner will be allotted approximately 15 minutes (e.g. 9 minutes for assessments and 6 minutes for staging and grading). The assessment phase will not exceed 45 minutes.
- Ensure you and exemplary performer “B” do not offer feedback or guidance to the learners during the assessments. Instead, you will observe the entire evolution, note any and all discrepancies on the Post-Assessment Checklist form, and provide the learners with feedback after all three assessments are complete.
- If at any time, you or exemplary performers “A” or “B” observe or predict the possibility of imminent personal injury or damage to the cutter or pier, stop the assessment and take corrective action to avoid damage/injury.
- You will administer the learners all three assessments sequentially (Scenario 1, 2, and 3). Ensure that the members of Group 1 and 2 who are NOT completing the assessment return to the Sector San Juan conference room and wait their turn.
- Since you will not have any control over the quality of heaving line toss of exemplary performer “A”, the learners will respond to the heaving line toss regardless of the quality of the throw. However, for each scenario, you will instruct exemplary performer “A” to make his/her best attempt at a perfect throw.
- The scenarios will vary in difficulty by using a wet line and/or resistance on heaving and/or mooring lines by exemplary performer “A” while the learner pulls.
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Figure 1: Location of facilities as outlined in guidelines.

**Required Materials for the Assessment**

The assessment requires the following materials:

**Required Items for the Learner**
- CG working uniform (includes PPE)

**Required Items for the Instructor/Subject Matter Expert (SME) (for each Group 1 and Group 2):**
- CG working uniform (includes PPE)
- Enough hard hats for each instructor, exemplary performer and learner (Group 1 will wear white hard hats and Group 2 will wear blue hard hats)
- Life jackets for each instructor, exemplary performer, and learner
- Life rings (in case someone falls in the water)
- Designation in writing from Chief of Military Personnel as Instructor
- A Cutter moored at pier Charlie-South
- An empty and unobstructed pier Delta-North (no cutter moored)
- Cutter mooring lines (one wet, one dry)
- Cutter heaving lines
Performance Assessment Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

- Copy of general scenario script
- Copy of assessment scenarios cards (one for each instructor and exemplary performer)
- Copy of the Post-Assessment Checklist (one per learner)
- Clipboard
- Pen or pencil
- Portable radio

Required Items for exemplary performer “A” and “B” (each Group 1 and Group 2):
- PPE
- Portable radio

**Instructions for the Instructor**

**Before the Application Phase:**

1. Divide the learners into two separate and equal groups and assign an order for each learner within that group for order of assessment (1, 2, 3...).
2. Assign at least one instructor to supervise/assess each group.
3. Assign at least two exemplary performers to each group (“A” and “B”).
4. Ensure all of the assessment materials are available and ready.
5. Ensure conditions are met:
   a. Daylight; the training will commence between normal working hours of 0700-1530 local depending on learner and instructor schedules.
   b. Wind will be less than 15 knots
   c. No precipitation

**After the practice phase (in the Sector San Juan conference room):**

1. During this time, ensure exemplary performer “A” is preparing the cutter area for the assessments and exemplary performer “B” is clearing any obstructions on pier Delta North.
2. Provide the learners with the following instructions:

   During this stage of the training, like the practice portion, you will be required to receive, handle, and affix one of cutter’s mooring lines to the pier-side cleat or bollard designated by the cutter line handler. Unlike the practice scenarios, you will not receive feedback or coaching and not be able to ask any questions once the scenarios begins.

   Group 1 will be wearing white hard hats and Group 2 will be wearing blue hard hats. Group 1 will be assessed by [Insert Name] who will be representing the Cutter’s Commanding Officer and will be assisted by [Insert Name] who will be representing the cutter’s line handler. [Insert Name] will also be assisted by [Insert Name] who will help with the observation and grading as part of this assessment.

   You will be completing a total of three assessments and each assessment will be different. In order to pass, you must complete the three assessments while only making a cumulative total of two errors and one of the assessments must be
flawless. If you commit any of the critical errors during the scenario, the scenario will immediately stop and you will automatically fail. The errors being assessed are the same as described and reviewed in the practice scenarios.

If you meet these requirements, you will earn your qualification as a pier-side line handler. In the event you do not pass this assessment, you will need to schedule a remedial training session with the lead Watch Section Supervisor and re-take the assessment at another designated time.

3. Ask if any learners have any questions about the Post-Assessment Checklist (presented earlier in the Application phase).
4. Direct Group 1 learners to head to the pier and don their PPE.

Immediately before each assessment (on the pier):

1. Ensure the pier is clear of obstructions after the practice scenarios.
2. Ensure all of the learners are correctly wearing their PPE.
3. Ensure all members of Group 1 are wearing white hard hats and all members of Group 2 are wearing blue hard hats.
4. Advise learners that the assessment will begin with your voice command simulating the Commanding Officer’s instruction.
5. Separate Group 1 and 2 with one group going to Charlie South and another to Delta North piers.
6. Read the general scenario to the learners from this general script card (will apply to all 6 scenarios).

   General Script Card:
   While on watch as a Sector San Juan watch stander, you receive a call from the Sector San Juan Watch Section Supervisor requesting your assistance in USCGC MATINICUS’ mooring evolution in 15 minutes at pier Delta North. After receiving the call, you immediately locate and grab your PPE and walk to pier Delta. Upon arriving at the pier, you don your PPE and meet with the Sector San Juan Watch Section Supervisor to receive a pre-mooring brief. You are informed that the cutter will be mooring port side to the pier and bow-in. Immediately after the brief, you move to the middle of the pier and await the cutter’s arrival and instructions.

7. Direct the learners from Group 1 and 2 to stage themselves in the center of the pier Delta North.
8. Ensure that you and exemplary performer “B” are in a good observation position (e.g. close to the learner, but not close enough to impede).
9. Ensure that exemplary performers “A” and “B” knows not to provide feedback or coaching during the assessment and that he/she can stop the assessment in order to resolve a situation that poses an imminent or in his/her estimation a potential for danger.
10. Ensure that you and exemplary performer “A” have radio communication and that communications for Group 1 and 2 are on different radio frequencies.
11. Ensure that exemplary performer “A” is ready to begin the assessment (e.g. heaving line tied to mooring line and mooring line faked out and ready to be thrown), exemplary performer “B” is ready to observe/evaluate, and the learner is ready to begin the assessment for both Group 1 and 2.
12. Commence the scenario/assessments simultaneously with the appropriate verbal command.
Group 1 - Assessment Scenario #1 Card
1. **Instructor:** Scream the following voice command simulating the Commanding Officer’s instruction, “PUT OVER LINE ONE.” This should prompt the learner who is in the middle of the pier to move towards the beginning of the pier.
2. **Exemplary Performer “A”:** Respond to the previous command by screaming “AYE AYE” and walk to Line 1 on the cutter. When exemplary performer is in position, he/she will scream, “HEADS UP ON THE PIER” and will throw the heaving line from pier Charlie South to pier Delta North; exemplary performer “A” will attempt to make a perfect throw.
3. **Exemplary performer “A”:** Throw over the dry mooring line.
4. **Exemplary performer “A”:** Do not provide any resistance to the mooring line.
5. **Instructor:** After the learner grabs the mooring line, give a voice command to the learner indicating the specific cleat/bollard to affix the mooring line to.
6. **Instructor:** After the learner affixes the mooring line and steps at least 5 feet away from the affixment structure, stop the assessment.
7. **Instructor:** Complete the post-assessment checklist with exemplary performer “B.”

Group 1 - Assessment Scenario #2
1. **Instructor:** Scream the following voice command simulating the Commanding Officer’s instruction, “PUT OVER LINE FOUR.” This should prompt the learner who is in the middle of the pier to move towards the end of the pier.
2. **Exemplary Performer “A”:** Respond to the previous command by screaming “AYE AYE” and walk to Line 4 on the cutter. When exemplary performer is in position, he/she will scream, “HEADS UP ON THE PIER” and will throw the heaving line from pier Charlie South to pier Delta North; exemplary performer “A” will attempt to make a perfect throw.
3. **Exemplary performer “A”:** Throw over the wet mooring line.
4. **Exemplary performer “A”:** Provide slight resistance on the mooring line.
5. **Instructor:** After the learner grabs the mooring line, give a voice command to the learner indicating the specific cleat/bollard to affix the mooring line to.
6. **Instructor:** After the learner affixes the mooring line and steps at least 5 feet away from the affixment structure, stop the assessment.
7. **Instructor:** Complete the post-assessment checklist with exemplary performer “B.”

Group 1 - Assessment Scenario #3
1. **Instructor:** Scream the following voice command simulating the Commanding Officer’s instruction, “PUT OVER LINE TWO.” This should prompt the learner who is in the middle of the pier to move towards the end of the pier.
2. **Exemplary Performer “A”:** Respond to the previous command by screaming “AYE AYE” and walk to Line 2 on the cutter. When exemplary performer is in position, he/she will scream, “HEADS UP ON THE PIER” and will throw the heaving line from pier Charlie South to pier Delta North; exemplary performer “A” will attempt to make a perfect throw.
3. **Exemplary performer “A”:** Throw over the wet mooring line.
4. **Exemplary performer “A”:** Provide medium resistance on the mooring line.
5. **Instructor:** After the learner grabs the mooring line, give a voice command to the learner indicating the specific cleat/bollard to affix the mooring line to.
6. **Instructor:** After the learner affixes the mooring line and steps at least 5 feet away from the affixment structure, stop the assessment.
7. **Instructor:** Complete the post-assessment checklist with exemplary performer “B.”
Group 2 - Assessment Scenario #1
1. **Instructor**: Scream the following voice command simulating the Commanding Officer’s instruction, “PUT OVER LINE FOUR.” This should prompt the learner who is in the middle of the pier to move towards the end of the pier.
2. **Exemplary Performer “A”**: Respond to the previous command by screaming “AYE AYE” and walk to Line 4 on the cutter. When exemplary performer is in position, he/she will scream, “HEADS UP ON THE PIER” and will throw the heaving line from pier Charlie South to pier Delta North; exemplary performer “A” will attempt to make a perfect throw.
3. **Exemplary performer “A”**: Throw over the dry mooring line.
4. **Exemplary performer “A”**: Do *not* provide any resistance to the mooring line.
5. **Instructor**: After the learner grabs the mooring line, give a voice command to the learner with the specific cleat/bollard to affix the mooring line to.
6. **Instructor**: After the learner affixes the mooring line and steps at least 5 feet away from the affixment structure, stop the assessment.
7. **Instructor**: Complete the post-assessment checklist with exemplary performer “B.”

Group 2 - Assessment Scenario #2
1. **Instructor**: Scream the following voice command simulating the Commanding Officer’s instruction, “PUT OVER LINE ONE.” This should prompt the learner who is in the middle of the pier to move towards the beginning of the pier.
2. **Exemplary Performer “A”**: Respond to the previous command by screaming “AYE AYE” and walk to Line 1 on the cutter. When exemplary performer is in position, he/she will scream, “HEADS UP ON THE PIER” and will throw the heaving line from pier Charlie South to pier Delta North; exemplary performer “A” will attempt to make a perfect throw.
3. **Exemplary performer “A”**: Throw over the wet mooring line.
4. **Exemplary performer “A”**: Provide *slight* resistance on the mooring line.
5. **Instructor**: After the learner grabs the mooring line, give a voice command to the learner indicating the specific cleat/bollard to affix the mooring line to.
6. **Instructor**: After the learner affixes the mooring line and steps at least 5 feet away from the affixment structure, stop the assessment.
7. **Instructor**: Complete the post-assessment checklist with exemplary performer “B.”

Group 2 - Assessment Scenario #3
1. **Instructor**: Scream the following voice command simulating the Commanding Officer’s instruction, “PUT OVER LINE THREE.” This should prompt the learner who is in the middle of the pier to move towards the beginning of the pier.
2. **Exemplary Performer “A”**: Respond to the previous command by screaming “AYE AYE” and walk to Line 3 on the cutter. When exemplary performer is in position, he/she will scream, “HEADS UP ON THE PIER” and will throw the heaving line from pier Charlie South to pier Delta North; exemplary performer “A” will attempt to make a perfect throw.
3. **Exemplary performer “A”**: Throw over the wet mooring line.
4. **Exemplary performer “A”**: Provide *medium* resistance on the mooring line.
5. **Instructor**: After the learner grabs the mooring line, give a voice command to the learner indicating the specific cleat/bollard to affix the mooring line to.
6. **Instructor**: After the learner affixes the mooring line and steps at least 5 feet away from the affixment structure, stop the assessment.
7. **Instructor**: Complete the post-assessment checklist with exemplary performer “B.”

Immediately after the third assessment scenario:
1. With the help of exemplary performer “B,” tally the **no** scores and determine if the learner passed or failed the assessment phase.
2. Share the results with the learner and provide feedback on the criteria that he/she missed.
3. Congratulate the learner if he/she achieved a passing score (2 or less cumulative errors and at least 1 flawless performance) OR advise the learner that he/she did not achieve a passing score and that they must schedule a remedial training session with the lead Watch Section Supervisor.
4. Repeat this entire process until all learners have completed assessment phase.
Sector San Juan Line Handler Post-Assessment Checklist

Trainee: ____________________________ Date: ________________
Evaluator: ____________________________ Class #: ________________
Group # (circle): 1 / 2

The **BOLDED** items are critical to learner performance. If the **BOLDED** items in the criteria section are not met, the learner *automatically* fails the performance assessment.

<table>
<thead>
<tr>
<th>Did the learner:</th>
<th>Meet the criteria?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scenario 1</td>
<td>Scenario 2</td>
</tr>
<tr>
<td>1. Walk towards bow of cutter when Line 1 or 3 is called over</td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>OR 1a. Walk towards stern of the cutter when Line 2 or 4 is called over <em>(Objective 1.0)</em></td>
<td>□ No</td>
<td>□ No</td>
</tr>
<tr>
<td>2. Avoid being hit by heaving line/ball <em>(Objective 1.0)</em></td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>3. Receive the heaving line/ball before it fell into the water <em>(Objective 1.0)</em></td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>4. Not run to recover the heaving line <em>(Objective 1.0)</em></td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>5. Not drop the heaving line into the water <em>(Objective 1.0)</em></td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>6. Use &quot;hand-over-hand&quot; pulling technique <em>(Objective 1.0)</em></td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>7. Not drag the mooring line on the pier while pulling the heaving line <em>(Objective 1.0)</em></td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>8. Not snag the heaving line on the pier <em>(Objective 1.0)</em></td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td>9. Handle mooring line</td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
</tbody>
</table>
| with both hands  
*Objective 2.0 & 3.0* | □ No | □ No | □ No |
|------------------------|------|------|------|
| 10. Bend knees while handing mooring line  
*Objective 2.0 & 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 11. Avoid lifting the mooring line with his/her back  
*Objective 2.0 & 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 12. Use extra force if the mooring line was wet  
*Objective 2.0 & 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
|                        | □ N/A | □ N/A | □ N/A |
| 13. Not run to pier attachment structure (i.e. cleat or bollard)  
*Objective 2.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 14. Not drop the mooring line on the pier  
*Objective 2.0 & 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 15. Not snag the mooring line on the pier  
*Objective 2.0 & 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 16. Not drop the mooring line in the water  
*Objective 2.0 & 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 17. Avoid placing hands/fingers between the mooring line and pier attachment  
*Objective 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 18. Attach the mooring line without it slipping off attachment structure (i.e. cleat or bollard)  
*Objective 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 19. Attach the mooring line to the structure (i.e. cleat or bollard) without the cutter surging  
*Objective 3.0* | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |
| 20. Move away from pier attachment structure after mooring line is affixed (more than 5 feet)  
*Objective 3.0* | □ Yes | □ Yes | □ Yes |
<p>|                        | □ No  | □ No  | □ No  |
| 21. Cutter moored without injury to | □ Yes | □ Yes | □ Yes |
|                        | □ No  | □ No  | □ No  |</p>
<table>
<thead>
<tr>
<th>Personnel and/or damage to cutter/pier structure</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22. Continue to wear all PPE items correctly (Objectives 1.0 – 3.0)</td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td></td>
<td>□ No</td>
<td>□ No</td>
</tr>
<tr>
<td>23. Not fall into the water (Objectives 1.0 – 3.0)</td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td></td>
<td>□ No</td>
<td>□ No</td>
</tr>
<tr>
<td>24. Not suffer personal injury (Objectives 1.0 – 3.0)</td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td></td>
<td>□ No</td>
<td>□ No</td>
</tr>
<tr>
<td>25. Not inflict damage to the pier (Objectives 1.0 – 3.0)</td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td></td>
<td>□ No</td>
<td>□ No</td>
</tr>
<tr>
<td>26. Not inflict damage to the cutter (Objectives 1.0 – 3.0)</td>
<td>□ Yes</td>
<td>□ Yes</td>
</tr>
<tr>
<td></td>
<td>□ No</td>
<td>□ No</td>
</tr>
</tbody>
</table>

**Total Number of NO’s per Assessment**

<table>
<thead>
<tr>
<th>Combined Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative total of non-critical NO’s</td>
</tr>
<tr>
<td>Cumulative total of critical NO’s (bolded)</td>
</tr>
<tr>
<td>Cumulative number of flawless assessments</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Appendix A

Design Notes:

1. The Sector San Juan Watch Section Supervisors who have completed one year of exemplary service as a Watch Section Supervisor will administer this test. The Chief of Military Personnel will designate these Watch Section Supervisors in writing based on their judgment, experience, and credentials of overseeing watch stander assessment. These Watch Section Supervisors are referred to as “instructors” throughout this document.

2. Each training session will have:
   • At least two instructors with a maximum of four allotted for the assessment phase.
   • At least four exemplary performers with a maximum of six allotted for the assessment phase.

3. Time is not being used as a criteria item, because actual evolutions are not timed and adding it would create an unnecessary distraction.

4. The decision to divide the learners into two equal and separate groups was based on the time constraints of the training while considering the total number of learners who would need this training each year.

5. A whole-to-part sequence of instructing was used throughout the assessment phase. There are three objectives, but the assessment is about mooring a cutter. Seen this way, there is really 1 task (moor the cutter) that consists of 3 subtasks or phases (receive the line, handle the line, affix the line).

6. To determine mastery level performance standards, the team collaborated with SMEs, supervisors, and the client. As noted in the Performance Analysis, “When exemplary performance is present, these individual [watch stander] and often invisible efforts culminate in a mooring operation that is free from error reducing the potential for risk, personal injury, and/or property damage.” Stakeholders conclude that watch standers should meet exemplary performance standards defined at 1 error per 10 evolutions, because of the criticalness of performance; cost to Sector San Juan for damage/personal injury to individuals, cutters, or the pier infrastructure; and the continued alignment with the high standards of the USCG.

7. Considering exemplary performers have been line handling for several years, it will be difficult to accelerate novice watch standers to their performance level (e.g. 1 error per every 10 evolutions) in the allotted time of the training course. Exemplary performers reviewed the task list and recommended that we conduct a series of three assessments to eliminate the possibility of the learner’s ‘getting it right’ by chance. The Client, SMEs, and our team agree that three assessments are appropriate and sufficient considering the parameters and constraints for the training program.

8. Each scenario varies and the level of difficulty progressively increases from the first to the third assessment to provide the learners with a variety of to ensure that their success is not attributed to chance. The assessments were designed to test for mastery on an
individual basis to eliminate the chance that a poorly performing member can be carried by the exceptional performance of the team.

9. The strict passing requirement, which includes a total of two cumulative errors and requires a flawless performance is aligned with the site client’s desired performance of 1 error per 10 evolutions and will serve as an excellent measure of mastery.

10. It is not feasible to have a cutter moor/unmoor repeatedly to provide a platform for line handling assessment especially with novice watch standers. Furthermore, this would increase the potential for cutter and pier damage as well as an unnecessary risk of personal injury. In an effort to make the assessments as realistic as possible while mitigating potential hazards, we will use a moored cutter at pier Charlie South and an empty pier Delta North. The distance between the line handler and the cutter will be relatively similar to what a line handler would experience when a cutter is approaching a pier. Using a moored cutter provides little risk to the personnel, cutter, or pier structures while providing a high degree of realism within a controlled environment. The assessments will simulate the cutter’s force exerted upon the line handlers through the use of applied resistance/pressure exerted by exemplary performer “A” during the ‘handling the line’ portion of Scenario 3.
Instructional Plan Worksheet

Line Handling for Watch Standers

The United States Coast Guard (USCG) Sector San Juan daily watch standers are critical to the safety and security of the unit. Members stand a 24-hour duty or “watch” and provide a variety of logistical needs and services to maintain operations. Some of the duties of a watch stander include providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line-handling assistance to the cutters.

This project focuses on pier-side line handling during a cutter mooring evolution for watch standers at Sector San Juan. Watch standers are referred to as line handlers when they are working in that capacity.

The information below provides a “high level” overview of a 3-hour training program to address proficiency and ultimately qualification of line handling duties for watch standers. Important design notes can be found in the Appendix.

A. Use this table to specify the overall length of the training program

<table>
<thead>
<tr>
<th>How long (in minutes) is the entire training program?</th>
<th>Total: 180 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Introduction: 5 minutes</td>
</tr>
<tr>
<td></td>
<td>Activation: 20 minutes total</td>
</tr>
<tr>
<td></td>
<td>• 10 minutes one week prior to the training</td>
</tr>
<tr>
<td></td>
<td>• 10 minutes on day of training in the classroom</td>
</tr>
<tr>
<td></td>
<td>Demonstration: 20 minutes</td>
</tr>
<tr>
<td></td>
<td>Application: 110 minutes total</td>
</tr>
<tr>
<td></td>
<td>• 70 minutes for practice</td>
</tr>
<tr>
<td></td>
<td>• 40 minutes for assessments</td>
</tr>
<tr>
<td></td>
<td>Integration: 20 minutes</td>
</tr>
<tr>
<td></td>
<td>• 15 minutes on the day of training in the classroom</td>
</tr>
<tr>
<td></td>
<td>• 5 minutes three weeks after training</td>
</tr>
<tr>
<td></td>
<td>Conclusion: 5 minutes</td>
</tr>
</tbody>
</table>

B. Use these tables to briefly (2 – 3 sentences each) describe each element of the training program

Introduction to the training program

| How much time (in minutes) will be allocated to the introduction? | 5 minutes |
| Write a brief (2-3) | This phase of the training will be conducted in the Sector San Juan conference room. |
Instructional Plan Worksheet Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

The instructors will:
- Welcome the participants
- Introduce the instructors and exemplary performers as well as briefly describe their knowledge/experience level
- Provide a brief overview of the purpose and contents of the training program as well as the importance of satisfactorily completing the training program to personal advancement and contribution to the United States Coast Guard (USCG) strategic level goals.

Unit 1: Mooring the Cutter

Job focused Objectives

<table>
<thead>
<tr>
<th>#</th>
<th>Performance (include TA #)</th>
<th>Conditions on the job</th>
<th>Criteria on the job</th>
</tr>
</thead>
</table>
| 1 | Receive the line (Task Analysis 1.0) | **Given:**  
**Cues:**  
- Line handlers are in position to handle lines (visual) (output of preparation for Task 1.0)  
- Instruction from cutter Commanding Officer to cutter line handlers, “Put over line X” (audio)  
- Instruction from cutter/watch section supervisor of incoming heaving line, “Heads up on pier” (audio)  
- Incoming heaving line/ball from cutter soars through air and hits the pier (visual)  
**Resources:**  
- Pier clear of obstructions  
- Pier attachment structures (i.e. cleat or bollard)  
- Watch Section Supervisor providing supervision  
- USCG Cutter situated close to the pier  
- Heaving and mooring line provided by cutter  
- PPE | **Walks towards bow of cutter when Line 1 or 3 is called over OR walks towards stern of cutter when Line 2 or 4 is called over**  
**Avoids being hit by heaving line/ball**  
**Receives heaving line/ball before it falls into the water.**  
**Without running to recover heaving line**  
**Without dropping heaving line in the water**  
**Uses “hand-over-hand” pulling technique**  
**Without dragging the mooring line on the pier while pulling the heaving line**  
**Without snagging the heaving line on the pier**  
**Wears all PPE items correctly**  
**Without falling into the water**  
**Without personal injury**  
**Without damage to pier**  
**Without damage to cutter** |
| 2 | Handle the line (Task Analysis 2.0) | **Given:**  
**Cues:**  
- Eye of mooring line is close enough to grab (visual) (output of Task 1.0)  
- Mooring line is wet or dry (touch)  
- Instruction from cutter of specific location to affix the mooring line (audio and/or visual)  
**Resources:**  
- Mooring line eye (output of Task 1.0)  
- Heaving and mooring line provided by cutter | **Handles mooring line with both hands**  
**Bends knees while handing mooring line**  
**Avoids lifting mooring line with back**  
**Uses extra force if mooring line is wet**  
**Without running to pier attachment structure (i.e. cleat or bollard)** |
<table>
<thead>
<tr>
<th>#</th>
<th>Performance (include TA #)</th>
<th>Conditions on the job</th>
<th>Criteria on the job</th>
</tr>
</thead>
</table>
| 3 | Affix the line (Task Analysis 3.0) | Given:  
Cues:  
- Specific pier structure identified by cutter (i.e. cleat/bollard) is close enough to affix mooring line eye to (audio/visual) (output of Task 2.0)  
- Mooring line is wet or dry (touch)  
Resources:  
- Pier attachment structures (i.e. cleat or bollard)  
- Pier clear of obstructions  
- Watch Section Supervisor providing supervision  
- USCG Cutter situated close to the pier  
- Mooring line provided by cutter  
- PPE |  
- Handles mooring line with both hands  
- Bends knees while handing mooring line  
- Avoids lifting mooring line with back  
- Uses extra force if mooring line is wet  
- Avoids placing hands/fingers between mooring line and pier attachment  
- Without dropping mooring line on the pier  
- Without snagging mooring line on the pier  
- Without dropping mooring line in the water  
- Without mooring line slipping off attachment structure (i.e. cleat or bollard)  
- Without the cutter surging while the mooring line is attached to structure (i.e. cleat or bollard)  
- Moves away from pier attachment structure after mooring line is affixed (more than 5 feet)  
- Wears all PPE items correctly  
- Without falling into the water  
- Without personal injury  
- Without damage to pier  
- Without damage to cutter |
<table>
<thead>
<tr>
<th>Phase</th>
<th>How much time (in minutes) will be allocated to each phase?</th>
<th>Write a brief (2-3 sentences) description of each phase. Provide enough detail to show that each phase meets Merrill’s relevant corollaries.</th>
</tr>
</thead>
</table>
| Activation   | 20 minutes total                                             | Before the training: (10 minutes):  
These items will be given to the learners at least one week before the training.  
- Microsoft PowerPoint/Multi-Media Presentation  
  o Reviews the dangers and potential hazards associated with bad moorings. Something similar to [https://www.youtube.com/watch?v=K7HXy_kjil0](https://www.youtube.com/watch?v=K7HXy_kjil0)  
  o Provides learners with an overview of relevant USCG specific mishap statistics and incident/accident summaries from Sector San Juan (e.g. injury and damage to cutters/piers) regarding mooring evolutions. This will link the role of line handling to the USCG’s organizational goals and strategic business objectives.  
  o Provides overview of comparative organizer as described below.  
  o Information/knowledge contained within will be included in the training day group discussion.  
  o Note: This will satisfy the Merrill’s Activation Phase corollaries of “Previous Experience” and “New Experience.” See design note 9 in Appendix A.  
- Comparative Advanced Organizer  
  o Comparison of line handling skills/knowledge presented in boot camp (e.g. basic line handling terminology, commands and techniques) and skills required to line handle at Sector San Juan (e.g. receive, handle, and affix mooring lines).  
  o Overview of comparative organizer is provided in the above referenced PowerPoint/Multi-media presentation.  
  o Learners are provided with a paper copy to bring to the training day group discussion and for their review.  
  o Note: This will satisfy the Merrill’s Activation Phase corollary of “Structure” (Merrill, 2002). See design note 9 in Appendix A.  
On the day of the training (10 minutes):  
This phase of the training will be conducted in the Sector San Juan conference room in a group discussion format.  
- Group Discussion:  
  o Direct learners to recall, describe, and apply prior knowledge by engaging in a group discussion revolving around the Microsoft PowerPoint/Multi-Media presentation and the comparative advanced organizer.  
  o Discussion connects the importance of pier-side line handling with potential hazards (e.g. loss of life, severe injury, and property damage) that can occur during mooring evolutions as well as strategic level goals.  
  o The structure (advanced organizer) connects previous experience from boot camp and cutter
experience with new knowledge of pier-side line handling by focusing on the similarities between cutter and pier-side handling

- Note: This will satisfy the Merrill’s Activation Phase corollaries of “Previous Experience” and “New Experience” (Merrill, 2002). See design note 9 in Appendix A.

<table>
<thead>
<tr>
<th>Demonstration</th>
<th>20 minutes</th>
</tr>
</thead>
</table>
| This phase of the training will be conducted on pier Delta North. The learners will be divided into two separate, but equal groups (i.e. Group 1 and 2). Each Group will be assigned at least one instructor and two exemplary performers. The exemplary performers (“A” and “B”) assisting the instructors will act as the line handlers and perform all actions during this phase. The learners will be strategically positioned near the exemplary performers performing the task so that they can closely observe all of their actions and listen to all of the instructor’s guidance (learning is imitative).

This phase will consist of a series of 2 evolutions that include each task. Each evolution will have the same scenario:

- From the Scenario Card used in the practices and assessments: “While on watch as a Sector San Juan watch stander, you receive a call from the Sector San Juan Watch Section Supervisor requesting your assistance in USCGC MATINICUS’ mooring evolution in 15 minutes at pier Delta North. After receiving the call, you immediately locate and grab your PPE and walk to pier Delta. Upon arriving to the pier, you don your PPE, meet with the Sector San Juan Watch Section Supervisor, and receive a pre-mooring brief. You are informed that the cutter will be mooring port side to the pier and bow-in. Immediately after the brief, you move into the middle of the pier and await the cutter's arrival and instructions.”

**Before Demonstrations (1 minute):**

- Review the auto fails with the learners, which are most critical to task completion. These include:
  - Continue to wear PPE correctly
  - Not fall into the water
  - Not suffer personal injury
  - Not inflict damage to the pier
  - Not inflict damage to the cutter

**Demonstration 1 (6 minutes):**

- This practice scenario will include a dry mooring line and no line resistance while pulling.
- This demonstration will slowly break down each task paying particular attention to the sub-tasks that are critical, difficult and complex including:
  - Receive the heaving ball/line before it falls in the water
  - Not drop the heaving line or mooring line in the water
  - Not snag the heaving line on the pier
  - Avoid placing hands/fingers between the mooring line and pier attachment
  - Attach mooring line without it slipping off or causing the cutter to surge
  - Move more than 5 feet away from pier attachment structure

- Note: This will satisfy the Merrill’s Demonstration Phase corollaries of “Consistency,” “Relevant Media,” and “Learner Guidance” (Merrill, 2002). See design note 9 in Appendix A.
## Demonstration 2 (6 minutes)

- This practice scenario will include a **wet** mooring line and **medium** line resistance while pulling.
- This demonstration will slowly break down each task paying particular attention to the sub-tasks that are **critical**, **difficult** and **complex** including (same as Demonstration 1):
  - Receive the heaving ball/line before it falls in the water
  - Not drop the heaving line or mooring line in the water
  - Not snag the heaving line on the pier
  - Avoid placing hands/fingers between the mooring line and pier attachment
  - Attach mooring line without it slipping off or causing the cutter to surge
  - Move more than 5 feet away from pier attachment structure

  - **Note:** This will satisfy the Merrill’s Demonstration Phase corollaries of “Consistency,” “Relevant Media,” and “Learner Guidance” (Merrill, 2002). See design note 9 in Appendix A.

## Debrief (7 minutes)

- This instructor facilitated group discussion will focus on comparing the two demonstrations while focusing on what could vary for line handlers within evolutions:
  - Quality of heaving line throw
  - Weight of line (i.e. wet or dry)
  - Resistance on the mooring line from cutter

  - **Note:** This will satisfy the Merrill’s Demonstration Phase corollary of “Learner Guidance” (Merrill, 2002). See design note 9 in Appendix A.

## Application

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 minutes total</td>
<td>This phase of the training will be conducted on pier Delta North. The maximum class size is 6 learners for this training. For the practice and assessment scenarios 1 through 3, the group of 6 will be divided into two groups of 3.</td>
</tr>
<tr>
<td>70 minutes for practice scenarios</td>
<td>Number of practices: 6</td>
</tr>
<tr>
<td>40 minutes for the assessments</td>
<td>Number of assessments: 3</td>
</tr>
</tbody>
</table>

### Number of practices: 6

- **Note:** The 6 varied practices that gradually increase in difficulty and decrease in instructor intervention satisfies Merrill’s Application Phase corollaries of “Practice Consistency,” “Varied Problems,” and “Diminishing Coaching” (Merrill, 2002). See design note 9 in Appendix A.

### Number of assessments: 3

- **Note:** The 6 varied practices that gradually increase in difficulty and decrease in instructor intervention satisfies Merrill’s Application Phase corollaries of “Practice Consistency,” “Varied Problems,” and “Diminishing Coaching” (Merrill, 2002). See design note 9 in Appendix A.

### Practice 1 (~15 minutes total for the 3 learners of each group):

- This practice scenario will include a **dry** mooring line and **no** line resistance while pulling.
- The learners will complete Task 1.0 through 3.0 while being **heavily coached** through the tasks and will receive immediate and detailed feedback at every sub-task from their instructor(s).
- **Note:** During this practice, the instructors will use the Post-Assessment Checklist to provide feedback on sub-tasks and tasks.
<table>
<thead>
<tr>
<th>Practice</th>
<th>(~15 minutes total for the 3 learners of each group):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice 2</td>
<td>This practice scenario will include a wet mooring line and slight line resistance while pulling. The learners will complete Task 1.0 through 3.0 while being heavily coached through the tasks and will receive immediate and detailed feedback at every sub-task from their instructor(s). Note: During this practice, the instructors will use the Post-Assessment Checklist to provide feedback on sub-tasks and tasks.</td>
</tr>
<tr>
<td>Practice 3</td>
<td>(~11 minutes total for the 3 learners of each group): This practice scenario will include a dry mooring line and no line resistance while pulling. The learners will complete Task 1.0 through 3.0 while being minimally coached through the tasks and will receive detailed feedback only if necessary at the end of the each task from their instructor(s). Note: During feedback in this practice, the instructors will focus on what is difficult, complex and critical and not use the Post-Assessment Checklist. See coaching table below.</td>
</tr>
<tr>
<td>Practice 4</td>
<td>(~11 minutes total for the 3 learners of each group): This practice scenario will include a wet mooring line and medium line resistance while pulling. The learners will complete Task 1.0 through 3.0 while being minimally coached through the tasks and will receive detailed feedback if necessary at the end of the each task from their instructor(s). Note: During feedback in this practice, the instructors will focus on what is difficult, complex and critical and not use the Post-Assessment Checklist. See coaching table below.</td>
</tr>
<tr>
<td>Practice 5</td>
<td>(~9 minutes total for the 3 learners of each group): This practice scenario will include a dry mooring line and no line resistance while pulling. The learners will complete Task 1.0 through 3.0 without coaching and will receive feedback after the evolution is complete. This practice scenario will serve as a mock assessment (e.g. “mirror” of the assessment). Note: During this practice, the instructors will grade the performance using the Post-Assessment Checklist and provide learner feedback as well as their score.</td>
</tr>
<tr>
<td>Practice 6</td>
<td>(~9 minutes total for the 3 learners of each group): This practice scenario will include a wet mooring line and medium line resistance while pulling. The learners will complete Task 1.0 through 3.0 without coaching and will receive feedback after the evolution is complete. This practice scenario will serve as a mock assessment (e.g. “mirror” of the assessment). Note: During this practice, the instructors will grade the performance using the Post-Assessment Checklist and provide learner feedback as well as their score.</td>
</tr>
<tr>
<td>Assessment 1</td>
<td>(~13 minutes total for the 3 learners of each group): This assessment scenario will include a dry mooring line and no line resistance while pulling. The learners will complete Task 1.0 through 3.0 without coaching and will receive feedback using the Post-Assessment Checklist after all three of the assessments are complete.</td>
</tr>
<tr>
<td>Assessment 2</td>
<td>(~13 minutes total for the 3 learners of each group):</td>
</tr>
</tbody>
</table>
• This assessment scenario will include a **wet** mooring line and **slight** line resistance while pulling.
• The learners will complete Task 1.0 through 3.0 **without coaching** and will receive feedback using the Post-Assessment Checklist after all three of the assessments are complete.

**Assessment 3 (~14 minutes total for the 3 learners of each group):**
• This assessment scenario will include a **wet** mooring line and **medium** line resistance while pulling.
• The learners will complete Task 1.0 through 3.0 **without coaching** and will receive feedback using the Post-Assessment Checklist after all three of the assessments are complete.

**Instructors will use Diminished Coaching Principles as noted in the Coaching Table below:**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Practice Exercise 1 &amp; 2</th>
<th>Practice Exercise 3 &amp; 4</th>
<th>Practice Exercise 5 &amp; 6 and Assessment 1, 2 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition of Guidance</td>
<td>Provides a reminder of key points from the demonstrations <em>prior</em> to beginning practice 1</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Provides a reminder of key points from practice 1 <em>prior</em> to beginning practice 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chunking/Coaching (error detection and correction)</td>
<td>Provides immediate feedback after each discrete <em>sub-task</em> comprising the process</td>
<td>Provides feedback after each <em>task</em> comprising the process</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Focuses on what is <strong>critical</strong>, <strong>difficult</strong>, and <strong>complex</strong>, which includes <strong>auto fails:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Continue to wear PPE correctly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not wall into the water</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not suffer personal injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not inflict damage to the pier</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not inflict damage to the cutter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use Post-Assessment Instrument to provide delayed feedback (after the)</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>The checklist will be used</td>
<td></td>
<td>The checklist will only be used</td>
</tr>
</tbody>
</table>
### Integration

<table>
<thead>
<tr>
<th></th>
<th>20 minutes</th>
<th>After the Application Phase: (15 minutes):</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integration</strong></td>
<td></td>
<td>This phase of the training will be conducted in the Sector San Juan conference room.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Group Discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o The instructor will facilitate a conversation regarding the transfer of knowledge from training to the workplace specifically focused on critical, difficult and complex aspects of performance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Learners will brainstorm “what-if” scenarios as well as factors that might be present or vary in more complex evolutions (i.e. heavy winds, heavy currents, rain, darkness, cutter casualty, etc.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Note: This will satisfy the Merrill’s Integration Phase corollaries of “Create” and “Reflect” (Merrill, 2002). See design note 9 in Appendix A.</td>
</tr>
</tbody>
</table>

Three weeks after the training (5 minutes):

This phase of the training will be conducted at Sector San Juan’s waterfront.

• Mooring Evolution
  o The lead Watch Section Supervisor will observe the learner 3 weeks after the training and will assess a mooring evolution on the learner’s duty day using the Post-Assessment Checklist. After the assessment, the learner will be provided feedback regarding his/her performance as well as reflect during a brief post-observation/assessment discussion.
  o Note: This will satisfy the Merrill’s Integration Phase corollaries of “Watch Me” and “Reflect” (Merrill, 2002). See design note 9 in Appendix A.

**Note:** The Integration phase will serve as the conclusion of the training program

<table>
<thead>
<tr>
<th>How much time (in minutes) will be allocated to the conclusion?</th>
<th>5 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write a brief (2-3 sentences) description of the conclusion</td>
<td>This phase of the training will be conducted in the Sector San Juan conference room.</td>
</tr>
<tr>
<td>The instructors will:</td>
<td>Thank the participants for playing an active role in helping the USCG and specifically Sector San Juan to continually strive for the highest levels of professionalism and safety</td>
</tr>
<tr>
<td></td>
<td>Issue the qualification certificates</td>
</tr>
<tr>
<td></td>
<td>Dismiss the participants</td>
</tr>
</tbody>
</table>
Appendix A

Design Notes:

1. The Sector San Juan Watch Section Supervisors who have completed one year of exemplary service as a Watch Section Supervisor will administer this training program. The Chief of Military Personnel will designate these Watch Section Supervisors in writing based on their judgment, experience, and credentials of overseeing watch stander assessment. These Watch Section Supervisors are referred to as “instructors” throughout the document.

2. Each training convening will have at least two instructors. The maximum class size for this training is 6 learners. Learners will be divided into two equal, but separate groups (e.g. Group 1 and 2).

3. Learners will spend approximately 35 mins in the classroom (Sector San Juan conference room) including: 5 minutes Introduction, 10 minutes Activation, 15 minutes Integration, and 5 minutes Conclusion. Learners will spend approximately 130 minutes on the pier including 20 mins Demonstration, 110 mins Application, and 5 minutes Integration. Learners will spend approximately 15 minutes either before or after the training day instruction including 10 minutes one week before and 5 minutes three weeks after.

4. A whole-to-part sequence of instructing was used throughout the assessment phase. There are three objectives, but the assessment is about mooring a cutter. Seen this way, there is really 1 task (moor the cutter) that consists of 3 subtasks (or phases). Each scenario varies and the level of difficulty progressively increases from the first to the third assessment to provide the learners with a variety of to ensure that their success is not attributed to chance. The assessments were designed to test for mastery on an individual basis to eliminate the chance that a poorly performing member can be carried by the exceptional performance of the team (Stepich, Villachica, & Conley, 2015).

5. Conditions for training environment:
   - Daylight; the training will commence between normal working hours of 0700-1530 local depending on learner and instructor schedules.
   - Wind will be less than 15 knots
   - No precipitation

6. Time is not being used as a criterion because the actual evolutions are not timed and adding it would create an unnecessary distraction. With this being said, instructors will need to maintain a fairly rigid adherence to the training schedule and time estimations in order to ensure training is complete within the desired 180 minutes allotted.

7. Considering exemplary performers have been line handling for several years, it will be difficult to accelerate novice watch standers to their performance level (e.g. 1 error per every 10 evolutions) in the allotted time of the training course. Exemplary performers reviewed the task list and recommended that we conduct a series of three assessments to eliminate the possibility of the learner’s ‘getting it right’ by chance. The Client and SMEs, as well as our team, concurrently agree that three assessments are appropriate and sufficient considering the parameters and constraints for the training program.
8. Cutter availability: It is not feasible to have a cutter moor/unmoor repeatedly to provide a platform for line handling assessment especially with novice watch standers. Furthermore, this would increase the potential for cutter and pier damage as well as an unnecessary risk of personal injury. To mitigate any potential hazard, but in an effort to make the assessments as realistic as possible, we will use a moored cutter at pier Charlie South and an empty pier Delta North for both practice and assessment. The distance between the line handler and the cutter will be relatively similar to what a line handler would experience when a cutter is approaching a pier. Using a moored cutter provides little risk to the personnel, cutter, or pier structures while providing a high degree of realism within a controlled environment. The practice/assessments will simulate the cutter’s force exerted upon the line handlers through the use of applied resistance/pressure exerted by exemplary performer “A” during the ‘handling the line’ portion of Scenario 3.

9. This training program makes use of several of Merrill’s First Principles of Instructions, Ausubel’s Comparative Advanced Organizer (Bruegge & Widlake, 2001), and Keller’s ARCS Model of Motivation (Keller, 1987a, 1987b) across the instructional phases (Stepich et al., 2015):

- **Introduction:** Consistent with Keller’s Attention (overview of program arouses inquiry) and Relevance (gain attention by aligning with personal/USCG goals) helping the learner to see “what is in it for me.” (Keller, 1987a, 1987b)
- **Activation:** Consistent with Merrill’s (2002) Previous Experience Corollary (recall/relate/discuss previous experience in boot camp including cutter mooring), New Experience Corollary (use of advanced comparative organizer, discussion regarding similarities/differences between old cutter and new pier knowledge), and Structure Corollary (presentation of advanced comparative organizer) (Merrill, 2002). Also consistent with Keller’s Attention (video, statistics, accident/incident summary to gain attention), Relevance (relate role learners play in line handling and safety to personal and organizational goals), and Confidence (plant the seed with the idea that they can make a difference through application of proper procedure) (Keller, 1987a, 1987b).
- **Demonstration:** Consistent with Merrill’s (2002) focus on showing/watching as opposed to just telling of portrayal level information, Consistency Corollary (consistent with learning objectives including conditions, behavior, and criteria as well as using demonstrations for procedures), Learner Guidance Corollary (using multiple demonstrations as well as spotlighting what is critical, difficult, and/or complex), and Keller’s Attention (watching demonstration and relating to what they are going to do) and Relevance (demonstration scenarios are aligned with on-the-job learning objectives (Keller, 1987a, 1987b)
- **Application:** Consistent with Merrill’s (2002) focus on “let me” and participative learning through doing with real-world tasks, Practice Consistency Corollary (providing practice/assessment consistent with on-the-job learning objectives), Diminished Coaching Corollary (guiding learners through diminishing coaching/feedback – scaffolding), Varied Problems Corollary (providing multiple opportunities to practice and be assessed with a variety of examples/factors that will be experienced on the job), and Keller’s Attention, Relevance, Confidence, and Satisfaction (learners will practice real-world tasks in a safe environment giving them confidence/satisfaction that they can perform these tasks properly without injury or damage on their own) (Keller, 1987a, 1987b).
• **Integration:** Consistent with Merrill’s (2002) focus on integrating the new knowledge into the learner’s world of watch standing. Reflection Corollary (opportunity to think about what has been learned and how it can be applied in future watch standing activities), Creation Corollary (reflecting on how the learner can use this information to improve line handling operations and safety at Sector San Juan), and Keller’s Attention, Relevance, Confidence, and Satisfaction (learner can confidently verbalize how he/she will use this information in their real-world operations as watch standers) (Keller, 1987a, 1987b).

• **Problem Solving:** The training program is consistent with Merrill’s (2002) Corollaries of Show Task (actual demonstration/practice with cutter, pier, mooring/handling lines, etc), Task Level, and Problem Progression (increasing difficulty through the manipulation of factors such as wet/dry lines, resistance, location of lines, etc.)
References:


Retrieved from https://blackboard.boisestate.edu/webapps/blackboard/content/listContent.jsp?content_id=_3468196_1&course_id=_71797_1&mode=view#_3468208_1
Detailed Instructional Plan Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

**DETAILED INSTRUCTIONAL PLAN**

**Line Handling for Watch Standers**

**Course Information**

The United States Coast Guard (USCG) Sector San Juan daily watch standers are critical to the safety and security of the unit. Members stand a 24-hour duty or 'watch' and provide a variety of logistical needs and services to maintain operations. Some of the duties of a watch stander include: providing base security, delivering repair parts to deployed units, disposing of hazardous material, and providing line-handling assistance to the cutters.

This project focuses on pier-side line handling during a cutter mooring evolution for watch standers at Sector San Juan. Watch standers are referred to as line handlers when they are working in that capacity. The instruction will begin with line handlers in position on the pier awaiting the cutter to begin the mooring process. The project will focus on three sequential and critical tasks including: receiving the line, handling the line, and affixing the line. The instruction will end after the line handler affixes one mooring line to the pier’s cleat/bollard though a typical mooring operation might require that several lines be affixed.

<table>
<thead>
<tr>
<th>Performance Gap(s)</th>
<th>Strategic Business Objective(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Desired Performance</strong></td>
<td><strong>Background:</strong> Several major accidents have occurred in the USCG’s history, which can be partially or fully attributed to the mishandling of mooring lines by pier personnel. These accidents have yielded death, personnel injury, and/or property damage.</td>
</tr>
<tr>
<td>Target Population</td>
<td>Performance</td>
</tr>
<tr>
<td>We want our Sector San Juan watch standers</td>
<td>To demonstrate proficiency in handling lines during mooring evolutions</td>
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</tbody>
</table>
Detailed Instructional Plan Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

<table>
<thead>
<tr>
<th>Actual Performance</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Sector San Juan watch standers</td>
<td>Are improperly handling lines during cutter mooring evolutions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Delivery Mode (select one or more)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-paced training</td>
<td>One week before the training, as part of the Activation Phase, the learners will be provided with an advanced comparative organizer and a PowerPoint/Multi-Media presentation. Content will cover previous experience from boot camp using a structure that will draw similarities and comparisons linking new knowledge required to perform line handling duties at Sector San Juan. The learner will engage with this content independently.</td>
</tr>
<tr>
<td>Structured on-the-job training (OJT)</td>
<td>Structured on-the-job training has proven to be effective with the learners who previously served on a USCG cutter. This performance-focused learning format will allow the learners to discuss, observe, and practice mooring evolutions in a safe, controlled, and realistic environment aiding the learner’s transfer of knowledge from training to on-the-job (OJT). This delivery mode was designed to facilitate small group instruction during military transfer periods where a rapid and significant turnover results in a lack of proficiency base-wide such as that found at Sector San Juan. This structured OJT training provides flexibility and supports Sector San Juan’s efforts to quickly and effectively train new line handlers Critical to this process of improving the learner’s nuanced psychomotor actions and communication skills found in line handling is the guidance provided by the instructors and on-site exemplary performers through coaching and delayed feedback during the Demonstration and Application phases. This will allow learners to do the actual task that they are being trained to do, increase the learner’s confidence level, support transfer of knowledge to OTJ, and ultimately result in skill mastery.</td>
</tr>
<tr>
<td>Instructor Facilitated Training</td>
<td>On the actual training day after the course introduction and start of the Activation Phase, the instructors will facilitate a group discussion amongst the class helping them to recall and describe some of the elements of a cutter mooring evolution (previous experience) that they feel will be applicable in a pier-side mooring evolution (new experience). After the practice and assessments included in the Application phase, as part of the Integration Phase the instructors will facilitate a group discussion amongst the class allowing learners to reflect on what they learned and focus on how this will transfer to line handling in their workplace. Additionally, the instructors will ask learners to brainstorm, create “what-if” scenarios, and explore the role of factors that may be present or vary in more complex evolutions (i.e. – heavy winds, heavy currents, rain, darkness, cutter casualty, etc.). These activities will also support the transfer of knowledge from a training environment to on-the-job.</td>
</tr>
</tbody>
</table>

- Maximize operational readiness of cutter and personnel by adhering to highest standards of proficiency
- Provide effective mission support

injury to personnel
Sequencing of Objectives

Critical Tasks (behaviors) that the Training Will Address

1. Receive the line (Task Analysis 1.0)
2. Handle the line (Task Analysis 2.0)
3. Affix the line (Task Analysis 3.0)

<table>
<thead>
<tr>
<th>#</th>
<th>Performance (include TA #)</th>
<th>Conditions on the job</th>
<th>Criteria on the job</th>
</tr>
</thead>
</table>
| 1 | Receive the line (Task Analysis 1.0) | Given: Cues:  
   - Line handlers are in position to handle lines (visual) (output of preparation for Task 1.0)  
   - Instruction from cutter Commanding Officer to cutter line handlers, “Put over line X” (audio)  
   - Instruction from cutter/watch section supervisor of incoming heaving line, “Heads up on pier” (audio)  
   - Incoming heaving line/ball from cutter soars through air and hits the pier (visual)  
   Resources:  
   - Pier clear of obstructions  
   - Pier attachment structures (i.e. cleat or bollard)  
   - Watch Section Supervisor providing supervision  
   - USCG Cutter situated close to the pier  
   - Heaving and mooring line provided by cutter  
   - PPE |  
   - Walks towards bow of cutter when Line 1 or 3 is called over OR walks towards stern of cutter when Line 2 or 4 is called over  
   - Avoids being hit by heaving line/ball  
   - Receives heaving line/ball before it falls into the water.  
   - Without running to recover heaving line  
   - Without dropping heaving line in the water  
   - Uses “hand-over-hand” pulling technique  
   - Without dragging the mooring line on the pier while pulling the heaving line  
   - Without snagging the heaving line on the pier  
   - Wears all PPE items correctly  
   - Without falling into the water  
   - Without personal injury  
   - Without damage to pier  
   - Without damage to cutter |
| 2 | Handle the line (Task Analysis 2.0) | Given: Cues:  
   - Eye of mooring line is close enough to grab (visual) (output of Task 1.0)  
   - Mooring line is wet or dry (touch) |  
   - Handles mooring line with both hands  
   - Bends knees while handing mooring line  
   - Avoids lifting mooring line with back  
   - Uses extra force if mooring line is wet  
   - Wears all PPE items correctly  
   - Without falling into the water  
   - Without personal injury  
   - Without damage to pier  
   - Without damage to cutter |
### Affix the line (Task Analysis 3.0)

**Given:**
- Specific pier structure identified by cutter (i.e. cleat/bollard) is close enough to affix mooring line eye to (audio/visual) (output of Task 2.0)
- Mooring line is wet or dry (touch)

<table>
<thead>
<tr>
<th>#</th>
<th>Performance (include TA #)</th>
<th>Conditions on the job</th>
<th>Criteria on the job</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Instruction from cutter of specific location to affix the mooring line (audio and/or visual)</td>
<td>• Without running to pier attachment structure (i.e. cleat or bollard)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resources:</td>
<td>• Without dropping mooring line on the pier</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Mooring line eye (output of Task 1.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Heaving and mooring line provided by cutter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Pier clear of obstructions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Pier attachment structures (i.e. cleat or bollard)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Watch Section Supervisor providing supervision</td>
</tr>
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<td></td>
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<td></td>
<td>• USCG Cutter situated close to the pier</td>
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<td>• PPE</td>
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</tr>
<tr>
<td>3</td>
<td>Affix the line (Task Analysis 3.0)</td>
<td>Resources:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Pier attachment structures (i.e. cleat or bollard)</td>
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<td>• Pier clear of obstructions</td>
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<td>• USCG Cutter situated close to the pier</td>
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<td></td>
<td>• Mooring line provided by cutter</td>
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<td>• PPE</td>
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</tbody>
</table>
### Detailed Instructional Plan Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

<table>
<thead>
<tr>
<th>#</th>
<th>Performance (include TA #)</th>
<th>Conditions on the job</th>
<th>Criteria on the job</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Without damage to pier</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Without damage to cutter</td>
</tr>
</tbody>
</table>

### Instructional Plan

**Unit 1 [Moor a Cutter]**

<table>
<thead>
<tr>
<th>Course Element</th>
<th>Description / Explanation</th>
<th>Resources</th>
<th>Graphics</th>
<th>Estimated Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activation Part 1</strong>&lt;br/&gt;Pre-Training Introduction &amp; Activity&lt;br/&gt;(Up To One Week Before Training Day)</td>
<td><strong>General Guidelines:</strong>&lt;br/&gt;This phase of the training will be self paced at a time and place determined by the learner.&lt;br/&gt;1. A written pre-training introduction will include a:&lt;br/&gt;a. Thank you to learners for their cooperation and participation in this training program.&lt;br/&gt;b. Brief summarization of what the training program will include and why it is important for watch standers, Sector San Juan, and USCG (SBO alignment)&lt;br/&gt;c. Written agenda for the training program (pre-training and training day activities)&lt;br/&gt;d. Outline of the program’s training goals&lt;br/&gt;2. At least one week before training, provide the learners with a Microsoft PowerPoint/Multi-Media presentation for them to view that focuses on their previous experience as part of cutter side line handling by reviewing the dangers and potential hazards associated with bad moorings as well as provide an overview of relevant USCG specific mishap statistics and incident/accident summaries from Sector San Juan (e.g. injury and damage to cutters/piers) regarding mooring evolutions. Will include a video demonstrating the dangers associated with line handling evolutions linking the role of line handling to the USCG’s organizational goals and SBOs.&lt;br/&gt;3. Provide the learners with a paper copy of the advanced comparative organizer (overview provided in the PowerPoint /Multi-Media presentation) for the learner to review, which creates new experience and structure by</td>
<td>1. Internet compatible personal computer with Microsoft PowerPoint Software&lt;br/&gt;2. Un-muted volume on computer&lt;br/&gt;3. Earphones (if necessary/ desired for hearing)&lt;br/&gt;4. Paper copy of advanced comparative organizer</td>
<td>1. Advanced Comparative Organizer (See Appendix A)&lt;br/&gt;2. PowerPoint /Multimedia presentation file (See Appendix B)</td>
<td>10 mins</td>
</tr>
</tbody>
</table>
### Detailed Instructional Plan Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

<table>
<thead>
<tr>
<th>Course Introduction (On Training Day)</th>
<th>General Guidelines:</th>
<th>1. Paper copy of advanced comparative organizer</th>
<th>1. Advanced Comparative Organizer (See Appendix A)</th>
<th>5 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation Part 2 Training Day Opening Activity (On Training Day)</td>
<td>General Guidelines:</td>
<td>1. Sector San Juan Conference Room with large white board</td>
<td>1. Advanced Comparative Organizer (See Appendix A)</td>
<td>10 mins</td>
</tr>
</tbody>
</table>

| | Comparing the *previous knowledge* of line handling skills/knowledge presented in boot camp (e.g. basic line handling terminology, commands, and techniques) and skills required to line handle at Sector San Juan (e.g. receive, handle, and affix mooring lines). | | | |

<table>
<thead>
<tr>
<th>Course Introduction (On Training Day)</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>General Guidelines:</td>
<td>This phase of the training will be conducted in the Sector San Juan conference room.</td>
<td>The instructors will:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Greet the learners as they enter the training location</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>2. Distribute a paper copy of the advanced comparative organizer (overview provided in the PowerPoint /Multi-Media presentation)</td>
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<tr>
<td></td>
<td></td>
<td>3. Welcome the learners to the training</td>
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<tr>
<td></td>
<td></td>
<td>4. Provide the learners with an introduction of all the instructors and exemplary performers assisting in the training exercise</td>
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<tr>
<td></td>
<td></td>
<td>5. Review the training’s goals and provide a review of the day’s agenda</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Activation Part 2 Training Day Opening Activity (On Training Day)</th>
<th>General Guidelines:</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>This phase of the training will be conducted in the Sector San Juan conference room.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. Following the introduction outlined above, engage learners in a group discussion by asking them to:</td>
<td></td>
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<tr>
<td>a. Recall and describe some of the elements (e.g. equipment or procedure) of a cutter mooring evolution (<em>previous experience</em>) that they feel will be applicable in a pier-side mooring evolution (<em>new experience</em>).</td>
<td></td>
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</tr>
<tr>
<td>b. Discuss and reflect on the key points learners extracted from the pre-training assignment assisting them in connecting the <em>previous experience</em> of boot camp and cutter experience with the similarities contained in the <em>new knowledge</em> of pier-side line handling supported by the structure of the advanced comparative organizer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Explore why proper line handling techniques are vital to minimizing potential hazards and injuries as well as why that is important to them, Sector San Juan, and the USCG. Ensure that learners can express how their actions align with the USCG's SBOs (e.g. minimizing risk, ensuring safety of its people, adhering to the highest standards of proficiency, minimizing property damage, and contributing to effective mission support).</td>
<td></td>
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</tbody>
</table>
2. Encourage the learners to use the knowledge gained from viewing the Microsoft PowerPoint/Multi-media presentation and *structure* of the advanced comparative organizer provided in paper copy up to a week before training and present in the conference room as a large-scale replica on the white board.

---

### Course Element | Description / Explanation | Resources | Graphics | Estimated Time
--- | --- | --- | --- | ---
**Demonstration** | General Guidelines:
This phase of the training will be conducted on pier Delta North with the cutter moored on Charlie South.

- As Group 1 instructors/exemplary performers, you will perform the two demonstrations. During this time, Group 2 instructors/exemplary performers will prepare materials for the Application Phase.
- If at any time, you observe or predict the possibility of imminent personal injury or damage to the cutter or pier, stop the scenario and take corrective action to avoid damage/injury.
- Exemplary performer “B” from Group 1 will act as the pier line handler and perform all actions for the learners to observe.
- Exemplary performer “A” from Group 1 will act as the cutter line handler, use the QB Wristband Coach to guide them, and use the portable radio to maintain communication with you.

**Pre-Brief (1 minute):**

1. Review the **auto fails** with the learners, which are most **critical** to task completion. These include:
   - *Continue to wear PPE correctly*
   - *Not fall into the water*
   - *Not suffer personal injury*
   - *Not inflict damage to the pier*
   - *Not inflict damage to the cutter*
2. Read the following background information to the learners noting that it will apply to ALL demonstration scenarios:
   *While on watch as a Sector San Juan watch stander, you receive a call from the Sector San Juan Watch Section Supervisor requesting your assistance in USCG MATINICUS’ mooring evolution in 15 minutes at pier Delta North. After receiving the call, you immediately locate and grab your PPE and walk to pier Delta. Upon arriving to*
the pier, you don your PPE, meet with the Sector San Juan Watch Section Supervisor, and receive a pre-mooring brief. You are informed that the cutter will be mooring port side to the pier and bow-in. Immediately after the brief, you move into the middle of the pier and await the cutter’s arrival and instructions.

3. Complete Demonstrations 1 and 2 outlined below.

### Demonstration 1 (6 minutes):

This practice scenario will include a **dry** mooring line and **no** line resistance while pulling.

*Use Demonstration Scenario #1 Card (see Appendix C)*

During the demonstration, you will slowly break down each task paying particular attention to the sub-tasks; focus on what is **critical**, **difficult**, and **complex**:

- a. Receive the heaving ball/line before it falls in the water
- b. Not drop the heaving line or mooring line in the water
- c. Not snag the heaving line on the pier
- d. Avoid placing hands/fingers between the mooring line and pier attachment
- e. Attach mooring line without it slipping off or causing the cutter to surge
- f. Move more than 5 feet away from pier attachment structure

### Demonstration 2 (6 minutes)

This practice scenario will include a **wet** mooring line and **medium** line resistance while pulling.

*Use Demonstration Scenario #2 Card (see Appendix C)*

This demonstration will slowly break down each task paying particular attention to the sub-tasks; focus on what is **critical**, **difficult**, and **complex**:

- a. Receive the heaving ball/line before it falls in the water
- b. Not drop the heaving line or mooring line in the water
- c. Not snag the heaving line on the pier
- d. Avoid placing hands/fingers between the mooring line and pier attachment
- e. Attach mooring line without it slipping off or causing the cutter to surge
- f. Move more than 5 feet away from pier attachment structure

### Debrief (7 minutes):

4. Conduct a debrief including items outlined below.

5. Re-review of the auto fails including:
   1. **Continue to wear PPE correctly**

| Performer, | 4. Life rings (in case someone falls in the water) | 6 mins |
| performer, | 5. Designation in writing from Chief of Military Personnel as Instructor | 6 mins |
| and learner | 6. A Cutter moored at pier Charlie-South | |
| 7. An empty and unobstructed pier Delta-North (no cutter moored) | 8. Cutter mooring lines (one wet, one dry) | 6 mins |
| 9. Cutter heaving lines | 10. Copy of general scenario script | |
| 11. Portable radio | **Exemplary Performers:** | |
| 1. PPE | 2. Portable radio | 7 mins |
2. Not fall into the water  
3. Not suffer personal injury  
4. Not inflict damage to the pier  
5. Not inflict damage to the cutter  
6. Re-review the critical, difficult, and complex sub-tasks (same as Demonstration 1 and 2) including:  
   a. Receive the heaving ball/line before it falls in the water  
   b. Not drop the heaving line or mooring line in the water  
   c. Not snag the heaving line on the pier  
   d. Avoid placing hands/fingers between the mooring line and pier attachment  
   e. Attach mooring line without it slipping off or causing the cutter to surge  
   f. Move more than 5 feet away from pier attachment structure  
7. Compare the two demonstrations by focusing on what could vary for line handlers within evolutions:  
   a. Quality of heaving line throw  
   b. Weight of line (i.e. wet or dry)  
   c. Resistance on the mooring line from cutter  

**Demonstration Consistency:**  
The demonstrations are consistent with learning objectives including conditions, behavior, and criteria. The step-by-step process used by the exemplary performers to demonstrate the task is consistent with the task analysis and expectations in the Application Phase.  

**Learner Guidance:**  
Using multiple demonstrations that vary in difficulty, you as the instructor will spotlight what is considered an automatic failure as well as what is considered critical, difficult, and/or complex. Additionally, you will spend time after the demonstrations comparing these elements and explaining what could change within the scenarios (i.e. quality of heaving line throw, dry/wet line, resistance on line, etc.).

**Application**  
(On Training Day)  
**General Guidelines:**  
This phase of the training will be conducted on pier Delta North with the cutter moored on Charlie South.  
• You will administer the learners all three assessments sequentially (Scenario 1, 2, and 3).  
• All members of Group 1 and 2 who are NOT completing the assessment return to the Sector San Juan conference room and wait their turn.  
• Alternate lines for Group 1 and 2 to ensure their consistent placement at opposite ends of the pier for each scenario set.  

| Learner: | 1. CG working uniform  
2. Hard hat (provided by instructor)  
3. Life jacket (provided by) |
| --- | --- |
| 1. Exemplary Performers QB Wristband Coach (See Appendix C)  
2. Scenario Cards (See Appendix D)  
3. Post- | 110 mins total |
Detailed Instructional Plan Pass 2, Team USCG (Romano, Weist, Shamsy, Lee)

- If at any time, you observe or predict the possibility of imminent personal injury or damage to the cutter or pier, stop the scenario and take corrective action to avoid damage/injury.
- Exemplary performer “A” from Groups 1/2 will act as the cutter line handler and will use the QB Wristband Coach to guide them and the portable radio to maintain communication with you.
- Since you will not have any control over the quality of heaving line toss of exemplary performer “A”, the learners will respond to the heaving line toss regardless of the quality of the throw. However, for each scenario, exemplary performer “A” will make his/her best attempt at a perfect throw.
- The scenarios will vary in difficulty by using a wet line and/or resistance on heaving and/or mooring lines by exemplary performer “A” while the learner pulls.
- Exemplary performer “B” from Groups 1/2 will act as an assistant grader, additional safety observer, and will stage the practice on pier Delta North with the instructor.
- Utilize the Scenario Cards and Coaching Table spreadsheet to assist during the Application phase.

Before the Practice Scenarios

1. Ensure conditions are met:
   a. Daylight; the training will commence between normal working hours of 0700-1530 local depending on learner and instructor schedules.
   b. Wind will be less than 15 knots
   c. No precipitation
2. Ensure all materials listed above are available and ready.
3. Ensure the pier is clear of obstructions after the demonstration scenarios.
4. Ensure all of the learners are correctly wearing their PPE.
5. Provide the learners with the following instructions:

   During this stage of the training, like you observed in the Demonstration Phase, you will be required to receive, handle, and affix one of cutter’s mooring lines to the pier-side cleat or bollard designated by the cutter line handler. You will receive varied and decreasing levels of feedback or coaching as the practices progress. Feel free to ask the exemplary performers or me any questions before or after any of the scenario and during Scenarios 1 and 2.

   Group 1 will be wearing white hard hats and Group 2 will be wearing blue hard hats. Group 1 will be assessed by [Insert Name] who will be representing the Cutter’s Commanding Officer and will be assisted by [Insert Name] who will be representing the cutter’s line handler. [Insert Name] will also be assisted by [Insert Name] who will help with the observation and grading as part of this instructor.

Assessment Checklist (See Appendix E)
6. Provide the following background information to the learners noting that it will apply to ALL Practice scenarios:

While on watch as a Sector San Juan watch stander, you receive a call from the Sector San Juan Watch Section Supervisor requesting your assistance in USCGC MATINICUS’ mooring evolution in 15 minutes at pier Delta North. After receiving the call, you immediately locate and grab your PPE and walk to pier Delta. Upon arriving to the pier, you don your PPE, meet with the Sector San Juan Watch Section Supervisor, and receive a pre-mooring brief. You are informed that the cutter will be mooring port side to the pier and bow-in. Immediately after the brief, you move into the middle of the pier and await the cutter’s arrival and instructions.

7. Ensure all members of Group 1 are wearing white hard hats and all members of Group 2 are wearing blue hard hats.

8. Advise learners that the practice will begin with your voice command simulating the Commanding Officer’s instruction.

9. Direct the learners from Group 1 and 2 to stage themselves in the center of the pier Delta North.

10. Ensure that you and exemplary performer “B” are in a good observation position (e.g. close to the learner, but not close enough to impede) and that he/she knows not to provide feedback or coaching during the assessment and that he/she can stop the assessment in order to resolve a situation that poses an imminent or in his/her estimation a potential for danger.

11. Ensure that you and exemplary performer “A” have radio communication and that communications for Group 1 and 2 are on different radio frequencies.

12. Ensure that exemplary performer “A” is ready to begin the assessment (e.g. heaving line tied to mooring line and mooring line faked out and ready to be thrown), exemplary performer “B” is ready to observe/evaluate, and the learner is ready to begin the assessment for both Group 1 and 2.

13. Commence the scenario/assessments simultaneously with the appropriate verbal command.

Number of practices: 6

**Practice 1 (~15 minutes total for the 3 learners of each group):**

- This practice scenario will include a dry mooring line and no line resistance while pulling.
- The learners will complete Task 1.0 through 3.0 while being heavily coached through the tasks and will receive immediate and detailed feedback at every sub-task from their instructor(s).
- During this practice, the instructors will use the Post-Assessment Checklist to provide feedback on sub-tasks and tasks.

<table>
<thead>
<tr>
<th>pier Delta-North (no cutter moored)</th>
<th>8. Cutter mooring lines (one wet, one dry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Cutter heaving lines</td>
<td>10. Copy of general scenario script</td>
</tr>
<tr>
<td>11. Copy of assessment scenarios</td>
<td>12. Copy of the Post-Assessment Checklist (one per learner)</td>
</tr>
<tr>
<td>cards (one for each instructor and exemplary performer)</td>
<td>13. Clipboard</td>
</tr>
<tr>
<td>14. Pen or pencil</td>
<td>15. Portable radio</td>
</tr>
<tr>
<td>Exemplary Performers: 1. PPE</td>
<td></td>
</tr>
<tr>
<td>2. Portable radio</td>
<td></td>
</tr>
<tr>
<td>3. QB Wristband Coach</td>
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</tbody>
</table>

15 mins
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<table>
<thead>
<tr>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Group 1 Instructor will use Group 1 - Practice Scenario #1 Card (see Appendix D)</td>
</tr>
<tr>
<td>- Group 2 Instructor will use Group 2 - Practice Scenario #1 Card (see Appendix D)</td>
</tr>
<tr>
<td>- Group 1 Exemplary Performers will use the Group 1 QB Wristband Coach (See Appendix C)</td>
</tr>
<tr>
<td>- Group 2 Exemplary Performers will use the Group 2 QB Wristband Coach (See Appendix C)</td>
</tr>
<tr>
<td>- Use the Coaching Table below for level of coaching/feedback.</td>
</tr>
</tbody>
</table>

### Practice 2 (~15 minutes total for the 3 learners of each group):

- This practice scenario will include a wet mooring line and slight line resistance while pulling.
- The learners will complete Task 1.0 through 3.0 while being **heavily coached** through the tasks and will receive immediate and detailed feedback at every sub-task from their instructor(s).
- During this practice, the instructors will use the Post-Assessment Checklist to provide feedback on sub-tasks and tasks.

<table>
<thead>
<tr>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Group 1 Instructor will use Group 1 - Practice Scenario #2 Card (see Appendix D)</td>
</tr>
<tr>
<td>- Group 2 Instructor will use Group 2 - Practice Scenario #2 Card (see Appendix D)</td>
</tr>
<tr>
<td>- Group 1 Exemplary Performers will use the Group 1 QB Wristband Coach (See Appendix C)</td>
</tr>
<tr>
<td>- Group 2 Exemplary Performers will use the Group 2 QB Wristband Coach (See Appendix C)</td>
</tr>
<tr>
<td>- Use the Coaching Table below for level of coaching/feedback.</td>
</tr>
</tbody>
</table>

### Practice 3 (~11 minutes total for the 3 learners of each group):

- This practice scenario will include a dry mooring line and no line resistance while pulling.
- The learners will complete Task 1.0 through 3.0 while being **minimally coached** through the tasks and will receive detailed feedback only if necessary at the end of the each task from their instructor(s).
- Note: During feedback in this practice, the instructors will focus on what is **difficult, complex, and critical** and not use the Post-Assessment Checklist.

<table>
<thead>
<tr>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Group 1 Instructor will use Group 1 - Practice Scenario #3 Card (see Appendix D)</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Practice 4 (~11 minutes total for the 3 learners of each group):</th>
</tr>
</thead>
<tbody>
<tr>
<td>• This practice scenario will include a <strong>wet</strong> mooring line and <strong>medium</strong> line resistance while pulling.</td>
</tr>
<tr>
<td>• The learners will complete Task 1.0 through 3.0 while being <strong>minimally coached</strong> through the tasks and will receive detailed feedback if necessary at the end of the each task from their instructor(s).</td>
</tr>
<tr>
<td>• During feedback in this practice, the instructors will focus on what is <strong>difficult, complex, and critical</strong> and not use the Post-Assessment Checklist. See coaching table below.</td>
</tr>
</tbody>
</table>

**Notes:**

| • Group 1 Instructor will use Group 1 - Practice Scenario #4 Card (see Appendix D) |
| • Group 2 Instructor will use Group 2 - Practice Scenario #4 Card (see Appendix D) |
| • Group 1 Exemplary Performers will use the Group 1 QB Wristband Coach (See Appendix C) |
| • Group 2 Exemplary Performers will use the Group 2 QB Wristband Coach (See Appendix C) |
| • Use the Coaching Table below for level of coaching/feedback. |

<table>
<thead>
<tr>
<th>Practice 5 (~9 minutes total for the 3 learners of each group):</th>
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<tbody>
<tr>
<td>• This practice scenario will include a <strong>dry</strong> mooring line and <strong>no</strong> line resistance while pulling.</td>
</tr>
<tr>
<td>• The learners will complete Task 1.0 through 3.0 <strong>without coaching</strong> and will receive feedback after the evolution is complete.</td>
</tr>
<tr>
<td>• This practice scenario will serve as a mock assessment (e.g. “mirror” of the assessment).</td>
</tr>
<tr>
<td>• During this practice, the instructors will grade the performance using the Post-Assessment Checklist and provide learner feedback as well as their score.</td>
</tr>
</tbody>
</table>

**Notes:**

| • Group 1 Instructor will use Group 1 - Practice Scenario #5 Card (see Appendix D) |

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Practice 6 (~9 minutes total for the 3 learners of each group):
• This practice scenario will include a **wet** mooring line and **medium** line resistance while pulling.
• The learners will complete Task 1.0 through 3.0 **without coaching** and will receive feedback after the evolution is complete.
• This practice scenario will serve as a mock assessment (e.g. "mirror" of the assessment).
• During this practice, the instructors will grade the performance using the Post-Assessment Checklist and provide learner feedback as well as their score.

**Notes:**
• **Group 1 Instructor will use Group 1 - Practice Scenario #6 Card (see Appendix D)**
• **Group 2 Instructor will use Group 2 - Practice Scenario #6 Card (see Appendix D)**
• **Group 1 Exemplary Performers will use the Group 1 QB Wristband Coach (See Appendix C)**
• **Group 2 Exemplary Performers will use the Group 2 QB Wristband Coach (See Appendix C)**
• **Use the Coaching Table below for level of coaching/feedback.**

Before the Assessment Scenarios

1. Ensure conditions are met:
   d. Daylight; the training will commence between normal working hours of 0700-1530 local depending on learner and instructor schedules.
   e. Wind will be less than 15 knots
   f. No precipitation
2. Ensure the pier is clear of obstructions after the practice scenarios.
3. Ensure all of the learners are correctly wearing their PPE.
4. Provide the learners with the following instructions:
   
   **During this stage of the training, like the practice portion, you will be required to receive, handle, and affix one of cutter’s mooring lines to**
the pier-side cleat or bollard designated by the cutter line handler. Unlike the practice scenarios, you will not receive feedback or coaching and not be able to ask any questions once the scenarios begin.

Group 1 will be wearing white hard hats and Group 2 will be wearing blue hard hats. Group 1 will be assessed by [Insert Name] who will be representing the Cutter's Commanding Officer and will be assisted by [Insert Name] who will be representing the cutter's line handler. [Insert Name] will also be assisted by [Insert Name] who will help with the observation and grading as part of this assessment.

You will be completing a total of three assessments and each assessment will be different. In order to pass, you must complete the three assessments while only making a cumulative total of two errors and one of the assessments must be flawless. If you commit any of the critical errors during the scenario, the scenario will immediately stopped and you will automatically fail. The errors being assessed are the same as described and reviewed in the practice scenarios.

If you meet these requirements, you will earn your qualification as a pier-side line handler. In the event you do not pass this assessment, you will need to schedule a remedial training session with the lead Watch Section Supervisor and re-take the assessment at another designated time.

5. Ask if any of the learners want to hear the scenario again. If yes, read instructions again (see above).
6. Advise learners that the assessment will begin with your voice command simulating the Commanding Officer's instruction.
7. Direct the learners from Group 1 and 2 to stage themselves in the center of the pier Delta North.
8. Ensure that you and exemplary performer “B” are in a good observation position (e.g. close to the learner, but not close enough to impede) and that he/she knows not to provide feedback or coaching during the assessment and that he/she can stop the assessment in order to resolve a situation that poses an imminent or in his/her estimation a potential for danger.
9. Ensure that you and exemplary performer “A” have radio communication and that communications for Group 1 and 2 are on different radio frequencies.
10. Ensure that exemplary performer “A” is ready to begin the assessment (e.g. heaving line tied to mooring line and mooring line faked out and ready to be thrown), exemplary performer “B” is ready to observe/evaluate, and the learner is ready to begin the assessment for both Group 1 and 2.
11. Commence the scenario/assessments simultaneously with the appropriate verbal command.
### Number of assessments: 3

#### Assessment 1 (~13 minutes total for the 3 learners of each group):
- This assessment scenario will include a **dry** mooring line and **no** line resistance while pulling.
- The learners will complete Task 1.0 through 3.0 **without coaching** and will receive feedback using the Post-Assessment Checklist after all three of the assessments are complete (See Appendix E).

**Notes:**
- **Group 1 Instructor** will use Assessment Scenario #1 Card (see Appendix D)
- **Group 2 Instructor** will use Assessment Scenario #1 Card (see Appendix D)
- **Group 1 Exemplary Performers** will use the Group 1 QB Wristband Coach (See Appendix C)
- **Group 2 Exemplary Performers** will use the Group 2 QB Wristband Coach (See Appendix C)
- Use the coaching table below for level of coaching/feedback.

#### Assessment 2 (~13 minutes total for the 3 learners of each group):
- This assessment scenario will include a **wet** mooring line and **slight** line resistance while pulling.
- The learners will complete Task 1.0 through 3.0 **without coaching** and will receive feedback using the Post-Assessment Checklist after all three of the assessments are complete (See Appendix E).

**Notes:**
- **Group 1 Instructor** will use Group 1 - Assessment Scenario #2 Card (see Appendix D)
- **Group 2 Instructor** will use Group 2 - Assessment Scenario #2 Card (see Appendix D)
- **Group 1 Exemplary Performers** will use the Group 1 QB Wristband Coach (See Appendix C)
- **Group 2 Exemplary Performers** will use the Group 2 QB Wristband Coach (See Appendix C)
- Use the Coaching Table below for level of coaching/feedback.

#### Assessment 3 (~14 minutes total for the 3 learners of each group):
- This assessment scenario will include a **wet** mooring line and **medium** line resistance while pulling.
- The learners will complete Task 1.0 through 3.0 **without coaching** and will receive feedback using the Post-Assessment Checklist after all three of the assessments are complete (See Appendix E).
### Notes:
- Group 1 Instructor will use Group 1 - Assessment Scenario #3 Card (see Appendix D)
- Group 2 Instructor will use Group 2 - Assessment Scenario #3 Card (see Appendix D)
- Group 1 Exemplary Performers will use the Group 1 QB Wristband Coach (See Appendix C)
- Group 2 Exemplary Performers will use the Group 2 QB Wristband Coach (See Appendix C)
- Use the Coaching Table below for level of coaching/feedback.

### Practice Consistency:
The demonstrations are consistent with learning objectives including conditions, behavior, and criteria. The step-by-step process used by the exemplary performers to demonstrate the task is consistent with the task analysis and expectations in the Application Phase.

### Diminishing Coaching:
Starting in Practice 3, your coaching as an instructor will be minimal and then reduced to no coaching in Practice 5 so that participants may practice the mooring task (receiving, handling, and affixing the line) without immediate corrective coaching and feedback. This prepares the learner for the conditions found in the Assessment phase where they will not receive any coaching until after they complete the assessment. You will then review the performance assessment scores and provide feedback to the learners using the Post-Assessment Checklist.

### Varied Problems:
The 6 practice exercises provide the learner with multiple opportunities to complete the mooring task (receive, handle, and affix the line) under a variety of conditions (dry/wet lines, no/slight/medium resistance) and with multiple levels of guidance (feedback and coaching). This will prepare the learners to successfully complete the three training assessments under the prescribed conditions to the minimal level of performance (criteria) while wearing the PPE correctly, without falling into the water, and without personal injury or damage to the pier or cutter. The team collaborated with exemplary performers, Supervisors, and the Client to determine that 9 experiences (6 practice, 3 assessment) are practical, feasible, and appropriate to lead to skill transfer in the actual performance environment.
**COACHING TABLE**

Instructors will use Diminished Coaching Principles as noted in the Coaching Table below:

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Practice Exercise 1 &amp; 2</th>
<th>Practice Exercise 3 &amp; 4</th>
<th>Practice Exercise 5 &amp; 6 and Assessment 1, 2 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition of Guidance</td>
<td>Provides a reminder of key points from the demonstrations <em>prior</em> to beginning Practice 1</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Provides a reminder of key points from Practice 1 <em>prior</em> to beginning Practice 2</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Chunking/Coaching (error detection and correction)</td>
<td>Provides immediate feedback after each discrete <em>sub-task</em> comprising the process</td>
<td>Provides feedback after each <em>task</em> comprising the process</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Focuses on what is <strong>critical, difficult, and complex</strong>:</td>
<td>Focuses on what is <strong>critical, difficult, and complex</strong>, which includes <strong>auto fails</strong>:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Receive the heaving ball/line before it falls in the water</td>
<td>• Continue to wear PPE correctly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Not drop the heaving line or mooring line in the water</td>
<td>• Not wall into the water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Not snag the heaving line on the pier</td>
<td>• Not suffer personal injury</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Avoid placing hands/fingers between the mooring line and pier attachment</td>
<td>• Not inflict damage to the pier</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Attach mooring line without it slipping off or causing the cutter to surge</td>
<td>• Not inflict damage to the cutter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Move more than 5 feet away from pier attachment structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor for auto fails:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Continue to wear PPE correctly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not wall into the water</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not suffer personal injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not inflict damage to the pier</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Not inflict damage to the cutter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use Post-Assessment Instrument to provide delayed feedback (after the practice or assessment)</td>
<td>The checklist will be used after to provide detailed feedback.</td>
<td>None</td>
<td>The checklist will only be used after the assessments to provide the learner’s score.</td>
</tr>
</tbody>
</table>
### Integration Part 1

(On Training Day)

This phase of the training will be conducted in the Sector San Juan conference room.

#### Group Discussion
1. Immediately following the application phase, you will gather the learners and proceed back to the Sector San Juan conference room.
2. Engage learners in a group discussion by asking them to **reflect** on what they have learned during the Demonstration and Application Phases and focus on how this will transfer to line handling in their workplace. Focus on critical, difficult, and complex aspects of performance.
3. Ask learners to brainstorm and **create** “what-if” scenarios in line handling as well explore the role of factors that may be present or vary in more complex evolutions (i.e. – heavy winds, heavy currents, rain, darkness, cutter casualty, etc.) through a group discussion.
4. Encourage learners to refer to the advanced comparative organizer as needed to assist in the brainstorming session.
5. Tell the learners to use the new knowledge/experience gained from the Microsoft PowerPoint/Multi-media presentation, structure of a large-scale replica of the advanced comparative organizer attached to the conference room white board, and training day Demonstration and Application phase activities to their new role in line handling as a watch stander.

<table>
<thead>
<tr>
<th>Resources</th>
<th>Graphics</th>
<th>Estimate Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sector San Juan Conference Room with large white board</td>
<td>1. Advanced Comparative Organizer (See Appendix A)</td>
<td>15 mins</td>
</tr>
<tr>
<td>2. One chair for each learner, instructor, and exemplary performer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Course Summary/Conclusion

(On Training Day)

This phase of the training will be conducted in the Sector San Juan conference room immediately after the Integration - Part 1 phase.

The instructors will:
1. Thank the participants for playing an active role in helping the USCG and specifically Sector San Juan to continually strive for the highest levels of professionalism and safety.
2. Issue the qualification certificates.
3. Dismiss the participants.

<table>
<thead>
<tr>
<th>Resources</th>
<th>Graphics</th>
<th>Estimate Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sector San Juan Conference Room with large white board</td>
<td>1. Advanced Comparative Organizer (See Appendix A)</td>
<td>5 mins</td>
</tr>
<tr>
<td>2. One chair for each learner, instructor, and exemplary performer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Integration Part 2

(Three Weeks After Training Day)

This phase of the training will be conducted at Sector San Juan’s waterfront.

**Actual Mooring Evolution**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Resources</th>
<th>Estimate Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CG working uniform</td>
<td>1. Post Assessment Checklist (See Appendix E)</td>
<td>5 mins</td>
</tr>
</tbody>
</table>
1. A minimum of three weeks after training, consult the lead Watch Section Supervisor and cutter scheduler to determine when the identified learner will be on watch stander duty with a scheduled cutter arriving at Sector San Juan.

2. On the selected day, take a copy of the Post-Assessment Checklist and proceed to the pier when the cutter is inbound (greater than 10 minutes prior to the mooring evolution) and notify the learner that he/she is going to be assessed on his/her line handling performance.

3. Join the learner at the Sector San Juan waterfront with the Watch Section Supervisor (if you as instructor are not qualified in this role) to conduct a mooring evolution as found in the training program at least 5 minutes prior to the cutter’s arrival and commencement of the mooring evolution.

4. Observe and assess the learner participate “real-time” *(watch me)* in a mooring on his/her duty day using the Post-Assessment Checklist to score the learner’s line handling performance.

5. After the mooring evolution is complete, briefly have the learner reflect upon and discuss his/her performance as part of a post-observation/assessment discussion. You may use the Post-Assessment Checklist as a guide for this discussion highlighting areas of exemplary performance or areas that might need improvement.

| 2. Hard hat |
| 3. Life jacket |
| 4. Copy of the Post-Assessment Checklist (one per learner) |
| 5. Clipboard |
| 6. Pen or pencil |

**Total time**

180 mins