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Inside this issue:

A WORD FROM TOPSIDE

Tim Blanton

Create a Healthy Weight Handling Program Climate

Let us face reality. We are all human. We all make mistakes. Most of the time our human mistakes are minor in nature and we continue on. Over time, our mistakes build and we accept additional risk until: (1) we recognize the unacceptable risk, or (2) a significant negative event occurs.

A healthy Navy shore weight handling program is recognized by having personnel who are self-critical. That is, personnel who self-identify minor deviations in the tasks associated with weight handling (maintenance, inspection, testing, operations, rigging) and stop, understand the deviation, document the deviation, learn from the deviation, and share the resultant lesson learned with the community. A sign of weight handling program maturity can be seen in the number of these documented self-identified minor deviations. If these minor deviations are not captured, one has to ask: Is there the growing potential of a larger issue occurring on the horizon?

Through the use of the safety triangle and the associated gradients contained within (see page 2), you will obtain a clearer understanding of the overall health of a program. Once the data is populated within the triangle, you must be careful in your interpretation of the data. Initial instincts would be to say high numbers indicate a program is in need of attention and low numbers/ zeros are good. This is not the case! Although numbers populating the top portion of the triangle (significant accidents, reportable injuries, costly damage to equipment) are not good and indicate management understanding and engagement are needed, data populating the lower portion of the triangle indicates a healthy culture of reporting and a subsequent maturing program. Many activity senior leaders are very proud of the fact that they have not experienced any accidents or near misses in five years. My response: (1) You are either kidding yourself, (2) You do not understand the Navy's crane and rigging accident definitions, or (3) Your activity is not performing much work. Data populating the lower portion of the triangle indicates maturity, and more importantly, is indicative of a self-critical climate that understands how to use minor items that occur on a daily basis to improve. The more data that exists in the lower portion of the triangle, the healthier is the command climate with respect to innovation, efficiency, and continuous improvement. Data in the lower portion of the triangle provides information suited for High Velocity Learning activities. As data in the lower portion of the triangle grows, the potential for events in higher levels of the triangle diminishes.

There are two reasons for this reduction in higher severity potential: (1) As people pay attention to the minor deviations, they become sensitive to those issues, thereby stopping prior to the occurrence of higher level events, and (2) As issues are identified, processes are being revised/improved, training is being modified, improved methods/equipment are being discussed, supervision is engaging, and the lessons learned are shared, thereby multiplying the benefit of documenting the deviation. Will this completely stop a higher level event occurrence? No, but it will dramatically reduce the potential for the higher level event.

As I chop and review each Navy weight handling program evaluation report, I note that many of the reports document on the last page that no crane accidents, no rigging accidents, and no near misses occurred. Some activities, actually a large number of them, have never reported any events. This begs the question: Are you that good? Do you truly understand the Navy's definitions of crane and rigging accidents? Near misses? I am more concerned with activities that have not reported any near misses, crane accidents, or rigging accidents than I am with an activity that has reported numerous near misses and a few minor contact crane accidents. The latter activity understands the definitions, and greater than that, the latter activity is a mature activity that understands the value of being self-critical and learning from the minor issues.

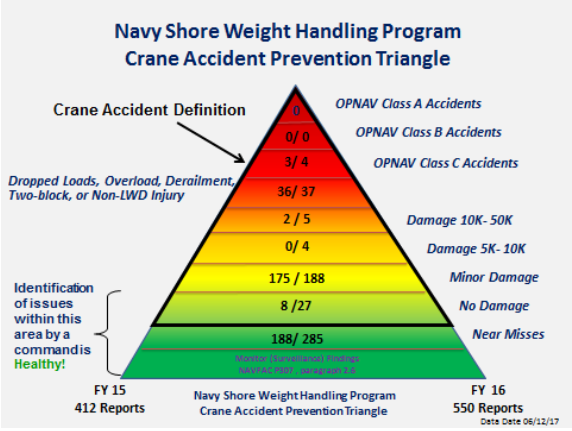
Accepting the concept presented above will, overall, increase reported numbers of near misses and minor crane accidents. I am OK with that and it is what I desire. If those increased numbers result in an improved understanding of the reality of what is occurring in the field, it will make us better and in the long run, it will continue to improve our safety posture (i.e., program maturity). I firmly believe this is what is best for the health of our Navy's weight handling community.

A Healthy Weight Handling Program Climate May Go Against the Grain!

Navy Shore Weight Handling Program/Accident Prevention Triangle

What's this talk about the accident prevention triangle? Here is a little background and explanation!

In the 1930's, H. W. Heinrich published his "triangle theory," which suggested that for every major injury, there are 29 minor injuries and 300 similar events that did not result in injury. His theory was based on his research in the insurance industry. While the actual math of his model has been debated for many years, there is merit in suggesting that rather than focusing only on the lessons learned from the few events at the top of the triangle, there is a much greater opportunity to learn from the many events that lie at the base of the triangle; but only if you look for them, and they are reported and acted upon.



The Navy's shore based weight handling accident prevention triangle is designed to graphically depict weight handling accident/ accident prevention performance.

The base of the triangle (green) represents the number of captured events or learning opportunities that resulted in no injury or damage (i.e. surveillance findings, near misses and no-damage accidents). Considering that every weight handling process has human involvement and humans are destined to make mistakes, this portion of the triangle is where we should find the most activity. It is also the area where our data should give us the best opportunity to learn! How well this portion of the triangle is populated is indicative of the health of a weight handling program. Above the base of the triangle, accidents are progressively grouped according to severity, ending with a pinnacle "Class A" event.

Major events don't just happen! They occur through a series of events wherein the seed of a problem was not corrected when it was smaller and more manageable.

By properly focusing our attention on the factors that lead to the minor events, we improve our chances of decreasing the likelihood of a major event. We should understand how unsafe acts, inadequate supervision or training, or other organizational influences are affecting our ability to safely and efficiently perform weight handling operations. Each of the minor events that we capture provides an opportunity to learn from our mistakes, and to focus on the fundamentals that eliminate the conditions and/or behaviors that move us up the scale on the triangle.

Triangle Severity Definitions

Class "A" Accident - The resulting total cost of damages to Government and other property in an amount of $2 million or more; a DoD aircraft is destroyed; or an injury and or occupational illness results in a fatality or permanent total disability.

Class "B" Accident - The resulting total cost of damage is $500,000 or more, but less than $2 million. An injury results in permanent partial disability or when three or more personnel are hospitalized for inpatient care (which, for accident reporting purposes only, does not include just observation and or diagnostic care) as a result of a single accident.

Class "C" Accident - The resulting total cost of property damage is $50,000 or more, but less than 500,000; or a nonfatal injury that results in one or more days away from work beyond the day or shift on which the injury occurred.

Significant Accident - An accident that typically has a greater potential to result in serious injury or substantial property damage. The following accident types are considered significant accidents: injuries (regardless of severity), overloads, dropped loads, two-blocks, crane derailments, or contact with overhead electrical power lines. Other types of accidents that result in OPNAV Class A, B, C, or D reporting thresholds for material property damage are also considered significant accidents.

Damage >$10K - < $50K – Total Damage costs ranging from $10,000 to <$50,000 to repair or replace.

Damage >$5K - <$10K - Total Damage costs ranging from $5,000 to < $10,000 to repair or replace.

Minor Damage – Damage costs under $5,000 to repair or replace.

No Damage – No damage noted/incidental contact.

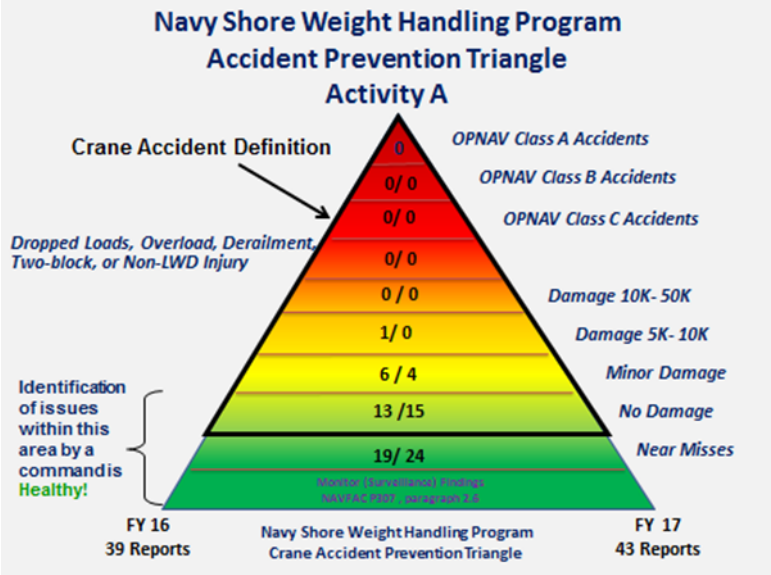
Near Miss - A near miss is an unplanned event during a weight handling operation that did not result in a definable accident noted above but easily had the potential to do so. Only a break in the chain of events prevented an accident. Simply put, a near miss is an accident that almost took place. The difference between a near miss and an accident (serious or otherwise) is often a fraction of an inch or a split second of time.

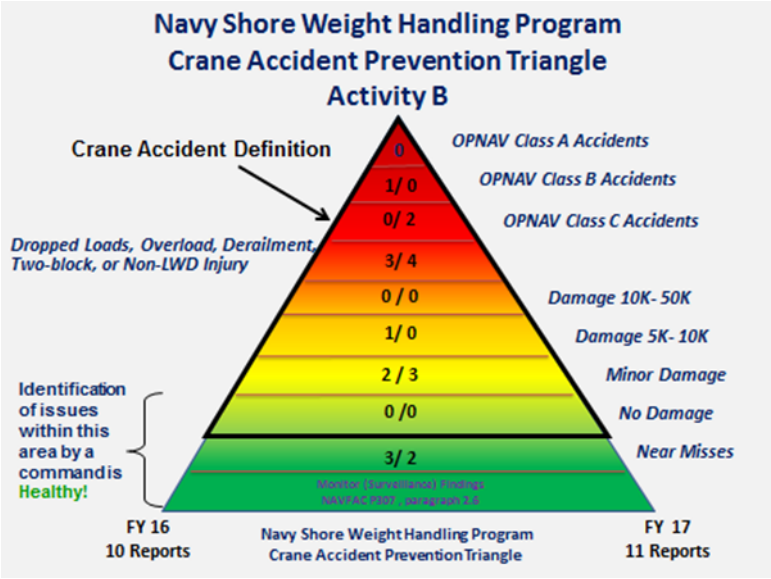
Notice the definition of a significant accident in the triangle. These types of events typically have a greater potential to result in serious injury or property damage. It includes events involving a dropped load, overload, two-block, crane derailment or power line contact or an event that results in any form of an injury. These are also the types of events that we must work to prevent, no matter the severity or consequence of the actual event. Think of an object falling from a load being moved by the crane. The object may hit, graze or miss a person standing in or near the fall zone. No matter the consequence, these types of events are treated equally because of the potential in severity. The same for a crane overload. A 5 percent overload is treated the same as a 25 percent overload. In both cases, there was a failure that allowed the overload to occur and there are lessons to be identified, learned, implemented, and shared to prevent

By depicting the accident prevention triangle in this manner, it becomes possible to start managing (or influencing) weight handling performance by using both lagging indicators (found in the middle to upper part of the triangle – the actual accidents and their severity) and leading indicators (found in base of the triangle) indicating the efforts to uncover and learn from lower order events.

Remembering the Heinrich triangle and its 1-29-300 ratio, our weight handling prevention triangle should look somewhat similar; heavily populated at the base and little to nothing in the upper portions of the triangle. If the base of your activity's triangle starts at the level of the minor (yellow) or significant (red) accidents, you are missing great opportunities to capture and learn from the unreported/ undocumented events that ARE occurring in your weight handling operations!

To illustrate further, the following triangles depict activity accident and near miss performance. What conclusions could you draw from each triangle? Which activity is likely missing (not identifying/reporting) minor events? Which activity appears more mature with respect to increased sensitivity to the minor events? Which activity has a greater chance of minimizing the probability of a significant event?





Bottom line: Embrace a work culture of identifying, reporting, and learning from the minor events. Once identified and documented, make corrections and share lessons learned with others! These learning opportunities keep safety in the forefront while also improving the efficiency of work execution and reducing the frequency of a serious event. Understand what is going on in your weight handling operations, and understand the shape of your triangle!

CRANE SAFETY ADVISORIES AND EQUIPMENT DEFICIENCY MEMORANDA

We receive reports of equipment deficiencies, component failures, crane accidents, and other potentially unsafe conditions and practices. When applicable to other activities, we issue a Crane Safety Advisory (CSA) or an Equipment Deficiency Memorandum (EDM). A CSA is a directive and often requires feedback from the activities receiving the advisory. An EDM is provided for information and can include deficiencies to non-load bearing or non-load controlling parts. A complete list of CSAs and EDMs can be found on the Navy Crane Center's web site.

CSA 228 – MTVR MK36 WRECKER BOOM LENGTH MARKS FOUND MISMATCHED

1. BACKGROUND: During an inspection of a MTVR MK36 Wrecker, the boom length markings on the boom were found mismatched. The lengths were found to be off by 2 inches from side to side. If the wrong boom length marks are used, the actual boom length may exceed load chart values.

2. DIRECTION:

A. During performance of the next operator's daily checklist of an MTVR MK 36 Wrecker, the crane operator shall visually check for mismatched boom length markings. Questionable conditions shall be reported on the ODCL and handled in accordance with NAVFAC P-307 paragraph 9.3. If mismatched length markings are identified and not corrected immediately, apply a caution tag identifying the correct markings to be utilized. At the next A "PM", remove existing markings and replace markings at the correct lengths identified on the crane's load chart.

B. Instances of mismatched markings shall be reported to the Navy Crane Center.

TIP OF THE SPEAR
THIRD QUARTER FY17 EVALUATION SUMMARY

All activity weight handling programs evaluated in the third quarter of fiscal year 2017 were satisfactory (two programs were marginally satisfactory). The two most common evaluation items continued to be the lack of a monitor program (or an ineffective program) and unsafe crane and rigging operations observed by the evaluation teams. The two are closely related. Navy Crane Center evaluators continue to spot unsafe practices at a high frequency, while many activity monitor programs are failing to identify them. Unsafe practices are out there and they will continue until they are recognized locally and corrective actions are taken to resolve them. All personnel should be encouraged to look for errors and better ways to do the job, to jot them down, and to report them. Small changes can have a large effect on job safety and efficiency. A well-running monitor program will also enable the identification of areas of the program where improvement is needed (i.e., effective self-assessments).

Activities should now be fully operating to the requirements of the 2016 revision of NAVFAC P-307. Navy Crane Center evaluators will be looking for full compliance and will be citing the 2016 revision in evaluation reports.

SUMMARY OF PROGRAMS EVALUATED

57 Navy WHE programs were evaluated. 55 were fully satisfactory. Two programs were marginally satisfactory. In addition, one post-evaluation review was performed, and equipment reviews were performed at two Seabee deployment sites.

For FY17 to date, 175 activity programs were evaluated, with 5 programs found marginally satisfactory and no unsatisfactory programs (100% satisfactory rate).

SATISFACTORY CRANES

42 of 52 cranes were satisfactory (81%). For FY17, 125 of 154 cranes were satisfactory (81%).

REASONS FOR UNSATISFACTORY CRANES

- Incorrect load test procedure (four cranes).
- Improper check of hoist secondary limit switch (two cranes).

- Wire rope misreeved, damaged.

- Missing tapered washers on trolley to bridge connections.

- Misspooled wire rope.

- Brake measurements not recorded on brake data sheet.

- Hydraulic leak.

- Damaged hydraulic lines.

- Cable reel did not retract.

EVALUATION ITEMS

Common Evaluation Items (five or more items):

- Lack of monitor program or established program that needs improvement - 33 items.

- Various unsafe crane and rigging operations observed by the audit team (side loading, unattended load, standing/walking beneath load, operating without signals, poor signaling, pinch points, slings bunched in hooks, load not balanced, no synthetic sling protection, brakes not checked at start of lift, side loading of shackles, trackwalker out of position, swivel hoist rings not torqued, trolley racked to one side, etc.) - 27 items.

- Operators/riggers/test directors lacked essential knowledge (recognizing crane accidents, complex lifts, knowing the weight of the load, how to connect special equipment, etc.) – 20 items.

- Inspection and certification documentation errors - 17 items.

- Local weight handling program instruction/ standard operating procedures non-existent or inadequate - 17 items.

- Operator's daily/monthly checklists and simulated lifts performed incorrectly or nor performed - 15 items.

- Operator license/file discrepancies (no Objective Quality Evidence (OQE) of performance exam; examiner not licensed; no OQE of safety course; no OQE of operation to waive performance test; course not signed by examiner; course improperly graded; corrective lenses not noted; course not graded; licensed for more than 2 years; license not in possession of operator; operating with expired license; operating with no license) – 12 items.

- Training issues, including contractor personnel (training not taken; refresher training not taken or not taken within three months of license renewal; lack of inspector training; locally required training not taken) - 10 items.

- ODCL/OMCL documentation deficiencies (including incorrect form used) - 9 items.

- Lack of (or low number of) lower order crane or rigging accident and near-miss reports – 8 items.

- Deficient or worn rigging gear (including noncompliant gear) - 8 items.

- Unrecognized/unreported accidents or near misses (including damaged gear not investigated for cause) – 8 items.

- Rigging gear, containers, brows, test weights, etc., not marked properly or marking not understood by riggers (including illegible marking, mismatched components, SPS vs GPS, pin diameter not marked on alternate yarn roundslings) – 8 items.

- Unapproved crane or gear alteration – 7 items.

- Rigging gear/crane structures/other section 14 equipment not in the program or lack documentation – 6 items.

SUMMARY OF WEIGHT HANDLING EQUIPMENT ACCIDENTS SECOND QUARTER FY17

The purpose of this message is to disseminate and share lessons learned from select shore activity weight handling accidents, near misses, and other unplanned occurrences so that similar events can be avoided and overall safety can be improved.

Accidents: For the second quarter of FY17, 72 Navy weight handling accidents (53 crane and 19 rigging) were reported. The ratio of significant accidents to total accidents has increased over the past three quarters from 19 percent to 24 percent; primarily driven by an increase in the number of crane accidents involving rigging gear overloads and dropped loads. Significant accidents (overload, dropped load, injury, two-block, derailment, or overhead power line contact) are accidents that have the potential to result in serious injuries, substantial material damage, or equipment costs and require a more detailed investigation. In addition to the Navy accidents, there were 5 contractor crane accidents reported.

INJURIES

Accidents: Three injuries were reported, including one OPNAV reportable injury. An excess chain retention bucket for a chain hoist fell from its installed location and struck a worker on the hard hat. A worker was injured when a cooling chamber cover shifted in the rigging and pinched the worker's hand. A rigger sustained a fracture to his right foot when an anchor securing device slipped from its lashing and dropped on the individual's foot.

Lessons Learned: The primary cause identified for two of the three injuries was improper rigging, and in both instances the load either slipped from or shifted in the rigging. For the majority of reported injuries, improper rigging is identified by activities as the direct cause. An investigation of the accident involving the dropped load that caused a fractured foot identified that the lashing used to control and support the load was insufficient. In this event, as in many others, it is also important to recognize that there were contributing causes that, if identified, would have prevented the event from occurring or at least prevented the injury. In addition to improper rigging, the activity identified that the rigger-in-charge (RIC) did not verify the load was properly rigged and the supervisor did not invoke complex lift requirements as required by NAVFAC P-307. Lastly, it is critical to point out that the rigger unnecessarily placed himself in the fall one. Unfortunately, these circumstances are common themes when weight handling accidents result in personnel injuries.

One accident of particular concern occurred when a mechanic attempted to manipulate a suspended load in its rigging. Improper rigging resulted in an unrestrained portion of the load to shift while rotating the load, pinching the mechanic's fingers. The investigation identified that the mechanic was attempting to manipulate the load without assistance. In addition, the mechanic's actions to rotate the tool caused the suspended component to shift. The mechanic did not have the original equipment manufacturer's operating manual on the job site. Following the accident, the activity convened a safety stand down to discuss operational risk management and job hazard analysis focusing on preventing pinch point injuries. Supervisors play an important role in the job planning process and are essential to the risk mitigation process. Supervisors should make a point of identifying potential hazards that can lead to personnel injuries, like extremities caught in pinch points or being struck by the load. Risk identification and mitigation are mandatory elements of every weight handling revolution, and focusing on risk mitigation via job planning is key to preventing personnel injuries.

DROPPED LOADS

Accidents: There were six dropped load accidents, including one identified above that resulted in an injury. A scrap milling machine being positioned by a fork lift fell to the deck when the synthetic sling was overloaded to failure during the operation. While rigging a hydraulic manifold assembly, an unsecured valve handle fell off the manifold assembly and onto the material highway conveyor. A synthetic sling broke when it was cut while lifting one end of a propeller blade resulting in one end of the blade to drop to the ground.

A shore power cable fell out of the lifting block attachment and into the water due to excessive swing in the cable. A test fixture being placed into a test stand, dropped from its support assembly as a result of side loading by the crane.

Lessons Learned: The majority of dropped load accidents this quarter occurred as a result of improper rigging. One accident of particular interest occurred while positioning a single propeller blade on a pallet when the sharp edges of the rigging attachment point cut the rubber sling protection and the synthetic rigging strap used to lift the blade. The 6,300-pound blade, which was not fully suspended, fell approximately two feet onto the pallet. The investigation identified that the RIC did not have the engineered lifting attachment for lifting the blade; but instead, used a synthetic sling and rubber for sling protection.

NAVFAC P-307 2016 contains requirements and precautions for lifts utilizing synthetic slings, and paragraph 14.7.4 (Synthetic Slings) requires that sling protection be of sufficient thickness and strength to prevent sling damage. As in this instance, sling damage often results in catastrophic sling failure with little or no warning.

When cutting is a potential, the sling should be completely blocked from contacting the load edge with a hard material, not soft materials such as canvas, fire hoses, or leather gloves. In this instance, the activity recognized that the RIC should have stopped and notified supervision when it was recognized that a special lifting assembly was needed.

OVERLOADS

Accidents: Six overload accidents were reported. The maximum allowable test load tolerance for a crane was exceeded when the test director misread the weight of a test load. A plate clamp was overloaded when a steel plate was lifted after incorrectly estimating the weight. A mobile crane was overloaded in the process of lifting a shipboard elevator hatch. A multi-purpose machine (forklift) was overloaded during a lift of diver's air bags. A one-ton chain hoist that was found with elongated hooks was determined to have been overloaded during a weight handling evolution. Rigging gear was overloaded while disassembling a bow dome handling ring when the ring tipped over into slack rigging gear.

Lessons Learned: Four out of the six overload accidents occurred as a result of rigging gear overloads. The primary cause identified was improper operation, but several contributing causes included personnel error in calculating the weight of the load or misreading the weight of the test load. Gear damage resulted in half of the overload accidents, and there was one accident of particular concern that resulted in rigging gear damage and a near injury.

Personnel were attempting to disassemble a 4,000 - pound bow dome handling fixture when there was a loss of control of the section being removed. Slack rigging gear that was attached to the load and the crane prevented the load from falling, but a rigger attempting to stabilize the load was struck by the load and subsequently tripped and fell to the ground. Fortunately, there were no injuries as a result of the accident. The investigation concluded that personnel did not utilize local instructions to properly plan and mitigate the hazards of the operation. It is incumbent on weight handling program managers to stress the concept of effective teamwork. Team members shall work together to ensure the safety of weight handling operations and recognize potential problems. Personnel should stop the job any time unsafe conditions or risks are found and report these issues to supervision.

NEAR MISSES

In the first quarter of FY17, there was a rare and substantial decline in near miss reporting. Reporting of near misses declined by nearly 50 percent. Near miss reports allow activities to learn from situations in which an accident "almost" occurred so that significant accidents can be averted. By focusing on and learning from minor events, it is possible to reduce the probability of a significant accident from occurring by providing the opportunity to identify risks that can be mitigated. Near miss reports are not usually intended to be as thoroughly investigated as those for a crane or rigging accident; however, the investigation and report should be commensurate with the significance of the event.

Several near miss reports submitted this quarter would have resulted in significant accidents, and potentially prevented personnel injury and equipment damage. Weight handling program managers are strongly encouraged to stress the importance of conducting observations to their personnel in order to identify tangible deficiencies and near misses.

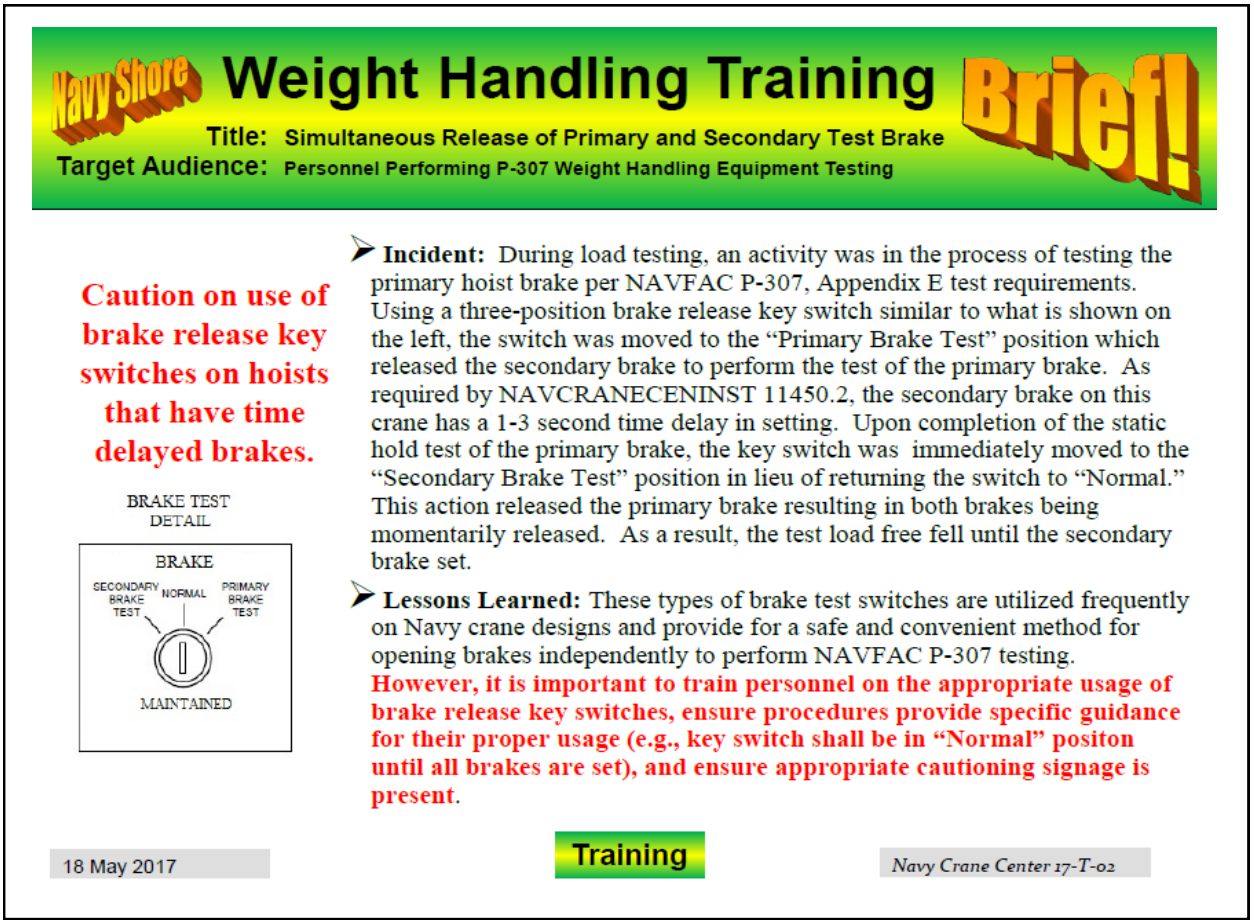
Weight handling program managers, operations supervisors, and safety officials should review the above lessons learned with personnel performing weight handling operations and share lessons learned at other activities with personnel at your activity. Data from the first quarter of FY17 indicates that there is a need to focus on eliminating personal injuries, specifically by increasing awareness to pinch points when working on suspended loads. In addition, the substantial decline in near miss reporting is of particular concern due to the missed opportunities for identifying issues that have the potential to result in more significant accidents. Commanding officers and civilian leaders are encouraged to stress this issue to their weight handling program managers. I am confident this trend will be reversed and look forward to assisting as we work together to accomplish our primary mission of enabling the warfighter.

WEIGHT HANDLING TRAINING BRIEFS

Weight Handling Training Briefs (WHTBs) are provided for communication to weight handling personnel. On 21 June 2016, the new NAVFAC P-307 revision was signed and became available for immediate implementation. Navy Crane Center developed a series of briefs in order to provide specific details relating to the change.

Similar to the Navy Shore Weight Handling Safety Brief, the WHTB is intended to be a concise and informative discussion of a trend, concern, or requirement related to recent/real time issues that have the potential to affect our performance and efficiency. The WHTB is not command-specific and can be used by your activity to increase awareness of potential issues or weaknesses that could result in problems for your weight handling program. WHTBs can be provided directly to personnel, posted in appropriate areas at your command as a reminder to those performing weight handling tasks, or used as supplemental information for supervisory use during routine discussions with their employees. When Navy Shore Weight Handling Safety or Training Briefs are issued, they are also posted in the Accident Prevention Info tab on the Navy Crane Center's web site at http://www.navfac.navy.mil/ncc.

Navy Crane Center point of contact for requests to be added to future WHTB distribution is nfsh ncc crane corner@navy.mil.



WEIGHT HANDLING SAFETY BRIEFS

Navy Shore Weight Handling Safety Briefs (WHSBs) are provided for communication to weight handling personnel. Data analysis indicates a negative trend related to the occurrence of dropped load accidents at naval activities. These types of accidents can result in personnel injury if personnel are not focused on complying with the fall zone avoidance requirements of NAVFAC P-307. This WHSB is being issued as a reminder for all personnel to increase their focus on the fall zone and on the prevention of dropped load accidents.

The WHSB is intended to be a concise and informative, data driven, one page snapshot of a trend, concern, or requirement related to recent/real time issues that have the potential to affect weight handling performance and efficiency. The WHSB is not command specific and can be used by your activity to increase awareness of potential issues that could result in problems for your weight handling program. The WHSB can be provided directly to personnel, posted in appropriate areas at your command as a safety reminder to those performing weight handling tasks, or used as supplemental information for supervisory use during routine safety meetings. Through data analysis of issues identified by accident and near miss reports, and taking appropriate actions on the information we gain from that analysis, in conjunction with effective communication to the proper personnel, we have the tools to reduce serious events from occurring. As we improve the Navy weight handling safety posture, we improve our performance, thereby improving our efficiency, resulting in improved Fleet Readiness!

Navy Shore Weight Handling Safety Brief!

Title: ACCIDENT PREVENTION TRIANGLE FOUNDATION
Target Audience: ALL WEIGHT HANDLING PROGRAM PERSONNEL

DOES YOUR WEIGHT HANDLING ACCIDENT PREVENTION PROGRAM HAVE A STRONG/ HEALTHY FOUNDATION?

*Referenced NAVFAC P-307 section and paragraph numbers are taken from the 2016 version.

A good weight handling accident prevention program has to have a **strong foundation** consisting of three healthy blocks:

- Monitor (Surveillance) Program. Requires buy-in and support from all personnel as everyone must recognize the importance of identifying and **documenting** deficiencies, poor practices, and process improvements. Most importantly, your monitor program should be primarily internally focused (self-critical). A good rule of thumb is at least 50% of your observations should be internal (e.g., what did I or my team/personnel do wrong or what could we have done better) versus external (e.g., ship's force, other shops/departments). Lastly, the identification of tangible findings (NAVFAC P-307, par. 2.6) should also be emphasized.
- Near Miss Data. Within your monitor (surveillance) program observations lies numerous events, that in addition to being tangible deficiencies, rise to a higher level. These events have multiple names (e.g., close calls, "whoas", "that could have been bad") that need additional scrutiny so that actions can be taken as warranted for the accident that "almost" happened. A good rule of thumb is to strive to identify and **REPORT** ten near misses for every reported accident.
- Reporting of lower threshold accidents. **Key focus area as this type of accident is extensively underreported**. The **reporting** of accidents involving avoidable contact with no visible signs of damage is seen as a positive and is also a strong indicator that your program has matured and that personnel truly understand the importance of self-reporting. At activities with higher operational tempos, supervision and management have to be self-critical and accept that these lower threshold events are occurring.

By taking the time to stop, understand, document (and report if necessary), and subsequently learn from lower level events, significant events can be reduced and eventually eliminated.

8 June 2017 **SAFETY** *Navy Crane Center 17-S-04*

Navy Shore Weight Handling Safety Brief!

Title: RECOGNITION AND REPORTING OF MINOR EVENTS
Target Audience: WEIGHT HANDLING PERSONNEL

Even the minor accidents are preventable, but only if you understand how and why they happen!

In this scenario, the rigger-in-charge is informed of a miscalculation in the weight of the load. Work is stopped, preventing a potential gear and crane overload. The causes can now be identified and corrective actions implemented prior to resuming work.

A healthy weight handling accident prevention program must include management encouragement and employee freedom to recognize and report process "deficiencies" (no matter how small). Deficiencies include process errors, near misses or minor accidents such as bumps and bangs. There is a lesson in every deficiency. To learn from them, it requires us to stop the process, understand what and why it went wrong, and then develop corrective actions to prevent recurrence. Documenting the problem and associated lessons learned provides a great opportunity to prevent future problems. ***It all starts with problem recognition and reporting by the people doing the work.***

- When a problem is recognized, work should be immediately stopped so that further problems can be avoided, the event reported, investigated and adequate corrective actions identified.
- Everyone must **understand** the importance and value of identifying and reporting deficiencies for analysis and subsequent implementation of corrective actions to continuously improve.
- There must be a viable data collection and **reporting** mechanism in place so that deficiencies and corrective actions are tracked, trended and analyzed. A thorough look at near misses and human factors of why an event **almost** happened can provide valuable lessons learned.
- The reporting, investigating and recording of minor events is an excellent high velocity **learning** tool when appropriately used by an activity. These learning/reinforcement opportunities keep safety in the forefront while also improving the efficiency of work execution and reducing the frequency of a serious event.

We don't know what we don't know, but we think we know all there is to know!

14 June 2017 **SAFETY** *Navy Crane Center 17-S-03*

DID YOU KNOW?

Activities have reported cases where jib structures and portable gantry/A-frames do not meet industry standards or do not comply with NAVFAC P-307 testing requirements based on various issues. These issues include the allowable test load of the hoist surpassing the allowable test load of the structure and the weight of the hoist exceeding the design of the structure.

Jib cranes and portable gantry/A-frames purchased for use shall meet the design requirements of NAVCRANECENINST 11450.2. The supporting structure must meet the requirements of the AISC Steel Construction Manual and the crane must meet the requirements of ASME B30.17. This information is published in the crane literature and will appear in the literature similar to the following:

STANDARDS

General Design Standards:

the cranes are designed in conformance with the following applicable standards:

Gantry Cranes: AISC Steel Construction Manual, OSHA 1910.179, ANSI B30.17, AWS D1.1/D1.2/D1.6, and CMAA 74

Jib Cranes: AISC Steel Construction Manual, OSHA 1910.179, ANSI B30.17, AWS D1.1/D1.6, and CMAA 74

The Navy Crane Center has become aware of multiple manufacturers that do not meet the requirements of ASME B30.17. Cranes meeting ASME B30.17 will be designed to include an allowable load test up to 125 percent of the rated capacity. Often a percentage of allowable capacity for overload testing is published, if not, contact the manufacturer to determine the allowable capacity for overload testing.

Additionally, different manufacturers design their crane structure using different load combinations. For some manufacturers the capacity of the structure is the maximum allowed capacity of the structure and does not account for the weight of the hoist or trolley. In this case the hoist and trolley weight must be subtracted from the overall capacity of the structure and the crane re-rated as appropriate. An example of this from one manufacturer is:

SAFETY PRECAUTIONS

Read owner's manual completely before operating unit!

- Never exceed the maximum capacity printed on top beam! This capacity includes the weight of hoist and trolley too.

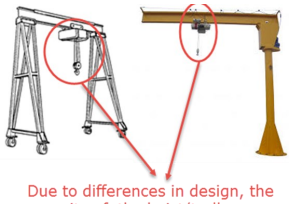
Likewise, many manufacturers include a design factor percentage of the allowable capacity for the hoist weight and is typically shown such as this:

The hoist weight allowance is 15% of the crane capacity (for example, a crane rated for 1000 pounds, allows for a 1000-pound live load plus 150 pounds for the weight of the hoist).

However, if the selected hoist/trolley exceeds this percentage, a larger capacity jib or gantry shall be selected or the crane must be down rated to accommodate the additional hoist/trolley load. If this percentage is unknown contact the structure manufacturer for design capacity or subtract the weight of the hoist/trolley from the capacity of the overall structure.

Finally, some manufacturers of jib structures and portable gantry/A-frames rate their structures for a test load (e.g., 110 percent) that is less that the 125 percent test load allowed by the hoist manufacturers and which is required by NAVFAC P-307. In these cases, the overall capacity of the crane must be down rated to 80 percent of the structure manufacturer's allowable test load and tested to the requirements of NAVFAC P-307, as specified in paragraph 4.7.1.

In conclusion, it is important that before procuring or using a jib crane or portable gantry/A-frame, ensure both the hoist and structure are designed to the appropriate standards, both are capable of being tested to a periodic load of 125 percent, and the overall capacity of the crane is correct based on the hoist/trolley weight. Consultation and review of the manuals of both the hoist and structure manufacturers will ensure that the combination of the structure and hoist meets all requirements and the crane adequate for testing.



Due to differences in design, the capacity of the hoist/trolley may exceed the capacity of the structure, even if both are rated the same.

WEIGHT HANDLING PROGRAM SAFETY VIDEOS

Accident Prevention provides seven crane accident prevention lessons learned videos to assist activities in raising the level of safety awareness among their personnel involved in weight handling operations. The target audiences for these videos are crane operations and rigging personnel and their supervisors. These videos provide a very useful mechanism for emphasizing the impact that the human element can have on safe weight handling operations.

Weight Handling Program for Commanding Officers provides an executive summary of the salient program requirements and critical command responsibilities associated with shore activity weight handling programs. The video covers NAVFAC P-307 requirements and activity responsibilities.

Mobile Crane Safety covers seven topics: laying a foundation for safety, teamwork, crane setup, understanding crane capacities, rigging considerations, safe operating procedures, and traveling and securing mobile cranes.

"Take Two" Briefing Video provides an overview on how to conduct effective pre-job briefings that ensure interactive involvement of the crane team in addressing responsibilities, procedures, precautions, and operational risk management associated with a planned crane operation.

Safe Rigging and Operation of Category 3 Cranes provides an overview of safe operating principles and rigging practices associated with Category 3 crane operations. New and experienced operators may view this video to augment their training, improve their techniques, and to refresh themselves on the practices and principles for safely lifting equipment and materials with Category 3 cranes. Topics include: accident statistics, definitions and reporting procedures, pre-use inspections, load weight, center of gravity, selection and inspection of rigging gear, sling angle stress, chafing, D/d ratio, capacities and configurations, elements of safe operations, hand signals, and operational risk management (ORM). This video is also available in a standalone, topic driven, DVD format upon request.

All of the videos can be viewed on the Navy Crane Center website:

http://www.navfac.navy.mil/navfac_worldwide/specialty_centers/ncc/about_us/resources/safety_videos.html.

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