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A WORD FROM TOPSIDE

Tim Blanton

This past year was another strong year for the Navy's shore-based weight handling program. Continuous incremental improvement has been a Navy Crane Center vocabulary mainstay for many years. Reflecting back, 2016 was another banner year as the Navy's weight handling program continued to improve in safety, efficiency, and effectiveness. In FY16, the ratio of significant crane accidents to total crane accidents continued on a downward trend to 15 percent. For rigging accidents, the improvement was even more noteworthy, as the ratio dropped from 46 to 22 percent. Near miss reporting was at a record high with nearly 400 submitted reports. We are absolutely convinced that learning from minor events helps prevent serious accidents. Your dedicated efforts in this area are being recognized at the highest levels in the Department of Navy.

With regard to weight handling equipment, effective weight handling begins with the acquisition of quality equipment that meets the demanding needs of our users. In FY16, we awarded contracts for 23 cranes with a total contract value of \$46.2M; and accepted 33 cranes for shore activities with a contract value of \$20.4M. In addition, we provided various project management and engineering services to support 68 crane procurements with an estimated contract value of \$88.9M procured by other contracting offices. Included in this work was the beginning of a series of major overhauls/service life extensions for 14 shipyard portal

cranes, and in FY17, we will be procuring the first portal crane built in the USA in over two decades.

Once newly procured equipment is put into service, our in-service engineering group ensures that equipment safety and reliability remain in the forefront. In FY16, nearly 900 crane alterations were processed, numerous crane safety advisories, and equipment deficiency memorandums were issued, and our engineers fielded hundreds of questions via e-mail and telecom. In terms of staffing, we now have an engineering group in our Bremerton field office to be more responsive to the Navy weight handling community in the West Coast and Pacific areas.

Our evaluation teams continue to check the pulse on over 435 Navy shore based weight handling programs worldwide. In FY16, 235 activities were evaluated with the vast majority receiving a satisfactory rating. No activities were rated as unsatisfactory; however, 12 were marginally satisfactory. Your efforts to improve your programs are noteworthy and have been recognized.

As you are well aware, 2016 also brought in a major revision to NAVFAC P-307 (June 2016). This significant endeavor was the culmination of a lot of years of hard work by your activities and the Navy Crane Center to incorporate lessons learned over the years to include the analysis of a substantial amount of data to make



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program improvements. Looking ahead, with the exception of administrative updates (i.e., reference paragraph number updates), the new revision went into effect on 1 July 2017. By now, your activity should have developed an executable plan to have these requirements implemented by mid-year. In the first half of 2017, in addition to our normal evaluation process, our evaluation teams will be reviewing activity progress toward meeting the new requirements. Many of these new requirements can result in a significant cost savings at individual activities.

Key focus areas for 2017 will continue to be the development of a robust monitor (surveillance) program and increased reporting of near misses and lower threshold (avoidable contact, no damage – not even a paint scrape) accidents. Most activities already have a monitor program in place. The challenge will be to continue maturing the program. The use of metrics (new 2017 requirement) can provide key insight as to the health of your monitor program. Your focus should be on increasing the number and percentage of tangible deficiencies identified,

again, both good basic metrics. With regard to accident and near miss reporting, our intermediate goal for 2017 is to have more near misses than shore-based weight handling programs (435). However, just as important, we want you to increase your recognition and reporting of lower threshold accidents. We have recognized that this is one area where there is a significant amount of underreporting as we continue to work to change past culture. Similarly, to assist your activity in improvements in these areas, metrics provide a great tool to measure performance. Accident and near miss reporting metrics could include your activity's accident severity rate (number of significant accidents divided by the total number of accidents), ratio of near misses to accidents, and your activity's lower threshold accident rate (avoidable contact – no damage accidents divided by the total number of accidents).

In closing, let's work together to have another record setting year, and more importantly, ensure that we continue to conduct weight handling services safety and efficiently.

TIP OF THE SPEAR

All activities evaluated in the first quarter of fiscal year 2017 were satisfactory (one was marginally satisfactory). The most common evaluation item continued to be the lack of a monitor program or an established program that needs improvement. A monitor program is now mandatory (effective date 1 July 2017), and it should include monitoring all weight handling related processes (maintenance, load test, inspection, etc.) and not just crane and rigging operations. Activities should now be recognizing and documenting in their monitor programs the types of unsafe crane and rigging operations, poor maintenance and inspection practices, and load test issues, as applicable, that are frequently observed by the evaluation teams (see below) in the relatively short period of the evaluation. The poor performance of pre-use checks and simulated lifts, particularly for category 3 cranes, are other ripe areas for the monitoring program.

Another new requirement that will improve the weight handling programs is basic metrics to

assist in evaluating and assessing program performance. Many activities have yet to start developing metrics while others are not properly utilizing their metrics to make necessary changes in their programs. All activities must have basic metrics in place by 1 July 2017.

One trend for unsatisfactory cranes was the failure to test the hoist secondary limit switch by block actuation. This one-time procedure is addressed in NAVFAC P-307, appendix C, item 64 for category 1 and 4 cranes, and appendix D, item 29, for category 2 and 3 cranes.

SUMMARY OF PROGRAMS EVALUATED

58 Navy WHE programs were evaluated.
57 programs were fully satisfactory.
1 program was marginally satisfactory.

SATISFACTORY CRANES

41 of 52 cranes were satisfactory (79%).

REASONS FOR UNSATISFACTORY CRANES

- Improper check of hoist secondary limit switch (five cranes).
- Incorrect load test procedures.
- Trolley binding while traversing curves.
- Load test was not performed after disassembly of hoist load brake.
- Mobile crane turntable bolts not checked for tightness.
- Hook nut welded to hook, preventing disassembly and hook NDT.
- Runway rail spacing was not compatible with the crane span.

EVALUATION ITEMS

COMMON EVALUATION ITEMS (FIVE OR MORE ITEMS):

- Lack of surveillance program or established program that needs improvement - 39 items.
- Operator's daily checklists/Operator's monthly checklists (ODCs/OMDs) and simulated lifts performed incorrectly or not performed - 22 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.) - 22 items.
- Inspection and certification documentation errors - 21 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 two years; license not in possession of operator; operating with expired license; operating with no license) – 19 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.) – 16 items.
- Local weight handling instruction/standard operating procedures non-existent or inadequate - 14 items.
- ODCL/OMCL documentation deficiencies (including incorrect form used) – 14 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, etc.) - 13 items.
- Lack of (or low number of) lower order crane or rigging accident and near-miss reports – 10 items.
- Unrecognized/unreported accidents or near misses (including damaged gear not investigated for cause) – 9 items.
- Poor inspections/inspection processes (including inspector removing load bearing fasteners voiding certification, inspections not performed, work documents not available for in-process inspections, unsafe practices, wire rope not inspected completely, fall protection personal protective equipment not utilized, deficiencies not identified) – 9 items.
- Crane test/load test issues (load test not performed after replacement of load bearing part, test instructions not clear or complete, damaged test weights, lift attachments not marked for multiple/stacked weights, test radius incorrect, inefficient test weights, incorrect test load, LMI not re-verified after bypassing, insufficient test personnel, excessive load testing, weighing equipment for test weights not traceable to NIST, not all LB/LC/OSD components tested, no restraint used for single eye-to-eye wire rope sling) – 9 items.
- Crane marking issues (monorail tracks not marked with rated capacities, directional signs not marked on crane, crane capacity incorrectly marked, hook not prominently identified, electrical equipment not marked per NEC, certification tag not visible to operator) – 8 items.

- Expired or non-program gear in use or not segregated from in-service gear - 7 items.
- Rigging gear/crane structures/other section 14 equipment not in the program or lack documentation - 7 items.
- Lack of leading metrics/metrics not being properly analyzed – 7 items.
- Poor maintenance practices or maintenance/inspection not performed as required (significant corrosion evident, parts not tagged/bagged, hazardous materials not properly stored, work documents not available, lubrication not per schedule, lack of long-range maintenance schedule, components not reassembled properly, activity deficient in structural bolt installation) – 7 items.
- No procedure for tagging equipment with known deficiencies and/or tagging equipment that is out of certification – 6 items.
- Poor oversight of contractor responsibilities (maintenance, tests, operations) – 6 items.
- Inadequate pre-lift brief or brief not conducted – 6 items.
- Unapproved crane or gear alteration – 6 items.
- Crane improperly stowed/secured (hook block in, or too close to, upper limit switch or stowed in path of traffic, machines, etc., power not secured) – 5 items.
- Deficient or worn rigging gear (including noncompliant gear) – 5 items.
- Work document issues (lacked sufficient detail, no work document for inspection disassembly, no statement of work for contractor service providers, inspection document not signed, work document not issued) – 5 items.
- Bound load issues (not identified as complex lifts, load indicating device not used, chainfall not used) – 5 items.



SUMMARY OF WEIGHT HANDLING EQUIPMENT ACCIDENTS FOURTH QUARTER FY16

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 fourth quarter of FY16, 86 Navy weight handling accidents (74 crane and 12 rigging) were reported. Accident totals were unchanged when compared to the third quarter; however, significant accidents increased by 50 percent. 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. The increase was primarily driven by accidents that resulted in injuries and dropped loads. In addition to the Navy accident numbers identified above, there were 14 contractor crane accidents, including 2 significant.

INJURIES

Accidents: Four injuries were reported in the fourth quarter including one OPNAV reportable injury. A rigger suffered a shoulder injury when a rudder reversing key fell from the rigging and struck him on the shoulder. Another rigger suffered a hand injury when the crane operator inadvertently started booming up, causing the rigger's hand to be pinched between the pendant and load. While rigging a shipboard expansion joint, the expansion joint swung out of the rigging path and contacted the arm of an assist worker causing a laceration injury. A rigger also suffered a significant injury to their finger after it was caught in a pinch point due to the load shifting during positioning.

Lessons Learned: Two of the injuries occurred as a result of personnel being struck by a load and the other two occurred when personnel extremities were caught in pinch points. Causes identified consisted of improper rigging, inadequate communication, and poor risk mitigation. One accident of particular concern occurred during a rigging evolution and resulted in a partial finger amputation when a rigger's finger was caught in a pinch point. It was identified during the investigation that the riggers had limited work space, and as a result, the load was rested on a foundation while adjustments were made. The body of one of the riggers contacted the rigging connection

point causing the load to become unstable but the problem went unnoticed by personnel. When the rigging gear was adjusted, the unstable load shifted on the foundation, crushing the rigger's finger. The activity identified insufficient risk mitigation during job preparation and execution as the primary cause of the accident. 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 is an essential part of every weight handling evolution. Utilizing formal communications, minimizing the need to manually maneuver the load, and remaining alert to sudden shifts of the load would likely have prevented these injuries. NAVFAC P-307 2016 contains specific requirements and precautions for these type of situations, specifically paragraph 10.8.1 (work area control) for crane operations and paragraph 14.16 (general rigging safety) for rigging evolutions.

DROPPED LOADS

Accidents: There were seven dropped loads including one dropped load discussed above that resulted in an injury. An air compressor motor being removed from a transfer cart became unbalanced, causing the cart to tip and the compressor to roll off of the cart onto the shop floor. A pump and stator assembly was damaged when it fell from its handling cradle while being hoisted with a bridge crane. An inactivated pallet loader being relocated using a multi-purpose machine became unstable in its rigging configuration when the center-of-gravity shifted, resulting in a dropped load. While lifting a pin slab table, the table separated at the center, causing half of the table to fall to the shop floor. A caster wheel on the tower base section of staging dislodged and fell to the dry dock floor during a lift. A test load lowered to the ground in an uncontrolled manner when the mechanic positioned the cabinet mounted brake selector switch in the wrong position.

Lessons Learned: The majority of dropped load accidents this quarter occurred during crane operations as a result of improper rigging, failure to secure the load, and improper operation. The most significant accident occurred when a pump and stator assembly fell from its cradle and rigging gear as a result of improper rigging.

Rigging personnel did not consider the need to compensate for a high center-of-gravity (COG), allowing the load to fall out of the rigging while trolleying the crane. The activity provided refresher training to the involved personnel and issued a newsletter specific to COG, load stability, and frapping. Components with a high COG require additional measures for ensuring the load remains stable and secure during the lift. Prior to commencing any lift, personnel should carefully examine the load to ensure all rigging is correctly installed and the load is secure in the rigging. Slowing down and performing a thorough visual inspection of the load for loose components or for areas where the load could separate is critical for preventing dropped loads.

OVERLOADS

Accidents: Four overload accidents (all of rigging gear) were reported. A lifting beam was overloaded during load testing when the load indicating device malfunctioned. Two shackles were overloaded and deformed when they were subjected to side loading during rigging work to install a shaft bearing. The hooks of two chain hoists were damaged (elongated) when the operator of a portal crane hoisted up rather than down as directed. A below the hook lifting device was overloaded during a crane lift when a part of the gear became snagged during the lift.

Lessons Learned: Causes associated with these accidents ranged from improper rigging to improper operation; however, in three of the accidents inadequate communications was identified as either a contributing or direct cause of the accident. Communications is a critical component for any weight handling evolution, and supervisors must emphasize the importance to personnel prior to each evolution. The type of communication (verbal, radio, hand signals) depends on the nature and complexity of the weight handling operation. Specific requirements are identified in NAVFAC P-307, paragraph 10.7, but additional requirements may be invoked by individual activities. One accident in particular that highlights the need for formal communications occurred during a "blind lift" in which the crane operator could not see the load or gear. A crane operator was given a radio command to lower the hoist, but instead of giving a repeat back, he acknowledged with a horn signal and began to hoist up instead of lowering as directed, causing damage to two chain hoists.

TWO-BLOCK

Accidents: One two-block accident was reported. A crane operator performing a pre-use inspection was unable to lower the hoist after performing what he believed to be the hoist upper limit check. Maintenance personnel identified that the crane's hoist was in contact with the hoist frame (two-block).

Lessons Learned: Two-block accidents have the potential to result in serious injury and/or significant damage, and operators shall be trained to approach the hoist upper limits in a slow and controlled manner during operational checks. This crane was a category 3 pneumatic bridge crane which was equipped with a slip clutch as the upper limit stop. NAVFAC P-307, paragraph 9.1.2.1.4.h prohibits testing of overload clutches and damage prevention features during the operational check. The activity identified that the operator was not aware of this requirement, and took action to install a caution tag to alert users of this requirement. Navy Crane Center notes that NAVFAC P-307 2016, paragraph 9.1.2.1.4.h (effective 1 July 2017) will require activities to annotate on the crane operator's daily checklist (ODCL) that these features are not to be checked (checked during annual maintenance inspections).

CRANE DERAILMENT

Accidents: One crane derailment was reported. A portal crane derailed when it traveled through a miss-aligned rail switch.

Lessons Learned: The activity utilized the human factors analysis and classification system (HFACS) to determine that the process for traveling through rail switches was not followed and that supervision failed to enforce requirements. Although a process was in place to prevent crane derailment due to miss-alignment, the crane team had become complacent during crane traveling evolutions. Fortunately, the damage was limited to rail switch components.

Accidents: Activity awareness of the value of reporting all accidents including those that result in minor or even no damage is evident as accident totals increased in FY16. Many of the causes related to the less significant accidents are the same as those associated with

significant accidents. Other Commands can benefit by recognizing this association and implementing proactive efforts that will reduce significant accidents. Significant accidents declined through the first three quarters of FY16; however, a sharp increase was noted in the fourth quarter. The increase is particularly troubling because it came in the area of dropped loads and accidents that resulted in personal injuries. In order to achieve the goal of zero significant accidents, all activities must understand and support the concept of reporting events at the lowest possible level and develop a monitoring program that requires observations during in-process weight handling operations. It is encouraging to note that the number of significant rigging accidents declined by over 50 percent in FY16. Weight handling program managers are encouraged to focus on compliance with communication requirements and risk mitigation.

NEAR MISSES

As in recent years, near miss reporting continued to increase in FY16, but the increase was only in the area of crane operations. This year's crane near misses increased by 48 percent over FY15 numbers, while rigging near misses declined by 18 percent. Combined near miss reports in the fourth quarter of FY16 also declined by 21 percent. The majority of near misses reported this quarter occurred in a static environment instead of during weight handling operations. A specific example was in the area of crane miss-spools that were identified prior to operation. Although these types of static surveillances are important, personnel are encouraged to focus their effort on observing operations and identifying dynamic deficiencies. Causes relating to most near misses reported in the fourth quarter included improper operation, inadequate gear or equipment inspection, and poor risk mitigation. Many of these events would have resulted in significant accidents like overloads and dropped loads if not identified by personnel, managers, and supervisors observing weight handling operations.

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 fourth quarter indicates that there is a need to focus on eliminating personal injuries by increasing awareness to pinch points and controlling the load. Activities are encouraged

to conduct safety stand downs following the holiday period and incorporate briefings to help personnel recognize the need to slow down during operations and stop if a problem arises or additional assistance is needed. Additionally, be cautious during the upcoming cold weather period which can result in accidents due to loads being frozen to the ground, frozen crane sheaves/wire rope, and slip/fall hazards. I am confident this trend will be reversed and look forward to assisting as we work together into the New Year to accomplish our primary mission of enabling the warfighter.

WEIGHT HANDLING TRAINING BRIEFS

Billy Mutter

The 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 some 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. The WHTB can be provided directly to personnel, posted in appropriate areas at your command as a reminder to those performing weight handling tasks, or it can be 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 NCC's web site at <http://www.navfac.navy.mil/ncc>.

Navy Shore Weight Handling Training Brief!

Title: Clarification of Rigger-in-Charge Duties
Target Audience: All Weight Handling Program Personnel

Rigger-in-Charge (RIC) responsibilities **have been amended** in NAVFAC P-307, paragraph 10.2.1.1, to better define the RIC's role within the crane team.

- Navy Crane Center evaluation teams have stressed for years the importance of the crane team concept, and in particular, the RIC's responsibility for maintaining overall control of the operation.
- A review of the Navy's crane and rigging accident reports identified a common, contributing cause to many accidents which involved the RIC's attention being diverted, typically through interruption from outside entities or from their engaging directly in work, particularly when other riggers were available.
- As a result, the following sentence was added to paragraph 10.2.1.1 clarifying this expectation. **"The RIC shall not perform functions that would compromise their overall control of the operation"**.
- Above all, the RIC must be in a position to oversee and control the entire operation, often requiring them to reposition themselves during the lift to be in the best possible position. The RIC's primary responsibility is to maintain overall control of the operation to include ensuring all aspects of the operation are conducted in a safe manner.



"Responsibility is a unique concept... You may share it with others, but your portion is not diminished. You may delegate it, but it is still with you... If responsibility is rightfully yours, no evasion, or ignorance or passing the blame can shift the burden to someone else. Unless you can point your finger at the man who is responsible when something goes wrong, then you have never had anyone really responsible."

-Hyman G. Rickover

12 October 2016

Training

Navy Crane Center 16-T-02 - Module 16

Navy Shore Weight Handling Training Brief!

Title: Controls for Potential Binding and Slack Line Conditions
Target Audience: All Weight Handling Program Personnel

Requirements have been expanded and clarified regarding controls necessary for lifting of constrained loads and loads with potential binding conditions.

- Navy Crane Center has issued numerous communications (safety messages, crane safety advisories, safety briefs) over the past several years regarding actions to mitigate the potential for overload during lifts of constrained loads or where binding conditions are present. Additionally, requirements were added to previous revisions of NAVFAC P-307, directing the use of a portable load indicating device (LID), with appropriate stop points established, when the potential for overloading is possible due to binding conditions.
- To provide additional clarification, requirements for prevention of overload and use of LIDs have been expanded in paragraph 10.5.2. Highlights include:
 - In addition to utilizing an LID, chainfalls or other control means (e.g., procedures, micro-drives, load positioner/buffer) are no longer optional, one of the additional precautionary measures must be used to avoid sudden overload.
 - Loss of load (slack line condition) is now included in this paragraph since binding conditions during lowering can also easily overload the crane or rigging gear when a bound load releases. Pre-tensioning has also been added to list of operations that could cause an overload.
 - LIDs integral to crane systems may be used in place of a portable device, provided the design factor and hardness level meet NAVCRANEINST 11450.2, the LID is calibrated in accordance with LID original equipment manufacturer (OEM) recommendations, and it has a readout that is readily visible to the designated monitor (**WHO CANNOT THE CRANE OPERATOR**).
 - LIDs selected shall have an accuracy appropriate for the intended weight to be lifted. For example, an LID accurate to plus or minus 500 pounds would provide minimal benefit (insufficient margin of safety) for lifting a potentially bound 750 pound load.
- These requirements codify prior expectations, in addition to bolstering existing requirements. The use of LIDs and other control means has proven an effective means to prevent overloads. However, the LID provides little value if adequate stop points are not identified and if no one is monitoring the LID.



19 October 2016

Training

Navy Crane Center 16-T-02 - Module 17

Navy Shore Weight Handling Training Brief!

Title: Miscellaneous Operations
Target Audience: All Weight Handling Program Personnel

Section 10 (Operations) also includes several other new or enhanced requirements including new requirements for operator turnover with a suspended load, expanded guidance for securing cranes, and a new allowance for approval to use material handling equipment and construction equipment for lifting of suspended loads.



Paragraph 10.19 contains requirements for operator turnover with a suspended load, which include:

- Control power shall be secured
- Supervisor performs additional brief if required (e.g., complex lift)
- New operator reviews ODCL or performs pre-use check (visual)
- **Not permitted with suspended and occupied personnel platform**

Paragraph 10.20 contains additional guidance for stowage of hook blocks. Hook blocks shall not be stored in the upper limit unless allowed by the OEM or activity instruction.

- **However, activities are cautioned not to store hook blocks into the upper limit unless operationally required (e.g., insufficient clearance of hook block when stored below the upper limit which could impact other operations in the area). Hook blocks unnecessarily stored in the upper limit increase the risk for two-blocking of the crane/hoist, which can easily result in equipment damage and/or personnel injury.**

Paragraph 10.21 requirements for suspended load lifts using material handling equipment (e.g., forklifts) and construction equipment have been slightly eased in that:

- Where previously, original equipment manufacturer (OEM) permission was required to use this equipment for suspended load lifting, written approval from a qualified registered Professional Engineer (PE), after performance of a safety analysis, is allowed in lieu of OEM approval.

2 November 2016

Training

Navy Crane Center 16-T-02 – Module 18

Navy Shore Weight Handling Training Brief!

Title: Contractor Crane Requirement Exemptions and P-1 Changes
Target Audience: Weight Handling Program and Contractor Crane Oversight Personnel

For construction contracts, UFGS-01-35 26 and USACE EM-385-1-1 may be followed in lieu of NAVFAC P-307, paragraphs 11.1.a through 11.1.g, 11.1.j through 11.1.m, and appendix P, Figures P-1 and P-2.

APPENDIX P – CONTRACTOR CRANE OR ALTERNATE MACHINE USED TO LIFT SUSPENDED LOADS AND RELATED LOCAL REQUIREMENTS

CERTIFICATE OF COMPLIANCE

This certificate shall be signed by an official of the company that provides cranes (or multi-purpose machines, lifts, or construction equipment used to lift loads suspended by rigging gear) or rigging gear for any application under this contract. Post a compliance certificate on each crane or alternate machine (or in the contractor's on-site office for rigging operations, brought into Navy projects).

CONTRACT NUMBER (NAVFAC P-307 or P-307) (OR CONTRACT): _____ PHONE: _____

PRIME CONTRACTOR/PC/HC: _____ CONTRACT NUMBER: _____

CRANE OR ALTERNATE MACHINE SUPPLIER/PHONE: _____ CRANE OR ALTERNATE MACHINE NUMBER (i.e., ID number): _____

CRANE OR ALTERNATE MACHINE MANUFACTURER/TYPE/CAPACITY: _____

CRANE OR ALTERNATE MACHINE OPERATOR(S) NAME(S): _____

1. Safety Note

1. The above noted crane or alternate machine and all rigging gear conform to applicable OSHA regulations (host nation regulations for host activities in foreign countries) and applicable ASME B30 or other standards. The following OSHA regulations and ASME or other standards apply.
2. The operators listed below have been trained and are qualified for the operation of the above noted cranes or alternate machines.
3. All safety devices and operator aids are enabled and functioning properly and the operators listed above have been trained not to bypass safety devices and operator aids during lifting operations.
4. The operators, riggers and company officials are aware of the actions required in the event of an accident as specified in the contract.
5. Signal persons used in construction work are qualified in accordance with 29 CFR 1926.1428.
6. Riggers are qualified in accordance with NAVFAC P-307, paragraph 11.1.k.
7. All personnel working on the job site have been trained to not stand under a load or in the fall zone of a suspended load unless specifically allowed by USACE EM 385-1-1.

DATE: _____

COMPANY OFFICIAL SIGNATURE: _____

POST ON CRANE (OR ALTERNATE MACHINE)

OR IN THE CONTRACTOR'S ON-SITE OFFICE FOR RIGGING OPERATIONS

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Contractor crane requirements have been consolidated into a new section (section 11) in the 2016 revision of NAVFAC P-307. This WHTB discusses a few new exceptions to contractor crane requirements, in addition to several new requirements. Subsequent WHTBs will discuss bolstered requirements for contractor crane oversight and new requirements for contractor telecommunication tower work. The following contractor cranes are now exempted from NAVFAC P-307 requirements:

- **Commercial truck mounted and articulating boom cranes used solely to deliver material and supplies from a truck or trailer to the ground. This exemption DOES NOT APPLY to loads of prefabricated components, structural steel, or components of a systems-engineered metal building.**
- **Cranes installed on mechanics trucks used solely in the repair of shore-based equipment.**

Note: Accidents involving the above cranes are still required to be reported.

New requirements, which are also contained on the revised "Certificate of Compliance" form (Appendix P, P-1 Form) include:

- **All safety devices and operator aids are enabled and function properly.**
- **Signal persons used in construction work are qualified in accordance with 29 CFR 1926.1428 (or host nation equivalent requirements).**
- **Riggers are qualified in accordance with NAVFAC P-307, section 11.1.k.**
- **All site personnel are trained to not stand under a load or in the fall zone of a suspended load unless specifically allowed by USACE EM 385-1-1.**

9 November 2016

Training

Navy Crane Center 16-T-02 – Module 19

Navy Shore Weight Handling Training Brief!

Title: Contractor Crane Oversight
 Target Audience: Weight Handling Program and Contractor Crane Oversight Personnel

Contracting Officer responsibilities with regard to **contractor crane oversight** have been expanded and clarified in the 2016 revision of NAVFAC P-307, paragraph 11.2.

- Minimum frequencies for periodic oversight of contractor crane operations have been established; however, as before, the degree of and frequency of oversight shall be based upon overall level of risk.
 - Operational oversight (using NAVFAC P-307, Figure P-2 or equivalent EM-385 form for construction contracts) is required at least once every 30 days.
 - When operations include critical lifts, oversight shall be increased to at least once every 14 days.
- Personnel providing oversight are now **required** to complete the Navy Crane Center's (NAVCRANECEN) Contractor Crane Awareness course.
 - This course was optional and personnel who had completed this course will be required to retake the course once the course revision is complete due to significant requirement changes and implementation of a final examination.
 - As an alternative for NAVFAC employees, completion of the NAVFAC 40 hour Contract Hazard Awareness training course will fulfill the requirement.
- Contractor crane accident reporting and notification responsibilities have been modified.
 - NAVCRANECEN shall be notified as soon as possible, preferably **within 8 hours** (previously 24 hours) of notification by contractor for any severe accidents (as defined in paragraph 11.2.b).
 - The Contracting Officer (or designated weight handling representative) shall sign all contractor accident and near miss reports to signify satisfaction with the investigation and proposed corrective actions.



16 November 2016

Training

Navy Crane Center 16-T-02 – Module 20

Navy Shore Weight Handling Training Brief!

Title: Telecommunication Tower Work Requirements
 Target Audience: Weight Handling Program and Contractor Crane Oversight Personnel

NAVFAC P-307, Section 11 (Contractor and Other Non-Navy Owned Weight Handling Equipment) now includes specific requirements for contracts involving work on, or the use of personnel hoists on, telecommunication towers.



Base Mounted Drum Hoist

NAVFAC P-307, paragraph 11.1.m new requirements include:

- ❖ Base mounted drum hoists used in telecommunication tower work shall comply with:
 - ✓ TIA-1019 and TIA-222G
 - ✓ ASME B30.7
 - ✓ 29 CFR 1926.552 and 29 CFR 1926.553
- ❖ If also used for hoisting personnel, base mounted drum hoists shall comply with:
 - ✓ OSHA Instruction CPL 02-01-056
 - ✓ NATE standard "Base Mounted Hoist Mechanism Design and Use Standard for Lifting Personnel While Working on Telecommunications Structures"
 - ✓ ANSI/ASSE A10.22 and ASME B30.23
- **The use of a pickup truck or any other equipment besides a base mounted drum hoist for hoisting materials and/or personnel is prohibited.**
- **Rough-terrain forklifts, bulldozers and similar equipment may be utilized for towing and anchorage purposes of guys. The use of such equipment for trolley/tag and load lines is prohibited, with the exception of using construction equipment for the sole purpose of anchorage that will not be moved during operations.**
- **Rigging gear utilized in telecommunication tower work shall comply with the applicable ASME/OSHA standards. Operator, signal person, and rigger qualifications shall be in accordance with OSHA standards.**

Note: For Navy activities in foreign countries, follow host nation requirements as applicable in lieu of CFR or ASME standards.

8 December 2016

Training

Navy Crane Center 16-T-02 – Module 21

Navy Shore Weight Handling Training Brief!

Title: Accident Definitions and Perspective
 Target Audience: All Weight Handling Program Personnel



In order to add increased perspective and clarification, several changes were made to NAVFAC P-307, Section 12, to include a definition for significant accident and slight modifications to existing accident definitions based on lessons learned and accumulated data. Adding a definition for significant accidents was important as significant accidents typically have a **greater potential to result in serious injury or substantial property damage.**

- SIGNIFICANT ACCIDENTS include all injuries (regardless of severity), overloads, dropped loads, two-blocks, crane derailments, contact with overhead power lines, and accidents that meet OPNAV Class A, B, C, or D reporting thresholds for property damage.
- Other changes to Navy weight handling accident definitions include:
 - For crane accidents, **unplanned contact** was changed to **avoidable contact** between the load, crane, and/or other objects. Avoidable contact is defined as contact that would have been prevented with proper lift planning and execution.
 - For rigging accidents, lagging damage is now reportable as a rigging accident unless the damage is minor.
 - Removed the anchor point exception from the crane accident definition, so that any accident that occurs while the load is connected to a crane is considered a crane accident.
 - Mishaps involving mobile cranes (cat 1 or 4) that are configured for transit are now reportable as unplanned occurrences.

TWO-BLOCK
OVERLOAD
Dropped Loads
Crane Derailment
INJURY
Contact with Overhead Power Lines
 18 January 2017

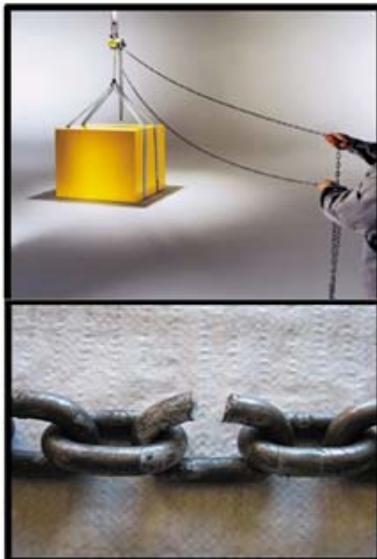
WEIGHT HANDLING SAFETY BRIEFS

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: Chain Hoist Safety
Target Audience: Users of Manual Chain Hoists



Recent chain hoist accidents identify a need for an increased focus during chain hoist operations. The use of chain hoists requires experience, care, and good common sense to anticipate problems that may occur during use.

A chain hoist user should always pull the hand chain down & toward their body to maintain control and ensure that the load or chains do not become bound or snagged during hoisting, resulting in a crane or rigging accident. Additional precautions include:

- **PRE-JOB PLANNING** - The operator should ensure the load and hoist will clear all obstacles before moving or rotating the load which includes the hoist's hand chain.
- **SLOW/CONTROLLED MOVEMENTS** - All movements should be slow and smooth. Quick movement may be hazardous and it reduces the time to take corrective actions if needed.
- **STAY FOCUSED** - The operator shall not engage in any activity that will divert their attention while operating the hoist.

When lifting with a crane:

- **SECURE THE HAND CHAIN** - Remember to tie off the hand chain to the chain hoist prior to lifting.
- **MONITOR THE LOAD AND CHAIN** - Ensure that the load is clear and that the excess load and hand chains (loaded or unloaded) do not contact or snag on other components.

27 October 2016

SAFETY

Navy Crane Center 16-S-05

DID YOU KNOW?

Several changes have been made to the 2017 Edition of the National Electric Code (NEC) in Article 610, specifically concerning cranes. They are as follows:

Article 610.32

The last sentence has been rewritten to include the requirement for operating stations to open power circuits: "Means shall be provided at the operating station to open the power circuit to all motors of the crane or monorail hoist." The previous edition of the NEC qualified this sentence by stating: "Where the disconnecting means is not readily accessible from the crane or monorail hoist operating station, means shall be provided at the operating station to open the power circuit to all motors of the crane or monorail hoist."

The change now requires all operating stations to be provided with a means to open the power circuit to all of the motor of the crane or monorail hoist regardless whether or not the disconnecting means is readily accessible. This language also makes the Code consistent with the ASME B30.2 and B30.17 volumes.

Article 610.42(B)(3)

Article 610.42(B)(3) is deleted, removing the exception to allow brake coils to be taped without separate overcurrent protection.

The risk of fire and severe damage for new applications beyond the original intent of the existing code language warranted elimination of this requirement. Also, with the advent of Variable Frequency Drives and other electronic controls, there is typically a long conductor run between the control cabinet and the brake coil on most new cranes.

Article 610.43(a)(3)

The second sentence has been expanded to a third sentence to more adequately cover thermal sensing devices: "Hoist functions shall be considered to be protected if the sensing device limits the hoist to lowering only during an overload condition. Traverse functions shall be considered to be protected if the sensing device limits the travel in both directions for the affected function during an overload condition of either motor."

The previous edition of the NEC stated: "A hoist or trolley shall be considered to be protected if the sensing device is connected in the hoist's upper limit switch circuit so as to prevent further hoisting during an overload condition of either motor."

The change now requires the sensing device for a motor overload to only affect the operation of that specific motor. Specifically, the change now requires the hoist drive to be limited in operation in the lowering direction in the event a hoist motor overload condition is being sensed only. Similarly, in the event of a trolley motor overload condition being sensed, only the trolley drive will be limited in operation in both directions.

Article 610.55

Article 610.55 is deleted, removing the function requirements of limit switches.

The functional requirements of limit switches for cranes and hoists go beyond the scope of the NEC and are already covered by ASME B30.

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.

SHARE YOUR SUCCESS

We are always in need of articles from the field. Please share your weight handling/rigging stories with our editor nfsh_ncc_crane_corner@navy.mil.

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What can we do to better meet your expectations?