

AUDITS

The auditing component of our mission continued to drive improvements in the overall quality and safety of weight handling programs at Navy shore activities and operating units and reinforced the requirements of NAVFAC P-307. Our audit teams provide a rigorous compliance and program review that is focused on identifying process problems to better enable the activity to perform thorough self-assessments and to determine effective long-term corrective actions. This audit process (along with the integral coaching assistance that occurs during the audit) has continued to improve weight handling programs and maintain the reliability of equipment in the Navy shore establishment.

Weight handling equipment is owned or operated by over 390 Navy shore activities and shore based operating units worldwide. During FY12, our audit teams completed 226 Navy weight handling program audits. Our responsibilities per SECNAVINST 11260.2A include auditing all activity weight handling programs every two years at a minimum and suspending unsafe crane operations if necessary.

The Navy Crane Center has five audit teams to perform our scheduled audits. Each team is comprised of a team leader and two to three equipment specialists with equipment or rigging and operations backgrounds. Audit teams 1, 2 and 3 are stationed at Navy Crane Center Headquarters, team 4 is stationed in Silverdale, Washington and team 5 is stationed in San Diego, California. To increase overall flexibility and focus, in FY12 we added two lead equipment specialist positions. One serves as the Compliance Division lead equipment specialist for all weight handling equipment issues within the Division and the other is assigned as the lead Navy Crane Center point of contact for Seabee related weight handling program matters.

In the latter part of 2007, we expanded the focus of our audits. Starting with the naval shipyards, we enhanced our audit process to include in-depth reviews of staffing and succession planning, resource management, strategic planning, etc. In 2009, we utilized this enhanced audit process in all of our audits. By increasing the focus on program management issues, Navy shore activity weight handling programs are further strengthened for the long term.

With the success of the expanded program audits at shipyards, NAVSEA 08 is no longer reviewing weight handling during their biennial reviews. Instead, a NAVSEA 08 representative attends the Navy Crane Center audits on a biennial basis.

The quality of weight handling programs at Navy shore activities remains high. One key metric used is the percent of activity programs that are satisfactory and in basic compliance with NAVFAC P-307 requirements. In FY12, there was only one activity whose weight handling program was evaluated as unsatisfactory. However, some activity programs had declined from their previous audit. Where the decline was significant, the activity was given a summary rating of marginally satisfactory. In FY12, 15 programs were rated as marginally satisfactory.

The condition of audited cranes is another metric for evaluating the quality of weight handling programs. Shore based weight handling activities have demonstrated continued excellent performance with 79 percent of the sampled cranes being satisfactory. (Two factors accounted for the lower percentages in FY11 and FY12. Starting in FY11, we considered a crane unsatisfactory if a required crane safety advisory was not performed. This factor accounted for the decreased percentage in FY11; however, there was significant improvement of this item in FY12. Also, a change to the mobile crane testing procedures, which improved and streamlined the test procedures and became effective in FY12, was not fully understood at many activities. As a result, there was an upsurge of unsatisfactory cranes due to improper testing. This upsurge was temporary and most activities now understand the new test requirements.) We interpret this metric as an indicator of the readiness of the equipment in the field to support fleet requirements. In addition, we continued to strongly encourage Navy shore activities to review their crane utilization and remove unneeded cranes from service wherever possible and develop a crane replacement and modernization plan to ensure future weight handling requirements are addressed.

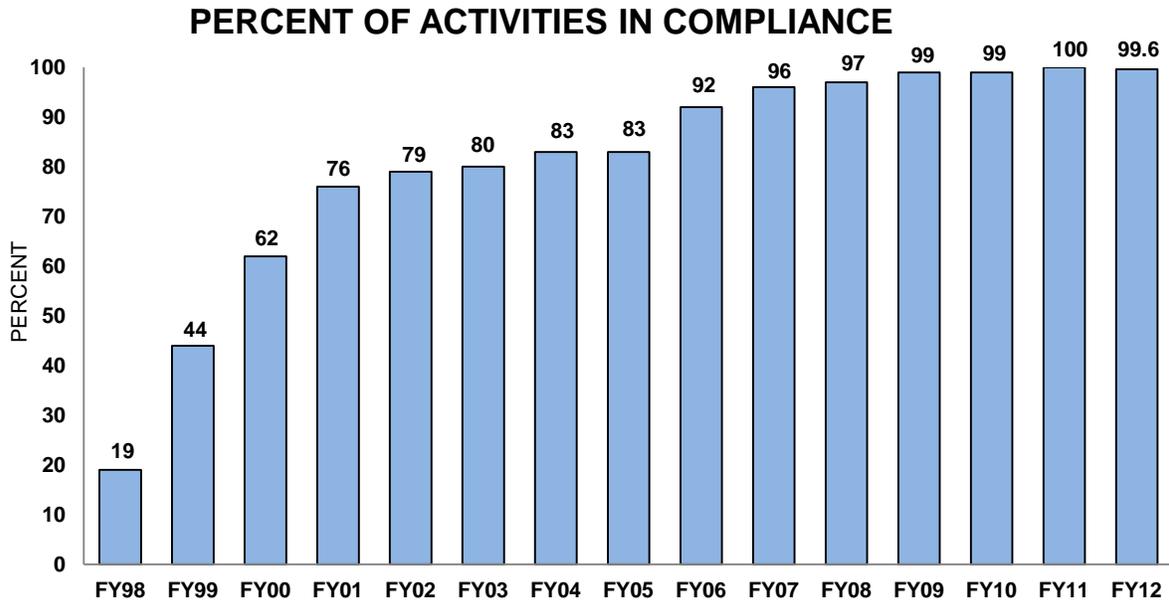
The Navy Crane Center also performed weight handling program audits at Newport News Shipbuilding, Electric Boat Corporation, and the Naval Reactors Facility, Idaho, three non-Navy organizations which support the Naval Nuclear Propulsion Program (NNPP). These audits ensure that Navy weight handling standards are maintained at all activities that conduct NNPP work. Reduction in weight handling equipment accidents, standardization with naval shipyards, and sharing of best practices were major areas of focus at each organization. We also audited the Air Force's 36th Air Wing in Guam as part of a new joint base initiative.

Additionally, starting in FY10 and continuing into FY12, the Navy Crane Center assisted Naval Reactors (NAVSEA 08) in their audits of DOE laboratories that support NNPP work. In FY11, Naval Reactors mandated that the laboratories utilize NAVFAC P-307 as the standard for management of their weight handling programs. In FY13, it is anticipated that our audit teams will begin conducting weight handling program audits at the three DOE laboratories that now fall under NAVFAC P-307.

Activity Program Compliance Progress

At the conclusion of each audit, we provide the activity a summary rating of satisfactory or unsatisfactory. Those satisfactory activities that nonetheless have significant issues to address (as a result of deterioration in their program, factors from our expanded audit focus, loss of key personnel, etc.) are adjudged marginally satisfactory. Unsatisfactory activities receive a follow-up review (approximately six months after the unsatisfactory audit) to evaluate progress in addressing their significant issues. Revisits to marginally satisfactory activities depend on the significance of the issues identified and their audit periodicity (annual or biennial). Of the 226 Navy activities audited in FY12, 92.6 percent were fully satisfactory (fundamentally sound), and 7 percent were marginally satisfactory (only one activity was adjudged unsatisfactory). The overall positive

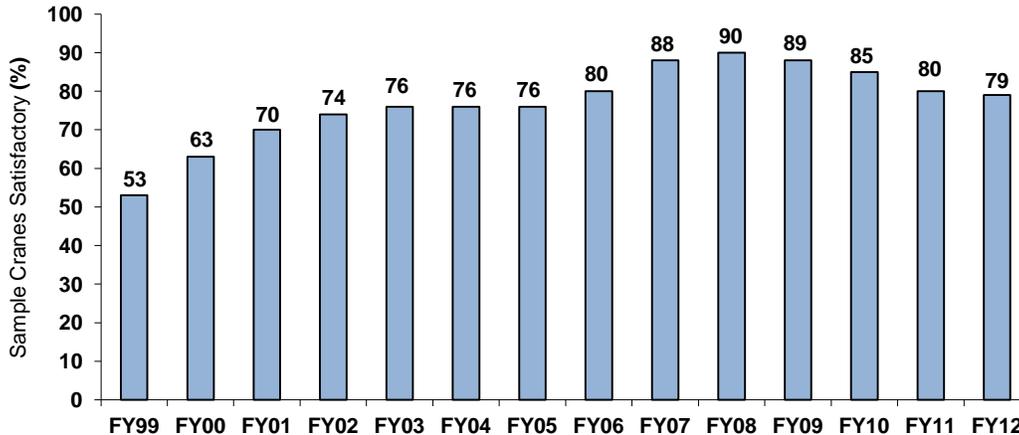
performance in activity compliance with NAVFAC P-307 requirements continues a positive trend of activity compliance and is a major improvement from the initiation of the audit program in FY98 when only 19 percent of activities audited were fundamentally sound.



Equipment Condition-Cranes

In FY12, the audit teams inspected 288 cranes out of a total inventory of approximately 5,300 active Navy owned cranes in service. In FY12, the satisfactory rate slipped to 79 percent, primarily due to new mobile crane load test procedures not being fully understood by some activities and cranes considered unsatisfactory because a required crane safety advisory was not performed, as noted above. The rate of satisfactory audit sample cranes was 53 percent when the audit program began.

EQUIPMENT CONDITION TREND



Unsatisfactory Cranes

Reasons for unsatisfactory cranes included the following:

- 13 mobile cranes were improperly tested; however, this number declined to two in the third quarter and none in the fourth quarter. Four other cranes were improperly load tested.
- 11 cranes had deficient or out-of-adjustment brakes.
- Nine cranes failed the load test for other reasons.
- Crane safety advisories were not completed on eight cranes.
- Other deficiencies were found during condition inspections of seven cranes.

Only one special purpose service (SPS) crane inspected was unsatisfactory. SPS cranes are required to be validated during the certification process by Navy Crane Center representatives. This additional oversight has proven effective in ensuring SPS cranes are well maintained.

Program Management Issues

As stated earlier, our audit teams have expanded the scope of audits to include more in-depth looks into overall program management. Although the majority of weight handling programs are well managed, some activities still have challenges. At activities that are operated by base operating service (BOS) contractors, a common thread for good programs was a strong government oversight program of contractor performance. However, in a few instances our audit teams identified activities where the proper level

of government oversight was lacking, resulting in weak overall program performance. Similarly, these activities have also had difficulty in properly overseeing non-BOS contractor crane operations at their activity. Navy Crane Center auditors focused heavily on both of these related issues. During FY12, our audit teams continued their focus on the utilization of internal observation programs which have proven effective at many activities in reducing crane accidents. At activities where operations and services were performed in-house, the better activities have developed a strong observation program of both operations and maintenance.

Some activities are still not taking full advantage of recent changes to NAVFAC P-307 that targeted reducing maintenance costs based on thorough detailed analysis of maintenance and reliability data throughout the Navy's shore based weight handling program. Our audit teams have focused heavily on these cost avoidance initiatives, while stressing the importance of having a feasible crane replacement and modernization plan to address future weight handling needs.

Over the past few years and continuing into FY12, our audits teams increased their focus with regard to the oversight of contractor cranes due to an increase in accidents associated with contractor cranes. This increased focus has contributed to a further 10 percent reduction in reported contractor crane accidents on top of the 25 percent reduction the previous year.

Many of the most significant accidents were not associated with cranes at all, but instead were as a result of multi-purpose machines, forklifts, and construction equipment being used to lift suspended loads. Due to an increase in the use of these machines as substitutes for cranes to lift suspended loads and the problems associated with these operations, the December 2009 revision to NAVFAC P-307 now includes these machines in our program when the machines are used to lift suspended loads. Additionally, rigging gear used with these machines is now required to be NAVFAC P-307 compliant and personnel performing the rigging must be trained. This area has been a focal point of our audits during the past year as significant problems continue to be identified. As stated in the previous paragraph, a strong government oversight program is critical to mitigate risk and to minimize hazards to Navy property and personnel.

Lastly, a few activities were identified with inadequate category 3 crane operations programs. Common problems seen at these activities included the lack of category 3 crane hands-on training following formal training, operations weakness due to a lack of proficiency (often as a result of too many operators), and pre-use inspection weaknesses. The December 2009 revision to NAVFAC P-307 requires category 3 crane operators to take the required training course (conveniently available as on-line, web-based training) every three years. This new requirement is helping to address this weak area for the long-term; however, our audit teams still identify some activities that have not yet implemented the requirement.

Equipment Issues and Deficiencies

In general, maintenance, inspection, testing, engineering, and certification of cranes in FY12 were satisfactorily conducted. Common engineering issues include Navy Crane Center comments to crane alteration requests (CARs) not acknowledged and incorporated and conditionally approved CARs not resubmitted. Common maintenance and inspection issues include inconsistencies in the performance and documentation of maintenance and inspections, poor or no documentation of specific work performed, and past crane alterations not recognized by inspection personnel. Common test deficiencies include misinterpretation of recent changes to NAVFAC P-307 with regard to mobile crane load testing, knowledge deficiencies in specific brake testing and errors in brake specification tolerance ranges. Common certification issues include weak review by the certifying official and inattention to detail in the certification documentation.

Common Rigging and Crane Operations Deficiencies

In general, rigging and crane operations observed during audits in FY12 were satisfactorily conducted. The number of rigging gear deficiencies noted during the audits continued to be small compared to the total inventory of rigging gear in the NAVFAC P-307 program. The preponderance of rigging gear deficiencies were the first two items noted below. All damaged rigging gear met the rejection criteria of NAVFAC P-307, the original equipment manufacturer (OEM), or ASME B30 and were no longer safe for use. Most of the noted deficiencies should have been detected by a proper pre-use inspection of the gear. Continued emphasis in rigging and operations is important to safe weight handling operations. As stated above, due to an increase in the use of multi-purpose machines, forklifts, and construction equipment as substitutes for cranes to lift suspended loads and the problems associated with these type operations, the December 2009 revision to NAVFAC P-307 included these machines in our program when the machines are used to lift suspended loads and the rigging gear used is now required to be NAVFAC P-307 compliant. Additionally, personnel performing the rigging using this type equipment must be trained. A concerted effort is required to continue rigging and operations improvements by maintaining a strong command focus on this critical weight handling area.

In FY12, many activities have taken positive action in recognition of conditions where overloading of the crane or rigging gear is possible due to binding conditions. This is due in part to Change 3 of NAVFAC P-307, which better aligned the complex lift requirements of NAVFAC P-307 and NAVSEA OP 5. Additionally, an improvement initiative among Navy Munitions Command (NMC), Packaging, Handling, Storage and Transportation Command (PHS&T), Navy Crane Center and activities that handle munitions resulted in the forming of a Cross Functional Team (CFT) for Ordnance (Munitions). This CFT facilitates improved communications and better understanding of potential problems in the ordnance environment and established a formal method to address and resolve technical differences and miss-understanding of weight handling issues. Because of rapid improvement in load indicating device (LID) technology,

commands may not be fully aware of or taking advantage of the new options these weight load indicators offer. In order to ensure wide distribution of this information, NCC personnel emphasize the benefits of this new technology during program audits and encourage activity weight handling managers to “invest in the safety that the LID can provide”.

The most common rigging and operations deficiencies were:

Rigging Gear Not in Any Program: This was the most common rigging gear finding in FY12.

Unmarked Rigging Gear: Gear not marked in accordance with NAVFAC P-307.

Damaged Rigging Gear: Gear with deficiencies that met rejection criteria of NAVFAC P-307. Synthetic sling damage included embedded metal shavings, snags, cuts, abrasions, and cuts to the outer and inner covers of the synthetic round slings exposing the inner core material. In many instances, damage was due to inadequate chafing protection, the selection of improper rigging gear for the job at hand, and in some cases, the damage was due to improper storage of the slings when not in use.

Out of Date Rigging Gear: Gear that was available for use or was actually being used past the marked inspection due date. No segregation of out of date gear or gear not in the program.

Inadequate Use of Chafing Gear: Significant problem area which results in numerous crane accidents. Focus area of our audit teams during observation of inside shop, pier side, and in-hull rigging.

Improperly Tested Gear: Rigging gear tested with incorrect test loads, test loads not applied for proper length of time, and required tests not performed.

Hooks: Damaged hook latches or hooks without latches that were not approved by the activity engineering organization.

Chain hoists: Failure to comply with Crane Safety Advisories 88 and 121A relating to chain hoists and electric powered hoists.

Wire rope slings: Swaged fittings made of materials other than steel. Inadequate chafing protection. Improper swaging.

Eyebolts: Spacers that were not the proper diameter or were greater than one thread pitch in thickness were incorrectly used to install eyebolts. Eyebolts were incorrectly modified without engineering authorization and in some cases, nuts were improperly used. Additionally, in some cases, eyebolts were installed such that lifts were being conducted out of the plane of the eye or lifts were being conducted that exceeded OEM limitations for use.

Swivel hoist rings: Swivel hoist rings not tightened to OEM torque specifications during installation or were used in configurations that exceeded OEM limitations for use.

Common Operations Deficiencies

Crane Team Performance Issues: In weight handling operations that involved crane teams, deficiencies were identified in crane team member coordination, track walker performance, and in the overall control of the lift by the rigger-in-charge (RIC). Additionally, instances were identified where RICs performed work that could have been performed with other available personnel, which distracted them from their primary role of overall control of the operation. In some instances supervisors were observed performing work, compromising their oversight role. This has been a primary focus area for our audit teams and many activities have improved performance in this area.

Control of the Crane Operating Envelope: Deficiencies consisted of items being left in the travel zone or working zone of the crane and unauthorized personnel not prevented from entering the crane operating envelope, resulting in the load being passed over individuals.

Category 3 Crane Operations: Significant weaknesses continue to be identified during observation of category 3 crane operations and pre-use inspections. Operators omitting or improperly performing required pre-use tests. Checking upper limit switch operation at high speed. Traveling into crane stops at high speed. Securing the crane and leaving the hook block lowered as a potential obstruction. Stowing the hook by engaging the upper limit switch. Operators making lifts without knowing load weights. Leaving suspended loads unattended. A cause of numerous crane accidents was side loading during lifts, resulting in miss-spoiled and damaged wire rope.

Lifting Bound or Constrained Loads: Crane teams not using load indicating devices (LIDs) during lifts, not including appropriate stopping points to prevent overload of the crane, rigging gear, or item being lifted, and lack of a finite means of hoisting, such as using a chainfall.