United States General Accounting Office

GAO

Report to the Chairman, Subcommittee on Readiness, Committee on Armed Services, House of Representatives

October 1993

AIR FORCE DEPOT MAINTENANCE

Status of Safety Initiatives

GAO/NSIAD-94-37

GAO

United States
General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-240355

October 28, 1993

The Honorable Earl Hutto
Chairman, Subcommittee on Readiness
Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

Because of your concern about continuing safety problems at the San Antonio, Texas, Air Logistics Center (ALC) and notices of safety violations issued by the Occupational Safety and Health Administration (OSHA), you asked us to review the Air Force's efforts to improve depot maintenance safety and training at the San Antonio center. Our objectives were to assess (1) the effectiveness of Air Force actions in response to our prior recommendations and (2) the status of improvements to the safety program at the San Antonio ALC.

Background

The Air Force primarily conducts depot level maintenance—the modification, repair, or overhaul of aircraft, missiles, engines, support equipment, and related parts—at five ALCs, which are part of the Air Force Materiel Command (AFMC).[1] The ALCs' commanders are responsible for providing safe workplaces and ensuring compliance with federal safety standards. Under the provisions of the Occupational Safety and Health Act of 1970 and Executive Order 12196 of 1980, federal agencies are required to establish a comprehensive and effective occupational safety and health program that is consistent with OSHA standards. OSHA inspects the ALCs for compliance with these standards and investigates major accidents. Center safety staffs inspect the ALCs for safety compliance and investigate mishaps.

To comply with federal program requirements, Air Force headquarters provides policy guidance and direction to major commands such as AFMC and other guidance through a series of occupational safety and health regulations. AFMC is responsible for review and oversight of the ALCs to ensure compliance with maintenance training and safety requirements. In our May 1991 report,[2] we responded to your earlier request for a review of Air Force depot maintenance safety and training problems at three of the

[1]Prior to July 1, 1992, this was the Air Force Logistics Command.

[2]Air Force Depot Maintenance: More Efforts Are Needed to Improve Safety and Training (GAO/NSIAD-91-89, May 23, 1991).

five ALCs. We reported that some of the maintenance training and safety problems we identified at that time had been identified previously but not corrected. While we concluded that the Air Force had taken positive steps to resolve its safety problems, we noted that some efforts had not been fully successful or completely implemented. We recommended that the Air Force (1) provide clear guidance and procedures to managers and workers and reinforce a strong commitment to safety and (2) evaluate, monitor, and periodically report on progress in correcting problems and improvement efforts. The Department of Defense agreed with these recommendations and cited several actions to indicate the Air Force's commitment to safe working conditions at the ALCs.

Results in Brief

The Air Force has revised safety program guidance and procedures and conducted oversight of the ALCs' progress in correcting safety problems. While these actions provide a reasonable framework on which to base future safety improvement efforts, they still have not been fully successful. Conditions at the San Antonio ALC raise concerns regarding whether the safety program at that center has received the emphasis required to achieve desired safety improvements.

Although the San Antonio ALC has undertaken several efforts to correct maintenance safety and training deficiencies, problems remain. Data on accidents and injuries (mishaps) from this ALC indicate that the mishap rates at this center have increased over the past few years and are greater than the command or Air Force-wide rate. Additionally, safety deficiencies identified by investigators in recent months are not dissimilar to major deficiencies attributed to past accidents at the ALC. Continued corrective and preventative safety improvement efforts are warranted to reduce the likelihood of similar incidents in the future.

Because of the manner in which lost workday data are collected and reported at the San Antonio ALC, mishap data there do not reflect all instances when workers are away from their assigned responsibilities because of accident or injury. Neither OSHA nor Air Force guidance is clear regarding how such data should be collected. As a result, the reported statistics do not include time when workers cannot perform their normal duties but are assigned some other work. This condition not only overstates the safety conditions at the ALCs but also reduces the likelihood that OSHA would target one of the ALCs for an inspection. Revision of OSHA guidelines for computing lost workdays would resolve this problem.

However, clarification of the Air Force mishap reporting language could also serve the same purpose.

Air Force Efforts to Improve Depot Safety and Training

In response to our May 1991 report, the Air Force implemented actions in two general areas to improve depot maintenance safety and training. First, the Deputy Assistant Secretary of the Air Force for Environment, Safety and Occupational Health directed semiannual updates to evaluate the progress of corrective actions and requested status briefings to monitor improvements until cited problems at the centers were corrected. The initial briefing held in October 1991 covered accomplishments to that date and summarized ongoing actions to correct deficiencies discussed in our report. Safety Process Effectiveness Reviews, which were designed to determine the ALCs' compliance with maintenance and training regulations, served as a basis for this briefing. An update briefing was conducted in February 1992 wherein safety improvements and conditions were discussed after follow-up safety reviews were completed at all the ALCs. These briefings were also given to the Deputy Assistant Secretary of Defense for Environment. Noting that he was satisfied that the ALCs were making satisfactory progress in providing a safe and healthful workplace for maintenance workers, the Deputy Assistant Secretary of the Air Force determined that further direct secretariat oversight was unnecessary and that these special reviews were no longer required.

Some of the reported safety improvements found by AFMC inspectors during the first two rounds of Safety Process Effectiveness Reviews included increased safety awareness, initiatives to improve tool control, more accessible technical data, better procedures to ensure that workers are qualified to perform critical tasks, and greater accessibility to information on hazardous materials. The reviews were interdisciplinary evaluations of various aspects of the ALCs' safety processes, with the review team comprised of (1) senior representatives from AFMC flight, ground, munitions, systems, and materiel safety and (2) maintenance and maintenance training experts. Team members reviewed processes, procedures, operations, and regulatory guidance.

AFMC also revised several regulations to clarify and improve safety, maintenance training, and certification procedures. Its revised regulation covering maintenance worker certification requirements in facets such as training, safety, equipment, technical data, and facilities in the industrial environment required the ALCs to identify skills requiring special qualifications and to define minimum training and proficiency for critical

tasks. A revised fire protection program regulation added the requirement that shop personnel be trained to identify and report hazardous conditions. Revisions to AFMC's tool control and accountability regulation emphasized the need for the ALCs to continuously monitor tool control efforts and ensure necessary tools are readily available. Another revision involved a regulation covering maintenance quality policy and procedures for total quality management methodology and continuous improvement in maintenance operations.

Following the second round of Safety Process Effectiveness Reviews at the ALCs, where continuing safety deficiencies and problems were found, the former Air Force Logistics Command established safety initiatives to focus on problem areas needing additional attention during 1992. These initiatives were keyed to specific goals such as to ensure (1) all maintenance workers are qualified and certified to perform assigned tasks, (2) all safety staffs and supervisors continue safety surveillance, (3) programs to protect workers from accidental start-up of machinery and other hazards are standardized, and (4) personnel consistently apply the identification, training, and monitoring requirements of the confined space entry program.

However, we found that there had been no follow-up from AFMC headquarters to determine the extent to which these initiatives had been implemented at the ALCs. In fact, the initiatives had not been promulgated by the newly established AFMC leadership. San Antonio officials also noted that there were no meaningful quantitative measures that could be used to evaluate progress toward achieving these initiatives. Although a third series of safety reviews were conducted in early 1993, they were designed to identify flow processes in the ALCs' safety programs rather than to evaluate progress toward achieving safety improvement goals or initiatives.

Safety Problems Remain at San Antonio ALC

Although the San Antonio ALC made several safety-related improvements, the mishap rates at the center have increased and recent inspections and investigations indicate that deficiencies identified in prior Air Force, GAO, and OSHA reviews are still occurring.

In general, we found that the ALC's safety improvement efforts during the period of our review were positive. For example, the aircraft and propulsion directorates were developing additional procedures to ensure maintenance workers were qualified and certified to accomplish assigned

tasks. Worker qualifications and training for critical tasks were being tracked in an automated system. Also, based on revised AFMC guidance, the ALC had developed an improved confined space entry program, which includes the identification and classification of all dangerous areas centerwide. These actions facilitated instituting practices and procedures to protect workers that enter and work within these spaces.

To further evaluate the San Antonio ALC's safety improvement efforts, we randomly selected 70 from about 4,300 maintenance workers in the ALC's aircraft and propulsion directorates to obtain their opinions about safety initiatives in their workplace. Although 84 percent of the workers said they had attended safety training sometime during the previous year and 99 percent said they had attended safety meetings and that they were free to identify safety concerns to supervisors without fear of reprisal, these workers did reveal some concerns about workplace safety. Fifty-nine percent said they had reported hazards during the previous year, and 41 percent of those reporting hazards said they received feedback. Only 50 percent of the workers said they thought officials above their immediate supervisor had a positive attitude about safety, and 26 percent said they thought emphasis on production conflicted with good safety practices.

The San Antonio ALC commander has a stated goal to make his center the safest in AFMC. In a June 1992 memorandum to ALC managers, he emphasized that he would not tolerate mishaps caused by training or certification deficiencies and that each center supervisor must ensure that all workers are properly trained and, if required, certified. He also pointed out that he would not accept placing production ahead of safety.

However, the mishap rates[3] at the San Antonio ALC have increased—increasing from 1.12 in September 1991 to 1.16 in June 1992 and to 1.22 in April 1993. The mishap rate in the aircraft directorate, where a fatal accident occurred in 1989, increased from 1.71 in September 1991 to 2.19 in April 1993. In the propulsion directorate, the rate increased from 0.65 in September 1991 to 1.09 in April 1993, while in the technology and industrial support directorate, the rate increased over that same period from 0.38 to 1.57. Furthermore, with an AFMC average mishap rate of 0.75 in April 1993, the current mishap rates at this ALC are also higher than those in other AFMC depots and other activities.

[3]Mishap rates provide a cumulative rate of injuries relative to the hours worked. The rates are derived by dividing the number of injuries, illnesses, or lost workdays by total worker hours and multiplying by 200,000 hours. The 200,000 hours, which gives a rate per 200,000 hours of exposure, is based on 100 full-time civilian workers working 40 hours per week, 50 weeks each year.

Additionally, a May 1993 Air Force Safety Agency review to follow up on AFMC's status in implementing corrective actions as a result of our 1991 report (1) revealed tool control problems, (2) identified uncertified workers who were doing work for which they were not qualified, and (3) found incidents of safety precautions not being followed. These conditions mirrored those we found during our previous review, which had resulted in accidents and mishaps at this center.

As described in our prior report, contributing factors to the fatal B-52 aircraft refueling accident that occurred in July 1989 at San Antonio included inadequately trained and uncertified maintenance workers, violations of operating procedures, and poor supervision. Later in 1989, a fire aboard a C-5 aircraft undergoing maintenance was attributed to an aircraft part failure; the investigation team also found workers who had performed operational checks had not complied with approved maintenance procedures and one worker was not adequately supervised.

Similar problems were recently revealed. On November 7, 1992, during operational checks on the main landing gear of a B-52 aircraft, the landing gear was retracted inadvertently with a maintenance worker inside the wheel well. Although the worker was not injured, the San Antonio ALC's safety investigation found the workers did not follow technical order procedures and failed to comply with Air Force regulations. OSHA's investigation also showed the incident occurred because workers and supervisors violated technical order procedures by not establishing proper communications, failed to install the main gear locking pin, did not maintain a comprehensive log of work being performed, and failed to prevent accidental retraction of the landing gear.

For a brief period in early 1992, after changes in the San Antonio ALC's command safety office and union leadership, the number of complaints directed to OSHA declined. However, according to the ALC's safety office, in 1992 there were 92 hazard reports and OSHA made 15 or more visits, including the one for the 1992 B-52 aircraft incident. OSHA also issued citations involving the improper operation of a forklift, workers being exposed to electrical shock conditions while operating equipment, improper use and storage of respirators, hazardous chemicals in the workplace not labeled, and work platforms without proper guardrail.

San Antonio ALC officials told us that the commander has recently directed that new safety standards be added to employee performance plans. The new standards, which were disseminated to center management in a

June 9, 1993, letter signed by the civilian personnel officer, state that any violation of safety rules that results in an accident will be considered unsatisfactory performance. The ALC commander also recently approved a policy that senior managers will direct investigations of accidents or "near misses" where such investigations are not required by Air Force regulations because the incident did not meet the regulatory test in terms of injury or property damage.

Clarification of Lost Time Injury Reporting Would Improve Safety Reporting

The inconsistency and lack of clarity in current OSHA and Air Force guidance regarding the reporting and tracking of lost workday injuries result in the failure to recognize all productivity losses resulting from workplace injuries or illnesses at the ALCs. Clarity is important because OSHA uses lost workday injury data to target activities having above-average rates for inspections.

OSHA guidance for recording workday cases is not consistent for the private and public sectors. Guidance for the private sector provides that a lost workday shall be recorded when the injured or ill employee experiences days away from work, days of restricted work activity, or both. Guidance for the public sector (federal agencies) indicates that "lost time" occurs when there is time from work beyond the day on which injury or illness occurs—without further qualification. Despite the fact that restricted workdays are not specifically defined as being part of the lost workday computation in OSHA federal guidance, Air Force Regulation 127-4, "Safety: Investigating and Reporting U.S. Air Force Mishaps," provides that a lost workday case be established when a worker is unable to perform the essential functions of his or her job assignment—language that could be interpreted as being the same as restricted work time.

In June 1991, AFMC notified the San Antonio ALC that OSHA was targeting it, along with two other ALCs for inspection in fiscal year 1992, based on reported lost-time compensation cases in 1990. However, as a result of AFMC's position that some of the cases had no lost time and a recomputation of the ALC's average, the San Antonio ALC was not inspected. We reviewed files and documentation of cases reported as discrepancies and found that many of the cases did have lost time and the cases probably should not have been removed from the OSHA statistics.

Additionally, as noted in your request letter, OSHA inspectors issued a citation to the San Antonio ALC as a result of its failure to report all injuries and illnesses as required by Air Force regulation. OSHA inspectors reviewed

the computerized log maintained by the San Antonio ALC to compile safety data and found that at least 73 occupational injury cases, involving 561 lost and restricted workdays, were not reported as lost time in fiscal year 1990. AFMC headquarters disagreed with the citation, stating that workers reporting for work but unable to perform their normal duties should not be reported as lost workday cases, according to existing OSHA standards for federal agencies.

There would be several advantages to revising the OSHA standards for federal agencies to bring them in line with standards in the private sector. For example, the lost time injury reporting would more accurately reflect actual productivity losses as a result of injuries and mishaps and would provide a more realistic reflection of problem activities. OSHA officials said that although the agency has considered revising its federal agency procedures to resolve these inconsistencies, as of June 1993, no specific changes had been implemented. However, even without a change in OSHA guidelines, we believe that if the ALCs reported lost time injuries in accordance with the cited Air Force mishap reporting guidance, time when personnel cannot conduct their normally assigned duties would be identified through lost time injury reporting.

Recommendations

We recommend that the Secretary of the Air Force direct the Commander, AFMC, to (1) establish commandwide safety improvement initiatives with quantifiable targets and goals and (2) continue to use the Safety Process Effectiveness Reviews to measure the extent to which the ALCs have implemented safety improvements.

We also recommend that the Secretary of Labor require the Acting Assistant Secretary for Occupational Safety and Health to change OSHA guidelines for lost time injury reporting for federal agencies to require the identification of restricted time when workers cannot perform their regularly assigned duties as a result of injury or accidents.

Agency Comments and Our Evaluation

The Department of Defense and the Occupational Safety and Health Administration of the Department of Labor provided written comments that are provided in their entirety in appendixes I and II, respectively. Both agencies fully concurred with our findings and recommendations. The Defense Department's response noted that the Air Force is committed to ensuring that safety continually improves throughout all of its activities and is working hard to rectify the specific problems at the San Antonio

ALC. The Air Force Secretariat will direct that AFMC establish and execute commandwide safety improvement initiatives, as well as continue Safety Process Effectiveness Reviews, to include measures of effectiveness. OSHA noted that a proposal to implement our recommendation concerning revising OSHA guidelines for lost time injury reporting is being considered.

Scope and Methodology

In reviewing Air Force efforts to implement our previous recommendations, we met with selected officials from Headquarters, AFMC, to obtain information on (1) Air Force guidance and command reviews of the ALCs and (2) procedures used to identify safety deficiencies and follow-up on corrective actions. We also contacted officials at OSHA headquarters to obtain their views on Air Force compliance with OSHA standards.

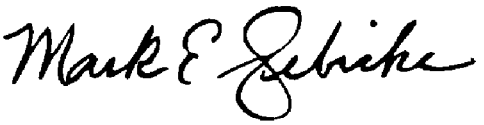
In reviewing specific actions to improve safety programs at the San Antonio ALC, we met with (1) center officials to review and discuss procedures to enforce compliance with Air Force regulations and OSHA standards; (2) OSHA officials in Austin, Texas, to obtain information on reported center safety violations and to obtain their views on actions to comply with OSHA standards and correct safety problems; and (3) selected union representatives and maintenance workers to obtain their views on safety procedures and practices. We also obtained information from the Air Force Safety Agency.

We performed our work between March 1992 and June 1993 in accordance with generally accepted government auditing standards.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of this letter. At that time, we will send copies to interested parties and make copies available to others upon request.

Please contact me at (202) 512-5140, if you or your staff have any questions concerning this report. The major contributors to this report are listed in appendix III.

Sincerely yours,



Mark E. Gebicke
Director
Military Operations and Capabilities Issues

Comments From the Department of Defense

OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, DC 20301-3000

ACQUISITION

18 SEP 1993

Mr. Mark E. Gebicke
Director, Military Operations and
Capabilities Issues
National Security and
International Affairs Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Gebicke:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "AIR FORCE DEPOT MAINTENANCE: Status of Safety Initiatives," dated July 30, 1993, (GAO Code 392680, OSD Case 9443). The DoD fully concurs with the findings and recommendations.

With regard to the GAO recommendations, the Air Force is committed to ensuring that safety continually improves throughout all of its activities, and is working hard to rectify the specific problems at San Antonio Air Logistics Center. In addition, the DoD supports the GAO recommendation that the Occupational Safety and Health Administration change its guidelines for Federal Agencies for lost time injury reporting to capture the data concerning the impact of injuries more accurately.

The detailed DoD comments on the report recommendations are provided in the enclosure. The DoD appreciates the opportunity to comment on the GAO draft report.

Sincerely,

Gary D. Vest
Principal Assistant Deputy Under Secretary
of Defense (Environmental Security)

Enclosure

Environmental Security -- Defending Our Future

GAO DRAFT REPORT - DATED JULY 30, 1993
(GAO CODE 392680) OSD CASE 9443

"AIR FORCE DEPOT MAINTENANCE:
STATUS OF SAFETY INITIATIVES"

DEPARTMENT OF DEFENSE COMMENTS

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RECOMMENDATION TO THE DEPARTMENT OF DEFENSE

Now on p. 8.

- **RECOMMENDATION 1**: The GAO recommended that the Secretary of the Air Force direct the Commander, Air Force Materiel Command (1) to establish command-wide safety improvement initiatives with quantifiable targets and goals and, (2) to continue to use the Safety Process Effectiveness Reviews to measure the extent to which the Air Logistic Centers have implemented safety improvements. (p. 11/GAO Draft Report)

  DOD RESPONSE: Concur. The Air Force Secretariat will direct that the Air Force Materiel Command establish and execute command-wide safety improvement initiatives, as well as continue Safety Process Effectiveness Reviews, to include measures of effectiveness. The Air Force direction will be issued within 90 days from the date of this response.

* * * * *

RECOMMENDATION TO THE DEPARTMENT OF LABOR

Now on p. 8.

- **RECOMMENDATION 2**: The GAO recommended that the Secretary of Labor require the Acting Assistant Secretary for Occupational Safety and Health to change Occupational Safety and Health Administration guidelines for Federal Agencies for lost time injury reporting to require the identification of restricted time when workers cannot perform their regularly assigned duties as a result of injury or accidents. (p. 11/GAO Draft Report)

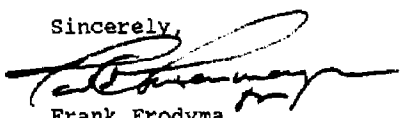
  DOD RESPONSE: Concur. The DoD, along with other Federal Agencies, has been working with the Department of Labor to develop guidelines more comparable to requirements placed on industry. Revised guidelines will improve the utility of the data collected and support efforts to prevent worker injuries and illnesses.

Enclosure

Let me assure you that OSHA's minimum requirements were never intended to prevent Federal agencies from requiring additional data elements in their logging system. Instead, OSHA encourages Federal agencies to build on these minimum requirements so that they may better analyze and evaluate the performance of their safety and health programs.

OSHA appreciates the assistance GAO has provided in our efforts to improve the Agency's monitoring of Federal agencies safety and health programs. If you have any questions, please let us know.

Sincerely,



Frank Frodyma
Acting Director of Policy

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Comments From the Department of Labor

U.S. Department of Labor

Occupational Safety and Health Administration
Washington, D.C. 20210

Reply to the Attention of:

AUG 6 1993

Mr. Frank C. Conahan
Assistant Comptroller General
National Security and International
Affairs Division
U.S. General Accounting Office
Washington D.C. 20548

Dear Mr. Conahan:

Thank you for your letter of July 6 transmitting for comment the General Accounting Office's (GAO's) proposed report entitled, "Air Force Depot Maintenance: Status of Safety Initiatives." The GAO reviewed the Air Force's efforts to improve depot maintenance safety and training, focusing on the San Antonio Air Logistics Center (ALC).

We understand that the objectives of the GAO study were to assess the effectiveness of Air Force actions in response to prior GAO recommendations and to determine the status of improvements to the safety program at the ALC. OSHA welcomes the opportunity to comment on the GAO report.

GAO found that while the ALC has made progress, deficiencies still exist. OSHA agrees with many of GAO's findings in that they mirror recommendations made by the Agency during its evaluation of the Air Force's safety and health program.

GAO recommended that OSHA change its Federal agency guidelines for lost time injury reporting to require the identification of restricted time when workers cannot perform their regularly assigned duties as a result of injury or accidents. We acknowledge that the current Federal agency recordkeeping policy does not require the recording of employee restricted duty. This policy is a result of a determination by the Agency that data obtained from the Federal Employee Compensation Act (FECA) would provide us with a more comprehensive database than the summary injury and illness data obtained at the agency level.

In response to the GAO recommendation, OSHA is exploring with the Office of Workers' Compensation programs and the Federal Accident Reporting System Committee of the Federal Advisory Council on Occupational Safety and Health ways to address this inconsistency. A proposal is currently being considered that would require federal agencies to indicate on their FECA claim forms whether a lost workday case involves restricted duty. We will keep you informed of the status of this effort.