NAVAL REGIONAL MEDICAL CENTER
CAMP LEJEUNE, N.C. 28542

IN REPLY REFER TO
62-khc
6260.10
19 August 1981

From: Commanding Officer
To: Commanding Officer, Marine Aircraft Group-26, Marine Corps Air Station (Helicopter) New River, Jacksonville, North Carolina 28545

Subj: Industrial Hygiene Survey of MAG-26 Squadron Areas; report of

Ref: (a) Your ltr 51:JFH:jfh over 5100 of 22 June 1981
(b) MCO 5100.8E
(c) Occupational Safety and Health Standards, CFR, Federal Register, Vol. 39, No. 125, Part II
(d) Executive Order 11807 of 3 Feb 75
(e) OPNAVINST 5100.23A
(f) Industrial Ventilation, American Conference of Governmental Industrial Hygienists, 15 ed., 1978
(g) BUMEDINST 6260.12A
(h) DODINST 6055.3
(i) MCO 6260.1C
(j) OPNAVINST 6260.2
(k) OPNAVINST 6260.1A

Encl: (1) Medical Evaluations for Occupational Health Exposures
(2) Industrial Solvents
(3) Eye Protection Fact Sheet
(4) Practices for Respiratory Protection
(5) Laboratory Test Results

1. In response to reference (a), an industrial hygiene survey of Marine Aircraft Group-twenty-six (MAG-26) was performed by LT G. L. Winters, MSC USN and HMC G. M. Waslicki, USN from the Occupational and Preventive Medicine Service of this Command on 16 July and 4 August 1981.

2. The purpose of the survey was to evaluate occupational safety and health aspects of squadron work areas and make recommendations for corrective actions where necessary. As defined in reference (b), this survey is required to be performed annually. Reference (b) also describes procedures to follow in requesting correction of deficiencies and the OSH Abatement Program. It is recommended that these procedures be followed in order to obtain funding for correction of ventilation deficiencies and problem areas.

3. The most comprehensive legislation in the Occupational Safety and Health field was the passage of the OSHA Act of 1970 which resulted in the promulgation of work place standards described in reference (c). Reference (d) required each federal agency to establish and maintain occupational safety and health programs consistent with these standards. As a result, references (b) and (e) established Marine Corps and Navy programs respectively.

4. Significant occupational safety and health problems were found in squadron shop areas. Ventilation was poor and many chemical dip and cleaning tanks had no mechanical exhaust systems for removing vapors from breathing zones of personnel. Reference (f) describes suitable designs for such operations.

5. Medical monitoring and evaluations need to be performed on all personnel routinely working with halogenated hydrocarbon solvents including chemicals such as trichloroethane, freon, dry cleaning solvent and stoddard solvent. Prolonged exposure without adequate protective equipment may result in a variety of disorders. Guidelines for this required physical evaluation are listed in reference (g). Additional medical evaluations are listed in enclosure (1). Further information on industrial solvents is contained in enclosure (2).

6. Improvements in personal protective equipment are needed. In many areas, personnel were issued machine shop goggles. While these are excellent for machine shop use, they are useless for chemical operations since the vapors of solvents will diffuse through the ventilation holes around the sides. Being composed of a watery substance, the eyes will absorb vapors of solvents and cleaners more readily than other parts of the body. Goggles approved for chemical operations are required. See enclosure (3) for further information.

7. All areas utilizing injurious or corrosive materials are required to have facilities for quick drenching or flushing of eyes and body within the work area. See Section 1910.151 of reference (c).

8. A respirator program is not only needed but also required in reference (c). Section 1910.134 describes the minimum requirements for such a program. In general, however, respirators should not be stored with other chemicals since the respirator cartridges will absorb chemical vapors. It is further recommended that respirators be sealed in plastic bags after use. Maximum usable time for an organic vapor respirator cartridge is 6-8 hours. See enclosure (4).

9. Eating and drinking in work spaces utilizing toxic materials is specifically prohibited by Section 1910.141 of reference (c). Also, many solvents, particularly those of the halogenated hydrocarbon variety, may decompose into toxic by-products in the presence of heat or flame. Therefore, smoking in these work place areas should also be prohibited.

10. It is recommended that an annual hazardous noise survey of flight line and shop areas be conducted and that all applicable personnel be placed on a Hearing Conservation Program as required in references (h), (i), and (j).

11. A considerable area of torn laging was noticed in Hangar 505 in the HMH-461 Metal Shop. Insulation samples were submitted to Navy Environmental Health Center in Norfolk, Virginia for analysis. The results reported in enclosure (5) confirmed that the insulation material was asbestos. This material should be either sealed or replaced. See reference (k). Details for specific squadrons follow in subsequent paragraphs.

12. HMH-461

a. Hydraulics Shop

(1) Observations

(a) SD-1 and PD-680 are used in cleaning materials

(b) No gloves or goggles available

(c) Passageway illumination levels measured 2-4 foot candles

(2) Recommendations

(a) Place all personnel routinely working with these solvents on a medical monitoring program for halogenated hydrocarbon exposure as required in reference (g).

(b) Issue goggles approved for chemical operations

(c) Increase illumination in passageway

b. Metal Shop and Corrosion Control

(1) Observations

(a) Both shops are located in the same space

(b) MEK, toluene, aladine stripper and fiberglass sanding operations are performed

(c) No exhaust system, nonexplosion proof lights

(d) Personnel use machine shop goggles and face shields

(e) Iso-Resins and other chemicals stored with respirators

(2) Recommendations

(a) Place all personnel routinely working with halogenated hydrocarbon solvents on medical monitoring program as required in reference (g)

(b) Install bench type exhaust system for grinding and chemical cleaning operations. See reference (f) for suitable designs

(c) Issue personnel goggles approved for chemical operations

(d) Store respirators separately from chemicals to prevent contamination

c. Flight Equipment Shop

(1) Observations

(a) Toluene used to clean materials

(b) Machine shop and aviation goggles issued to personnel

(c) No rubber gloves available

(2) Recommendations

(a) Issue personnel goggles approved for chemical operations

(b) Issue personnel rubber gloves for working with solvents and other cleaning materials

13. HMT-204

a. Metal Shop and Corrosion Control

(1) Observations

(a) Both shops are located in the same space

(b) Variety of chemicals used including toluene, acrylic lacquers, and sealants

(c) Respirators, machine shop goggles and face shields issued to personnel

(2) Recommendations

(a) Issue personnel goggles approved for chemical operations

b. Hydraulic Shop and Avionics

(1) Observations

(a) Freon and PD-680 used for cleaning

(b) Protective equipment available from Corrosion Control

(2) Recommendations

(a) Issue personnel goggles approved for chemical operations

(b) Place all personnel routinely working with halogenated hydrocarbons on medical monitoring program as required in reference (g)

14. HMH-362

a. Metal Shop

(1) Observations

(a) Paints, MEK, xylene, toluene and freon used extensively

(b) Face shields available

(c) Organic vapor cartridges available but personnel could not find respirator mask

(d) No mechanical ventilation in shop

(2) Recommendations

(a) Issue personnel goggles approved for chemical operations

(b) Issue correct mask for respirator cartridges

(c) Recommend exhaust system be installed to remove chemical vapors from work areas. See reference (f).

15. HMM-162

a. Hydraulics Shop

(1) Observations

(a) No gloves, goggles, nor respirators available when working with PD-680

(2) Recommendations

(a) Issue personnel proper protective equipment

b. Metal Shop and Corrosion Control

(1) Observations

(a) MEK used as cleaning agent

(b) Respirators were stored in open work area

(c) Personnel were issued machine shop goggles for chemical protection

(d) Airborne chemical contaminants disperse from one shop area into other work areas within the space

(2) Recommendations

(a) Store respirators away from other chemicals

(b) Issue personnel goggles approved for chemical operations

(c) Install workbench exhaust system to remove airborne contaminants at the work site. See reference (f).

16. HMM-365

a. Metal Shop

(1) Observations

(a) Work table available where xylene, toluene, MEK, naptha and other chemicals are used

(b) Face shields available

(2) Recommendations

(1) Issue personnel goggles approved for chemical operations

17. HMM-264

a. Hydraulics and Flight Line Shops

(1) Observations

(a) Respirators stored with other chemicals in grease locker

(b) No gloves or goggles available

(2) Recommendations

(a) Store respirators away from other chemicals

(b) Issue personnel rubber gloves and goggles approved for chemical operations

18. HMM-261

a. Metal Shop and Flight Line

(1) Observations

(a) Gloves, respirators and machine shop goggles issued to personnel

(b) No medical monitoring program in effect

(c) No ventilation system in shop

(2) Recommendations

(a) Issue personnel goggles approved for chemical operations

(b) Place personnel on medical monitoring program for halogenated hydrocarbon exposure as required in reference (g)

(c) Install mechanical ventilation in shop to include wórkbench type exhaust system. See reference (f) for design information.

(d) Issue protective equipment to personnel in Flight Line Shop when working with freon

19. H and MS

a. Hydraulic Shop

(1) Observations

(a) PD-680, strippers, freon, and trichloroethane used for cleaning

(b) No respirators available

(c) No exhaust or dip tanks

(2) Recommendations

(a) Issue personnel correct protective equipment when working with organic solvents. See enclosures (2), (3), and (4).

(b) Place personnel on medical monitoring programs

(c) Install exhaust system on dip tanks. See reference (f) for suitable designs.

b. Tire Shop

(1) Observations

(a) PD-680 used in cleaning tank. No exhaust system on tanks.

(b) No deck drain for eyewash

(2) Recommendations

(a) Install exhaust system on cleaning tanks. See reference (f).

(b) Install deck drain for eyewash system

c. GSE

(1) Observations

(a) No exhaust above welding table

(b) No exhaust above battery charging area

(c) Fueling platform is in between two exits from compound area

(2) Recommendations

(a) Install exhaust system above welding table and battery charging area. See reference (f).

(b) Fueling platform proximity to compound exits needs evaluation by safety and fire protection personnel. A fire in this area could block escape routes from the compound area

20. Occupational and Preventive Medicine Service of this Command welcomes any further requests for assistance.

Jon M Eckstein

JON M. ECKSTEIN
By direction

INDUSTRIAL HYGIENE SURVEY REPORT

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

AND

MARINE CORPS AIR STATION, NEW RIVER, JACKSONVILLE, NORTH CAROLINA

29 NOV - 10 DEC 1982

Enclosure (1)

I. REFERENCES

(a) Threshold Limit Values (TLV) for Chemical Substances and Physical Agents in the Workroom Environment, ACGIH

(b) OPNAVINST 6260.2

(c) MCO 6260.1C

(d) NAVMAT P-5100

(e) "Industrial Ventilation, A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists", current edition

(f) OPNAVINST 6260.1B

(g) 29 CFR 1910

(h) NAVMED P-5010

(i) ANSI Z358.1 1981, American National Standard for Emergency Eyewash and Shower Equipment

(j) IES Lighting Handbook, Illuminating Engineering Society of North America, 1981

(k) National Safety Council Data Sheet I-635-79

(l) OPNAVINST 5100.23A

(m) BUMEDINST 6260.16A

A. Results

1. Base Maintenance Shop

a. Plumbing Shop. Compressed gas cylinders in this shop are not secured.

b. Main Working Bay

(1) Most portable power tools are not labeled as noise hazards as required by references (b) and (c). References (b) and (c) require personnel exposed to hazardous noise to participate in a hearing conservation program.

c. Two workers were observed without hearing protection while using a pipe threading machine. The pipe threading machine is a noise hazard. SPL measure 90 dBA. SPL of 85 dBA or above are considered noise hazardous by references (b) and (c). References (b) and (c) require personnel exposed to hazardous noise to participate in a hearing conservation program.

d. Outside Storage Area. Large compressed gas cylinders in a storage area near a fence are not secured.

e. Carpentry Shop. No workers were present at the time of this survey and this shop was not evaluated.

B. Recommendations

1. Base Maintenance Shop

a. Secure all compressed gas cylinders in the plumbing shop.

b. Label all portable power tools in the main working bay as noise hazardous. Ensure workers wear hearing protection in areas designated as noise hazardous as specified in references (b) and (c).

c. Secure all compressed gas cylinders in the outside storage area as specified in reference (d).

d. The carpentry shop should be evaluated by the cognizant industrial hygienist when the workers are present and the shop is operational.

a. Naval Air Maintenance Training Detachment 1027 (NAMTD 1027)

(1) Fiberglass/Rotorblade Repair Classroom

(a) The ventilation system of the fiberglass operation was evaluated. The fiberglass resin mixing table (20" x 32") has insufficient capture velocity (54 fpm) at the table surface, to meet requirements of reference (e) when the fan is on low speed. The canopy hood is approximately 2½ feet above the table with face velocity of 205 fpm. A 9" x 20" shelf protrudes out over the table approximately midway between the work table and hood interrupting a smooth air flow for exhaust ventilation and decreases exhaust efficiency.

(b) Students and instructors use respirators with organic vapor cartridges while working with the different chemicals in the classroom.

(c) The instructor informed the survey team that the hazardous material disposal team will not pick up several cans of waste chemicals because they were "unidentifiable." The instructor does not have the facilities to store such chemicals.

(2) Hydraulic Classroom. During a staged operation of the teaching equipment in this area, the SPL measured from 85 to 97 dBA. This classroom is a noise hazard area. The walls are painted cinderblock and the ceiling is concrete. No hearing protection is available. References (b) and (c) require personnel exposed to hazardous noise to participate in a hearing conservation program.

(3) Composite Trainer Room. Students work on a helicopter engine particle separator in this large room for approximately 20 minutes. The equipment is a noise hazard. The SPL of the engine particle separator measured between 105 to 112 dBA while the engine is operating.

Marine Air Group 26 RECOMMENDATIONS

a. NAMTD 1027

(1) Fiberglass/Rotorblade Repair Classroom

(a) Remove shelf between work table and exhaust hood which interrupts a smooth flow of air. Always operate the exhaust fan in the high as opposed to the low mode. Enclose the canopy hood on the sides with plexiglass to form a booth to control the vapors and dusts generated. The exhaust ventilation mixing hood should have an average face velocity of at least 100 fpm for use when preparing fiberglass resin and hardners.

(b) Formally request hazardous waste disposal team to dispose "unidentifiable" waste chemicals after sealing and labeling containers as such. Then, begin a new hazardous materials disposal system whereby containers are labeled for a specific waste chemical and only those chemicals are introduced into those containers with no mixing of chemicals as per reference (d).

(c) Hydraulic Classroom. Sound attenuation material should be added to the walls and ceiling of classroom to reduce the sound pressure levels found there as per references (b) and (c).

(d) Composite Trainer Room. Provide double hearing protection as outlined in references (b) and (c) to students and instructors while this noise hazardous engine particle separator is operating. Ensure personnel who are exposed to hazardous noise wear hearing protection as required by references (b) and (c).

b. Helicopter Marine Heavy 362 (HMH 362) RESULTS

(1) Hydraulic Shop. The general ventilation is adequate under ~~the current use and short term vapor exposures.~~ Gloves and face shields are available for use at the cleaning tank. No significant health hazards are expected under current work practices.

(2) Hydraulic Fluid Patch Test Room. General ventilation is provided. Eleven gallons of Freon 113 (trichlorotrifluoromethane) in glass containers are stacked in such a manner that they could easily be knocked over and the Freon vapors be released into this confined space.

(3) Respirator Program

(a) No valid respirator program exists as required by reference (g). Respirators are issued to a worker, checked in after use, and then reissued to another worker without proper cleaning or maintenance.

(b) In the metal shop, Norton respirator cartridges (certification number TC-23C-49 for organic vapors) are stored in close proximity to materials that could be adsorbed onto the filtering medium thus destroying the filtering capacity of the cartridge.

(4) Hazardous Material Storage. Hazardous materials are stored away from the hangar building in a CONEX. The CONEX roof leaks inside the building. The storage of hazardous materials in a CONEX in this state of disrepair may be a potential health hazard.

HMH 362 RECOMMENDATIONS

(1) Hydraulic Fluid Patch Test Room

(a) Limit the quantity of Freon 113 (trichlorotrifluoromethane) in the patch test room to one container or less and keep the remainder stored in a well ventilated area. Also provide general ventilation to create air flows that would prevent potentially hazardous air concentrations of vapors from forming as per reference (d).

(2) Respirator Program

(a) Initiate a respirator program whereas the person issuing respirators has been trained in the cleaning, maintenance, and repair of respirators as indicated in references (g) and (l). Reference (g) establishes the requirements for a minimal acceptable respiratory protection program.

(b) Store all respirator cartridges away from chemical or materials which may destroy their integrity and shorten their breathing time.

(3) Hazardous Material Storage. Storage of hazardous materials in outside storage buildings shall comply with the requirements of references (d) and (a).

c. Helicopter Marine Transport 204 (HMT-204) RESULTS

(1) Tool Room. Portable drills and saws are not labeled as noise hazardous. No hearing protection is available. References (b) and (c) require personnel exposed to hazardous noise to participate in a hearing conservation program.

(2) Hydraulic Room. No eyewash is located in this work space. Liquids that can potentially cause eye irritation or injury are used.

(3) Contamination Room (Hydraulic Fluid Patch Testing). This room is a small converted head where over 100 gallons of Freon 113 (trichlorotrifluoromethane) are stored. The general ventilation is inadequate for the amount of Freon stored in this area. Reference (g) requires mechanical ventilation for chemical storage rooms inside buildings.

HMT 204 RECOMMENDATIONS

(1) Label all portable power tools which produce sound pressure levels of 85 dBA or greater as noise hazardous in accordance with references (b) and (c).

(2) Locate an eyewash in the hydraulic room near liquids which may be harmful to the eyes.

(3) Limit the quantity of Freon 113 (trichlorotrifluoromethane) in the contamination room to that of which will be needed only for several tests. Reference (g) requires inside storage rooms to be provided with a gravity or mechanical exhaust ventilation system. The system shall be designed to provide six room changes per hour.

d. Helicopter Marine Heavy 461 (HMH 461) RESULTS

(1) Tool Room. Portable power tools not identified or labeled as noise hazardous as required by references (b) and (c).

(2) Metal Shop

(a) The portable power tools and machine tools are not identified or labeled as noise hazardous.

(b) Alodine 1201 (Corrosion Resistant Coating) is stored in a flammable storage locker with paints. The Alodine contains chromic acid and is a strong oxidizer. The storage of Alodine thinners may be a potential fire or explosion hazard.

(c) No eyewash in the immediate shop area is provided. However, a portable 15 gallon eyewash is located on the wall in the hall outside the front door.

HMH 461 RECOMMENDATIONS

(1) Label all portable power tools and machine tools which produce hazardous as noise hazards and provide hearing protection in accordance with references (b) and (c).

(2) Store Alodine Corrosion Resistant Coating separately with no other chemical compounds in an approved flammable storage locker.

(3) Relocate portable eyewash from the hallway to inside the shop for better emergency access. Provide an emergency eyewash station which meets the standards of reference (i).

e. Helicopter Marine Medium 261 (HMM 261) RESULTS

(1) A worker is sawing aluminum without the proper eye protection.

(2) Pneumatic and other portable power tools are not labeled as noise hazardous as required by references (b) and (c).

(3) Four cases of organic vapor respirator cartridges are stored on top of a paint locker. The organic vapors from the paints can adsorb onto the filtering medium destroying the filtering capacity of the cartridges.

(4) Two gallons of Alodine are stored on an open shelf near other materials containing solvents and thinners. This storage is a potential fire and explosion hazard. The Alodine contains chromic acid and is a strong oxidizer.

(1) Provide eye and face protection as specified in reference (g).

(2) Label all power tools as noise hazardous in accordance with references (b) and (c).

(3) Store all respirator cartridges away from chemicals or materials which may destroy their integrity and shorten their usable lives with shortened breakthrough times.

(4) Store Alodine Corrosion Resistant Coating separately with no other chemical compounds in an approved flammable storage locker.

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f. Helicopter Marine Medium 365 (HMM 365) Metal Shop and Corrosion Control RESULTS

(1) Pneumatic and other portable power tools are not labeled as noise hazardous as required by references (b) and (c).

(2) Four cases of organic vapor respirator cartridges are stored where various organic liquid compounds are used. Organic vapors can adsorb onto the filtering medium destroying the filtering capacity of the cartridges.

(3) Hazardous materials are stored in a rusted trailer approximately 75 feet away from main building. This trailer is overloaded with solvents, thinners, and paints. This storage blocks reasonable means of egress.

HMM 365 RECOMMENDATIONS

(1) Label all portable hand held power tools as noise hazardous in accordance with references (b) and (c).

(2) Store organic vapor cartridges away from organic liquid compounds.

(3) Replace the rusted trailer with an approved hazardous materials storage facility as specified by references (d) and (g).

g. Helicopter Marine Medium 162 (HMM 162) Metal Shop RESULTS

(1) Two gallons of Alodine are stored with epoxy adhesives, Permatex Plastic Cleaner, and other petroleum distillates. This storage is a potential fire and explosion hazard. The Alodine contains chromic acid and is a strong oxidizer.

(2) Pneumatic tools are not identified and labeled as noise hazards as required by references (b) and (c).

(3) As stationary belt sander and a bench grinder are not labeled as noise and eye hazards.

HMM 162 RECOMMENDATIONS

(1) Store Alodine Corrosion Resistant Coating separately in a flammable storage locker.

(2) Label all pneumatic tools producing hazardous noise as noise hazards in accordance with references (b) and (c).

(3) Label all power tools and pieces of equipment that may produce flying particles as eye hazardous and ensure goggles or face shields are available as per references (d) and (g).

h. Helicopter Marine Heavy 464 (HMH 464) RESULTS

(1) Metal Shop

(a) Pneumatic power tools are not labeled as noise hazards as required by references (b) and (c).

(b) Alodine 1201 is properly stored in a small flammable locker with no other materials. No significant health hazards are expected under current storage practices.

(2) Flammable Stores Locker. Organic vapor cartridges respirators are stored in the same flammable storage locker with 1,1,1 trichloroethane and paints. Organic vapors can adsorb onto the filtering medium destroying the filtering capacity of the cartridges.

(3) Tool Room. Pneumatic tools are not labeled as noise hazards as required by references (b) and (c).

(1) Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

(2) Store all organic vapor respirator cartridges away from chemicals or materials which may destroy their integrity and shorten their usable lives with shortened breakthrough times.

3. Marine Air Group 29 RESULTS

a. Marine Air Traffic Control Squadron 28 (MATCS 28)

(1) Auxillary Shop. Portable power tools are not labeled as noise hazards as required by references (a) and (c).

(2) Battery Shop. No emergency eyewash or deluge shower is provided as required by reference (d).

(3) Outside Building

(a) A small tank of solvent was used for cleaning small parts. Under the current use general ventilation was adequate. Local exhaust ventilation is not necessary. No significant health hazards are expected from this cleaning tank.

MATCS 28 RECOMMENDATIONS

a. Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

b. Install a deluge shower and eyewash station in battery shop as required by reference (d).

c. Provide solvent resistant gloves and face shield as required by reference (g) for workers using the cleaning tank.

d. Secure all compressed gas cylinders as specified in reference (d).

b. Marine Wing Support Group 27 Detachment A (MWSG 27 DET A) RESULTS

(1) Motor Transport Maintenance Bays. A small tank of Stoddard Solvent (PD-680) is used for cleaning vehicle parts. The general ventilation was adequate under the current use and short term vapor exposure. No solvent resistant gloves or chemical goggles are available.

(2) Tool Room. Small containers of various combustable liquids (i.e. WD40, brake fluid, lubricating oils, etc.) are stored in different locations in this work area. No flammable storage locker is available to store combustible liquids as required by reference (g).

(3) Battery Room

(a) The ventilation the battery shop was evaluated. The ventilation is inadequate. No mechanical exhaust ventilation is present as required by reference (d).

(b) An eyewash and deluge shower are present. Face shields and gloves are available for use.

(4) Engineer Tool Room. Portable power tools, one gas and two pneumatic chain saws are not labeled as noise hazards as required by references (b) and (c).

(5) Carpentry Shop. A worker, cutting wood with a band saw labeled as noise hazardous, was not wearing hearing protection. Six other workers in the shop also did not wear hearing protection. SPL measured 88 dBA while the saw was used. SPL of 85 dBA or above are considered noise hazardous by references (b) and (c). Personnel exposed to hazardous noise are required to participate in a hearing conservation program by references (b) and (c).

(6) Welding Shop. This shop had four welding flexible duct ventilation systems which are wired up against the wall approximately 6 feet off the floor. Personnel could not use these flexible ducts.

c. Helicopter Marine Light 167 (HML 167) Squadron. Portable power tools in tool room are not labeled as noise hazardous. Personnel exposed to hazardous noise are required to participate in a hearing conservation program by references (b) and (c).

d. Fixed Wing Observation 1 (VMO 1) Squadron. Portable power tools, machine tools, and the metal shop are not labeled as noise and eye hazards. Personnel exposed to hazardous noise are required to participate in a hearing conservation program by references (b) and (c).

MWSG 27 - DET A RECOMMENDATIONS

a. Motor Transport Maintenance Bays. Provide solvent resistant gloves and a face shield for personnel working at a cleaning solvent tank as per reference (g).

b. Tool Room. Store all combustible liquids in an approved flammable storage locker as required by reference (g).

c. Battery Room. Install a spark proof wall exhaust fan to remove the possibility of the buildup of hazardous hydrogen gas as required by reference (d).

d. Engineer Tool Room. Label all portable power tools which produce hazardous noise as noise hazardous in accordance with references (b) and (c).

e. Carpentry Shop. Wear hearing protection when using equipment labeled as noise hazards as required by references (b) and (c). Label the shop as a noise hazardous area as required by references (b) and (c).

f. Welding Shop. Remove the wires holding the flexible ducts away from the work area. This would allow the ducts to be used in the manner for which they were intended.

5. HML 167 Squadron. Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

6. VMO 1 Squadron. Label all power equipment and metal shop as eye and noise hazardous as per references (b), (c), and (d).

e. Helicopter Marine Attack 269 (HMA 269) Squadron RESULTS

(1) Metal Shop

(a) All portable power tools and machine tools are labeled as noise and eye hazardous in accordance with references (b), (c), and (d).

(b) Respirators with organic vapor cartridges are stored in the paint locker with containers of paints. Organic vapors can adsorb onto the filter medium of the cartridges destroying the filtering capacity of the cartridges.

(2) Tool Control. Pneumatic power tools are not labeled as noise hazardous. Personnel exposed to hazardous noise are required to participate in a hearing conservation program by references (b) and (c).

(3) Ordnance. The design of the existing ventilation system (canopy hood) for two large solvent cleaning tanks of Stoddard Solvent (PD-680) and "Break Free" (cleaner, lubricant, and preservative) is inadequate. Chemical goggles are available for use. No solvent resistant gloves are used.

HMA 269 Squadron RECOMMENDATIONS

a. Metal Shop. Store all respirator cartridges away from chemicals or materials which may destroy their integrity or efficiency and shorten their usable lives with shortened times until breakthrough occurs.

b. Tool Control. Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

c. Ordnance. The cognizant industrial hygienist should evaluate these solvent tanks during a period of work activity to determine if any hazards exist. The canopy hood should be changed to one that would not draw solvent vapors through the workers breathing zone and meets the design specifications of reference (e). Until such time, respirators with organic vapor cartridges should be worn when the tanks are in use as per reference (g).

f. Headquarters and Maintenance Squadron 29 (HAMS 29) RESULTS

(1) Avionics Corrosion Control

(a) The bench grinder is not identified or labeled as noise hazardous as required by references (b) and (c).

(b) Organic vapor respirator cartridges are stored in the same area where work is performed in which they are used. Organic vapors can adsorb onto the filter medium of the cartridges, destroying the filtering capacity of the cartridges.

(c) The ventilation system in a small booth used for spray painting small avionics parts was evaluated. The ventilation is not adequate. An average face velocity of 53 fpm was measured in the booth. The ventilation did not meet the requirements of 150 fpm of reference (e).

(2) Ground Support Equipment (GSE) Battery Locker. The emergency eyewash station only had flow to one side which is too much pressure for a worker to safely put into his eyes.

(3) Ordnance

(a) Bench and portable power tools are not labeled as noise hazards. Personnel exposed to hazardous noise are required to participate in a hearing conservation program by references (b) and (c).

(b) A tank of Stoddard Solvent (PD-680) is used to clean small parts. The design of the existing ventilation system (a canopy hood) for the solvent tank is an incorrect design. Under the current use, general ventilation should be adequate. Local exhaust ventilation is not necessary for these tanks unless air concentrations

(c) Respirators with organic vapor cartridges are stored on a nail over the solvent tank. This storage destroys the integrity and efficiency of the cartridges since they adsorb the organic vapors thus shortening the filtering capacity time of the cartridge.

(4) Machine Shop. Portable power tools are not labeled noise hazardous as required by references (b) and (c).

(5) GSE Paint Booth. This large paint booth is used to paint the ground support equipment. A paint locker is located inside the booth between the two ventilation exhaust ducts. Organic vapor respirator cartridges are stored with an open can of isopropyl alcohol in this locker. The cellophane wrappers in which the cartridges are packaged are not air tight. The cartridges are covered with yellow paint from over spray. This destroys the integrity and efficiency of the cartridges since the adsorb the alcohol, solvent and paint thinners thus shortening the period until breakthrough occurs.

(6) Airframes. Portable power tools are not identified and labeled as noise hazardous as required by references (b) and (c).

(7) Welding Shop

(a) A worker uses a portable grinder labeled as noise hazardous without hearing protection. SPL measured 100 dBA. SPL of 85 dBA or above are considered noise hazardous by references (b) and (c). Personnel exposed to hazardous noise are required to participate in a hearing conservation program by references (b) and (c).

(b) A worker was arc welding without the use of flameproof apron, jacket or sleeves.

(c) No local or mechanical ventilation are present. Only the natural air flows from an open garage door is available. Also, no respirators approved for welding fumes are available.

(8) Paint Shop

(a) Three area and one breathing zone air samples were obtained from the paint shop using 3M organic vapor passive dosimeters. The results are in Table 13. These samples are well below the acceptable exposure limits for toluene and methylene chloride in reference (a). No significant health hazards are expected under current work practices.

HAMS 29 RECOMMENDATIONS

a. Avionics - Corrosion Control

(1) Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

(2) Store all respirator cartridges away from chemicals or materials which may destroy their integrity or efficiency and shorten their usable lives with shortened times until breakthrough occurs.

(3) The small paint booth should be upgraded to meet design specifications of reference (e). Until this occurs workers should wear respirators approved by NIOSH/MSHA for paints with organic vapor cartridges and paint mist prefilters.

b. GSE Battery Locker. Repair eyewash station so as to have a gentle continuous flow of water for both eyes which meets the water pressure requirements of reference (i).

c. Ordnance

(1) Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

(2) Store respirators and the organic vapor cartridges away from chemicals or materials which may destroy their integrity or efficiency and shorten their usable lives until breakthrough occurs.

d. Machine Shop. Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

e. GSE Paint Booth. Store respirator cartridges away from chemicals or materials which may destroy their integrity or efficiency and shorten their usable lives.

f. Airframes. Label all portable power tools which produce hazardous noise as noise hazards in accordance with references (b) and (c).

g. Welding Shop

(1) Ensure hearing protection is worn in areas and where equipment is used which is identified and labeled as noise hazardous in accordance with references (b) and (c).

(2) Provide the appropriate personal protective equipment and clothing to personnel who weld in accordance with reference (d).

h. Paint Shop. All aircraft to be painted with polyurethane paint should be sent to Naval Air Rework Facility (NARF), Marine Corps Base, Cherry Point, which has approved facilities for this process. The cognizant industrial hygienist should survey this process in this particular shop to determine this operation may occur in the facility as required by reference (m).

TABLE 13

	SOURCE	SAMPLE TIME	TOLUENE (mg/m^3)	METHYLENE CHLORIDE (mg/m^3)
Sample #1	Breathing Zone	120 minutes	41	109
#2	Area	120 minutes		110
#3	Area	117 minutes	2.1	<1
#4	Area	116 minutes	2.2	<1

(b) A painter stated that entire aircraft are painted with polyurethane paint containing isocyanates during evening hours. Supplied air respirator with full face mask is available for use. The cognizant industrial hygienist has not evaluated this painting operation to be able to determine whether this operation should occur in this building. This type of painting generally is performed at the Naval Air Rework Facility (NAVAIREWORKFAC) Marine Corps Base, Cherry Point, which has approved facilities for this operation