



# Department of Defense **INSTRUCTION**

**NUMBER** 6055.05

November 11, 2008

Incorporating Change 2, August 31, 2018

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USD(A&S)

**SUBJECT:** Occupational and Environmental Health (OEH)

**References:** See Enclosure 1

1. **PURPOSE.** This Instruction:

- a. Reissues DoD Instruction (DoDI) 6055.5 (Reference (a)) to implement policy, assign responsibilities, and describe procedures in support of DoD Directive (DoDD) 4715.1E (Reference (b)) and DoDI 6055.01 (Reference (c)).
- b. Expands risk management procedures to anticipate, recognize, evaluate, and control health hazards associated with occupational and environmental exposures to chemical, physical, and biological hazards in DoD workplaces to include military operations and deployments.
- c. Establishes industrial hygiene (IH) and occupational medical surveillance performance metrics.
- d. Establishes the DoD Industrial Hygiene Working Group (IHWG) and the DoD Occupational Medicine Working Group (OMWG).
- e. Authorizes other publications related to and supporting (OEH including, but not limited to, DoD 6055.05-M (Reference (d))).

2. **APPLICABILITY AND SCOPE.** This Instruction:

a. Applies:

(1) To OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other

organizational entities within the Department of Defense (hereafter referred to collectively as the “DoD Components”).

(2) Within the United States and outside the United States, including contingency operations, although statutory requirements applied by this Instruction generally only apply within the United States.

b. Only applies to contractor operations and personnel associated with contingency contractors deploying to the force in accordance with Reference (c), DoDI 3020.41 (Reference (e)), and contractual agreements.

3. DEFINITIONS. See Glossary.

4. POLICY. It is DoD policy to:

a. Protect DoD personnel from accidental death, injury, and illness caused by hazardous occupational or environmental exposures pursuant to Reference (b) and DoDI 6490.03 (Reference (f)).

b. Eliminate mishaps, deaths, injuries, and illnesses by applying risk management strategies toward achieving an annual goal of significant reductions in all mishaps, injuries, and illnesses, with the ultimate goal of zero mishaps, injuries, and illnesses, and compliance with DoD safety and health standards and policies pursuant to Reference (c).

5. RESPONSIBILITIES. See Enclosure 2.

6. PROCEDURES

a. Risk Management. Apply the risk management requirements established in Reference (c) and the risk management process for OEH hazards described in Enclosure 3. Apply the risk management procedures appropriate for the type of operation (garrison or deployment).

b. Reporting and Recordkeeping. Apply the reporting and recordkeeping procedures for OEH hazards described in Enclosure 3.

c. Training and Education. Apply the training and education procedures for OEH hazards described in Enclosure 3.

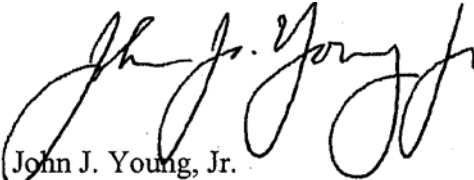
d. Research and Development. Apply the research and development procedures for OEH hazards described in Enclosure 3.

e. Program Evaluation and Review. Apply the program evaluation and review procedures for OEH hazards described in Enclosure 3.

7. RELEASABILITY. **Cleared for public release.** This Instruction is available on the Directives Division Website at <http://www.esd.whs.mil/DD/>.

8. SUMMARY OF CHANGE 2. This change reassigns the office of primary responsibility for this Instruction to the Under Secretary of Defense for Acquisition and Sustainment in accordance with the July 13, 2018 Deputy Secretary of Defense Memorandum (Reference (g)).

9. EFFECTIVE DATE. This Instruction is effective November 11, 2008.



John J. Young, Jr.  
Under Secretary of Defense  
for Acquisition, Technology, and Logistics

Enclosures

1. References
  2. Responsibilities
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- Glossary

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ENCLOSURE 1

REFERENCES

- (a) DoD Instruction 6055.5, "Industrial Hygiene and Occupational Health," January 10, 1989 (hereby canceled)
- (b) DoD Directive 4715.1E, "Environment, Safety, and Occupational Health (ESOH)," March 19, 2005
- (c) DoD Instruction 6055.01, "DoD Safety and Occupational Health (SOH) Program," October 14, 2014
- (d) DoD 6055.05-M, "Occupational Medical Examinations and Surveillance Manual," May 2, 2007, as amended
- (e) DoD Instruction 3020.41, "Operational Contract Support (OCS)," December 20, 2011, as amended
- (f) DoD Instruction 6490.03, "Deployment Health," August 11, 2006
- (g) Deputy Secretary of Defense Memorandum, "Establishment of the Office of the Under Secretary of Defense for Research and Engineering and the Office of the Under Secretary of Defense for Acquisition and Sustainment," July 13, 2018
- (h) Field Manual 3-100.12/MCRP 5-12.1C/NTTP 5-03.5/AFTTP(I) 3-2.34, "Risk Management Multiservice Tactics, Techniques, and Procedures for Risk Management," February 15, 2001
- (i) Office of the Chairman of the Joint Chiefs of Staff Memorandum, MCM 0028-07, "Updated Procedures for Deployment Health Surveillance and Readiness," November 2, 2007
- (j) American Society for Testing and Materials International, E 2318-03, "Standard Guide for Environmental Health Site Assessment Process for Military Deployments"<sup>1</sup>
- (k) "A Strategy for Assessing and Managing Occupational Exposures," 2nd Edition, 1998<sup>2</sup>
- (l) Subparts 1904, 1910.132 and 1910.1020, and part 1960 of title 29, Code of Federal Regulations
- (m) DoD Instruction 6055.07, "Mishap Notification, Investigation, Reporting, and Record Keeping," June 6, 2011
- (n) Presidential Review Directive 5, "Planning for Health Preparedness for and Readjustment of the Military, Veterans, and Their Families after Future Deployments," National Science and Technology Council, Executive Office of the President, Office of Science and Technology Policy, August 1998<sup>3</sup>
- (o) Part 20 of title 10, Code of Federal Regulations
- (p) Part 293 of title 5, Code of Federal Regulations
- (q) Section 552a of title 5, United States Code
- (r) DoD 6025.18-R, "DoD Health Information Privacy Regulation," January 24, 2003
- (s) DoD Directive 5400.11, "DoD Privacy Program," October 29, 2014
- (t) DoD 5400.11-R, "Department of Defense Privacy Program," May 14, 2007

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<sup>1</sup> Copies may be purchased at [http://www.astm.org/cgi-bin/SoftCart.exe/DATABASE.CART/REDLINE\\_PAGES/E2318.htm?L+mystore+esja0095](http://www.astm.org/cgi-bin/SoftCart.exe/DATABASE.CART/REDLINE_PAGES/E2318.htm?L+mystore+esja0095)

<sup>2</sup> Copies may be purchased at [http://iweb.aiha.org/iweb/Purchase/ProductDetail.aspx?Product\\_code=AEAK98-327](http://iweb.aiha.org/iweb/Purchase/ProductDetail.aspx?Product_code=AEAK98-327)

<sup>3</sup> Available at <http://www.fas.org/irp/offdocs/prd-5-report.htm>

- (u) DoD Directive 6200.04, "Force Health Protection (FHP)," October 9, 2004
- (v) U.S. Office of Personnel Management, "Position Classification Standard for Industrial Hygiene Series, GS-0690"<sup>4</sup>
- (w) Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices (most recent edition), American Conference of Governmental Industrial Hygienists<sup>5</sup>

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<sup>4</sup> Available at <http://www.opm.gov/fedclass/gso690.pdf>

<sup>5</sup> Copies may be purchased at <http://www.acgih.org/store/ProductDetail.cfm?id=1975>

ENCLOSURE 2

RESPONSIBILITIES

1. ASSISTANT SECRETARY OF DEFENSE FOR ENERGY, INSTALLATIONS, AND ENVIRONMENT (ASD(EI&E)). The ASD(EI&E), under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics, shall:

- a. Develop, in coordination with the Assistant Secretary of Defense for Health Affairs (ASD(HA)), defense planning guidance and medical planning guidance for the DoD Component occupational and environmental health programs (OEHPs).
- b. Recommend funding priorities within OEHPs to the ASD(HA) for Defense Health Program (DHP) funding, and to the DoD Components for Component funding.
- c. Attend program and budget reviews for funding OEHP requirements.
- d. Perform oversight of the DoD Component OEHPs and monitor the status of the OEHP using defined program metrics.
- e. Establish the IHWG comprised of full-time or permanent part-time DoD employees from the DoD Components to provide technical advice on IH matters, and approve the charter after review by the Heads of the DoD Components.
- f. Establish the OMWG comprised of full-time or permanent part-time DoD employees from the DoD Components to provide technical advice on occupational and environmental medicine (OEM) matters, and approve the charter after review by the Heads of the DoD Components.
- g. Appoint OSD representatives, after coordination and agreement from the applicable OSD principal staff assistants, to the IHWG and OMWG to provide ASD(EI&E) flexibility in determining offices to be included in the charter.

2. ASD(HA). The ASD(HA), under the authority, direction, and control of the Under Secretary of Defense for Personnel and Readiness, shall:

- a. Develop, in coordination with ASD(EI&E), defense planning guidance and medical planning guidance for the Military Departments' OEHPs.
- b. Oversee the Military Departments' planning, programming, budgeting, and execution of the OEHPs within available fiscal guidance and overall DHP priorities.
- c. Inform the ASD(EI&E) of OEHP execution deficiencies, and include the ASD(EI&E) in the annual program reviews and quarterly DHP budget execution reviews.



3. HEADS OF THE DoD COMPONENTS. The Heads of the DoD Components shall:

- a. Establish, maintain, and fund OEHPs that implement the requirements of this Instruction.
- b. Implement the procedures in Enclosure 3.
- c. Appoint representative(s) as appropriate to the IHWG and OMWG.

4. COMBATANT COMMANDERS. The Combatant Commanders shall apply risk management in operational planning and execution to ensure force health protection during deployed activities as described in Enclosure 3.

5. IHWG. The IHWG shall:

- a. Provide IH technical advice to the Assistant Deputy Under Secretary of Defense for Environment, Safety, and Occupational Health (ADUSD(ESOH)), under the authority, direction, and control of the ASD(EI&E).
- b. Include representatives from ASD(EI&E), the Military Departments, and Defense Agencies, pursuant to its charter.
- c. Recommend new and revised IH requirements for the Defense Occupational and Environmental Health Readiness System (DOEHRS).
- d. Submit an annual report to the Director for ER&S with working group accomplishments and a work plan for future actions.
- e. Interface with the Joint Environmental Surveillance Working Group.

6. OMWG. The OMWG shall:

- a. Provide OEM technical advice to the ADUSD(ESOH), under the authority, direction, and control of the ASD(EI&E).
- b. Include representatives from OSD and the Military Departments, pursuant to its charter.
- c. Submit an annual report to the Director for ER&S with working group accomplishments and a work plan for future actions.

ENCLOSURE 3

PROCEDURES

1. RISK MANAGEMENT

a. Background

(1) Risk management is a cyclical process described in Reference (c) and Field Manual 3-100.12 (Reference (h)) that involves:

- (a) Anticipating and identifying hazards.
- (b) Assessing hazards to determine risks.
- (c) Developing controls and making risk decisions.
- (d) Implementing controls.
- (e) Supervising and evaluating.

(2) OEH personnel play a key role in the risk management process by identifying hazards, determining the significance of risk, determining appropriate control measures, and communicating risk information. OEH risk information allows commanders to make informed risk decisions as they apply the following risk management principles:

- (a) Accept no unnecessary risks.
- (b) Make risk decisions at the appropriate level.
- (c) Accept risks when benefits outweigh the costs.
- (d) Anticipate and manage risk by planning.

b. Requirements

(1) For garrison operations, conduct risk management by identifying health hazards and determining the degree of exposure to these hazards using occupational health risk assessment procedures consistent with the general approach provided by the DoD IH Exposure Assessment Process (appendix to this enclosure).

(2) For deployment locations, perform OEH risk assessments at all permanent and semi-permanent base camps or beddown sites per guidance in Reference (f) and the Joint Chiefs of Staff Memorandum, MCM 0028-07 (Reference (i)). Use the environmental health site assessment framework in the American Society for Testing and Materials International E 2318-

03 (Reference (j)) and occupational health risk assessment approach consistent with the DoD IH Exposure Assessment Process in the appendix to this enclosure. Before each deployment, conduct risk management by performing a preliminary hazard assessment to identify the deployment-specific health threats and appropriate protective measures, and determine the content of health risk communication messages and materials, including pre-deployment health threat briefings.

c. Risk Management Process Steps

(1) Step 1. Anticipating and Identifying Hazards

(a) Perform Basic Characterizations

1. Periodically assess DoD workplace activities, base camps, sites, and locations to identify and characterize any hazards, including hazards during military operations.

2. Use direct observations and historical information to identify hazards including previous hazard assessments, results of clinical evaluations and medical examinations, injury and illness reports, and other epidemiological and trend analyses for relevant populations.

3. Identify hazards and evaluate risk as early in the operational process as possible to maximize risk reduction effectiveness with minimum cost and disruption to operations (e.g., performing health threat assessments prior to military deployments, performing health hazard assessments for new weapons systems).

a. Consider the following contributing factors when characterizing the potential exposure or effects of the health threats: exposure patterns to include exposure duration (often deployment length); exposure rates (frequency and amounts) and routes of exposure (ingestion, inhalation, dermal contact, and direct exposure to physical hazards); anticipated living conditions such as field conditions or hardened facilities (exposure potential may increase in field conditions); ambient air conditions (including the presence of sand or dust); climate conditions (including temperature, humidity, precipitation, wind patterns); high altitudes; noise or other physical hazards including radiofrequency radiation; working conditions, personal protective equipment (PPE) (carried or worn), and duration of occupational exposures; and, for deployment operations, consider preventive medicine support and capabilities and medical treatment source(s) such as local national, deployed U.S. military, coalition forces, or nongovernmental organizations.

b. For deployment operations, at a minimum, consider the following categories of health hazards: infectious diseases; hazardous animals and plants; environmental factors (such as toxic industrial chemicals or materials, historical contamination, weapons of mass destruction, waste, or pollution in food, air, soil, or water); occupational health hazards such as hazardous chemicals or noise; chemical, physical, or biological agents; and any specific health hazards or threats identified in planning orders and intelligence-based reporting.

4. Assign DoD personnel who are similarly exposed to hazards and expected to be at equivalent risk of illness from the exposure to similar exposure groups (SEGs) for exposure assessment per “A Strategy for Assessing and Managing Occupational Exposures” (Reference (k)). Where a person experiences unique exposures, place this person in their own SEG for these exposures. Use the exposure profile of the SEG to make decisions regarding exposure controls and medical surveillance for all members of the SEG. For deployments, the population at risk is the deployed population or a subset of the deployed population.

5. Document results of hazard assessments including those hazards assessed but not considered for further risk assessment.

(b) Develop a Monitoring Plan

1. Develop a monitoring plan to identify detailed assessment and sampling requirements. Include the priority, frequency, and number of exposure measurements to be performed for each hazard. For deployed operations, develop the plan based on the pre-deployment OEH risk assessment conducted during the planning process.

2. Prepare a sampling plan for each site to be assessed. Subsequently, investigators will assess the need to collect on-site environmental and occupational (e.g., IH) samples. Include in the plan requirements for collecting the following data:

a. A unique sample number and designation (country, base camp, sample geolocation (established with military grid reference system or global positioning system, if available)).

b. Date and time the sample was taken.

c. Sample type (e.g., bulk, grab, composite, blank).

d. Sample media (air, water, soil).

e. Sampling method used.

f. Sample site conditions, including data relevant to the sampling method (e.g., temperature, relative humidity).

g. Sampling personnel information.

h. Laboratory information.

i. For potable water samples, when water will be consumed.

3. Base the deployment sampling and analysis methods on the potential health risk for each hazard.

a. Potential “high” and “extremely high” risk situations require rapid health risk assessment using real or near-real-time on-site methods. On-site methods usually require confirmatory laboratory analysis.

b. Potential “moderate” risk situations may be assessed by collection of samples for offsite analysis, with laboratory support as required.

c. Potential “low” risk situations may be assessed offsite, using mathematical models to assign risks, with sampling and laboratory support as operational resources allow.

(2) Step 2. Assess Hazards to Determine Risk

(a) Assess Risk. Assess the risk to personnel from exposure to each identified health hazard. Health hazards are evaluated in the context of exposure conditions and contributing factors without consideration of controls or countermeasures. For garrison workplace operations, apply the risk assessment code matrix for hazard abatement in Reference (c). For deployment operations, perform risk assessment per Reference (f).

(b) Characterize Exposure. Characterize the intensity, frequency, and duration of exposures and the severity of the health effects for members of the SEG. Balance the need for accuracy of the exposure characterization with the level of resources needed to complete the characterization. Choose among a variety of characterization methods including personal exposure monitoring, extrapolation of monitoring from similar operations, area monitoring (including environmental sampling), and mathematical modeling.

(c) Make Exposure Determination. Determine whether exposures are acceptable, unacceptable and requiring control measures and medical surveillance, or uncertain and requiring additional exposure characterization. Where DoD or the DoD Component health standards are not available to make this determination, make a local determination based on best available guidance from the supporting headquarters OEH staff or technical support center and document the basis for the determination.

(d) Assess Exposure. For deployment, use the conceptual site model described in Reference (j) and occupational and environmental exposure assessment procedures of Reference (f).

(3) Step 3. Develop Controls and Make Risk Decisions

(a) Develop Controls

1. Control Recommendations. Develop recommendations for controlling exposures to health hazards including control options, implementation of steps, and expected effectiveness of controls.

2. Hierarchy of Controls. When making recommendations, follow the hierarchy of controls that include, in priority order, engineering controls, administrative controls, and PPE.

a. Engineering Controls. Whenever feasible, consider engineering controls to eliminate or reduce exposure. These include process elimination, substitution of less toxic material, process changes (automation, isolation, and enclosure), design changes (tools, workstations, and equipment), and ventilation (dilution and local exhaust). When engineering controls are not feasible or do not adequately reduce exposure, implement additional control methods. Ensure engineering controls comply with appropriate standards.

b. Administrative Controls. Administrative controls involve management and employee interventions designed to reduce exposure. These include job rotation, job transfer, limiting exposure time, preventive maintenance, housekeeping, personal hygiene, education and training, and work practice controls. Work practice controls include changes to tasks and processes that reduce contaminant generation (e.g., using a high-efficiency vacuum cleaner or wet mopping instead of cleaning with compressed air). Document in safety rules and work procedures, and enforce by supervisors, those work practices that are required to control exposure. Because the success of administrative controls is largely based on compliant employee behavior, they are most effective when used as part of a broader control strategy.

c. PPE. Consider the use of PPE last in the control hierarchy unless other methods are not feasible. This may be the case while engineering controls are being designed and installed, or during nonroutine operations including maintenance and emergency response. For other than military-unique workplaces, assess PPE requirements according to subpart 1910.132 of title 29, Code of Federal Regulations (CFR) (Reference (1)) to identify tasks where PPE is required and to ensure that the proper equipment is selected and used.

(b) Make Risk Decisions. Commanders will determine which risks are acceptable and unacceptable by balancing operational benefits against the potential for adverse health effects (i.e., severity and likelihood of occurrence). The standard for a risk decision is leadership at the appropriate level of authority making an informed decision to either control hazards or to accept risks. In those circumstances where local resources are not available to control residual risks, commanders make a conscious decision to either accept the risk or elevate the risk decision to the next higher level of leadership.

#### (4) Step 4. Implement Controls

##### (a) Report Risk

1. Communicate Risk. Risk communication information may be presented orally or verbally to commanders, command surgeons, health care providers, military personnel, veterans, media, and general public as appropriate. Document the risk communication and countermeasure recommendations provided.

##### 2. Reporting to Commanders

a. Provide the responsible commander with results of the risk assessments and with recommendations to control the health impact on operations, complying with applicable

regulatory requirements (e.g., Occupational Safety and Health Administration (OSHA), Nuclear Regulatory Commission (NRC), Environmental Protection Agency, Status of Forces Agreement). Ensure commanders are aware of the effectiveness of controls used, residual risks, and the need for communicating hazards and risks to personnel.

b. For garrison health risks, include recommendations in the appropriate installation hazard abatement plan or risk management plan, assign a risk assessment code to hazards submitted to the installation hazard abatement plan, and prioritize for abatement using the methodology in Reference (c).

c. For deployment health risks, prioritize and monitor hazards submitted to risk management plans following Reference (f).

3. Reporting to Medical Staff. Provide medical treatment and surveillance staff with exposure characterizations and determinations for SEGs, and with recommendations for medical surveillance as validated by OEM providers.

4. Reporting to Employees. Provide commanders with exposure assessments so they can notify employees and employee representatives of exposure assessment results. Assist in worker training and risk communication as requested by commanders.

5. Reporting During Deployments. Report baseline OEH assessments with accompanying data, routine OEH surveillance reports with accompanying data, incident-response reports with accompanying data, all raw OEH surveillance data and other reports, and OEH exposure and monitoring data and reports according to requirements in References (f) and (i).

a. Submit all operational and incident investigation records via DoD- or Service-specific systems (hard copy or electronic) for further disposition and archiving. For deployment operations, submit unclassified and classified OEH monitoring data and reports to the DOEHRS data portal per Reference (f).

b. As military operations allow, report sample results and risk assessments as quickly as possible to local medical units and the Joint Task Force surgeon per Reference (f) and theater policy.

(b) Develop a Risk Communication Plan. Develop a specific plan that documents means of delivery and development of key messages on deployment health threats and risks (including actual and potential exposures), associated countermeasures, and any necessary medical follow-up for deployed personnel (Reference (f)). The plan should document how OEH health site assessment data, industrial hazard assessment information, and other information will be used to develop appropriate written and oral materials for the communication of deployment health risks and associated countermeasures.

(5) Step 5. Supervise and Evaluate

(a) Evaluate and Reassess. Assess and determine the effectiveness of controls for health risks and conduct follow-up evaluations of the controls to ensure they remain effective.

(b) Evaluate OEH Risk Management Effectiveness

1. Active Medical Surveillance (Reference (d))

a. Medical Surveillance. Within specific fields of expertise, determine the need for and content of clinical OEM examinations for exposures to hazards and medical certification for specific reasons (e.g., respirator wearer, firefighter, police or security). Consider requirements and recommendations of Federal (e.g., OSHA, Department of Transportation), DoD (Reference (d)), and Military Service instructions, regulations, guidelines, and technical manuals in making these determinations. Review exposure assessment data and recommendations and conduct workplace visits, as appropriate, for medical assessments and determination.

b. Work-Related Injury and Illness. Conduct evaluation, management, and treatment of work-related injuries and illnesses to the extent feasible. Capture clinically relevant medical information for all work-related injuries and illnesses. Report all work-related injuries and illnesses for potential investigation according to DoDI 6055.07 (Reference (m)).

c. Work Site Visits. Conduct work site visits as appropriate to ensure understanding of the processes, exposures, and work conditions. In addition, conduct work site visits to evaluate injury and illness trends or to preempt injury and illness in a primary prevention effort.

2. Passive Medical Surveillance

a. Epidemiology. Capture data from OEM examinations, epidemiological review of clinical examination results, workers' compensation claims accepted by Department of Labor, and other data (e.g., OEH and safety). Conduct a review of work-related injuries and illnesses. Conduct analyses with the dual purposes of ensuring effectiveness of injury and illness prevention as well as identifying health effects (including, but not limited to, distinct injury or illness) of unique occupational and environmental conditions where intervention would reduce or prevent impact on health or mission. Review workplace exposure data, medical surveillance results, and work-related injury and illness outcomes data to examine the program effectiveness.

b. Crossfeed Clinical Outcome Information. Provide results of epidemiology, metrics, trending, and other data analysis to safety and safety and occupational health (SOH) staff members for identifying and assessing workplace hazards, assessing risk, and developing countermeasures.

3. Trend Analysis. Use trend analysis, a critical element of a management system, to identify hazards that have not been previously recognized. Review illness and injury logs, mishap reports, and exposure assessment data to identify trends and the potential for work-



related causation. Use trend analyses results for the reassessment of existing operations, risk assessment of similar operations, and risk assessment of new equipment or processes.

4. Follow-up. Reevaluate previous assessments to identify changes in risk, verify corrective actions being used remain effective, and provide recommendations for continued risk reduction.

## 2. REPORTING AND RECORDKEEPING

### a. DOEHRS

(1) Serves as the information management system for longitudinal exposure recordkeeping and reporting.

(2) Collects and uses exposure information to support the risk management process and occupational illness evaluation during all phases of military operations per References (c), (f), (i), and Presidential Review Directive 5 (Reference (n)).

b. Risk Management Documentation. Maintain the necessary documentation to ascertain the presence or absence, nature, and degree of OEH hazards, and the procedures used to assess the risk from these hazards. For deployments, comply with the requirements in References (f) and (i). Collect, maintain, and analyze hazard and exposure data to:

(1) Recommend protective and preventive measures to commanders, supervisors, and individuals.

(2) Recommend medical surveillance to providers.

(3) Notify individuals of their exposures.

(4) Maintain longitudinal exposure records for each individual.

(5) Perform trend analysis and epidemiologic studies.

c. Data Sharing. Share hazard and exposure data across the Department of Defense, making it available to installation-level OEH staff for daily operations. Make data available electronically for developing longitudinal exposure records for individuals. Share hazard and exposure data with the Department of Veterans Affairs to assist in adjudication of veterans' disability claims. Hazard and exposure assessment data include, but are not limited to, data on processes (activities), work sites, organizations, hazards, controls, potentially exposed personnel, exposure monitoring, instrumentation, calibration, qualified health staff performing assessments, and quality control of the data.

d. Personnel Workplace and Environmental Exposure Documentation. Include personnel exposure data in each exposed individual's medical record and maintain per medical record

requirements. Exposure data include, but are not limited to, exposure assessment results and supporting data, exposure data for a SEG to which the individual has been assigned, personal breathing zone samples, dosimetry measurements, area measurements, and modeled and other mathematical estimates of exposure for an individual. For deployments, document occupational and environmental area monitoring and exposure data, submit to appropriate data portals, and ensure documentation in the individual medical records of all health treatment provided at all levels of care and any significant occupational and environmental exposures per References (f) and (i). Include in exposure documentation the type of assessment used to determine the exposure (e.g., personal sampling, member of SEG).

e. Radiation Exposure Documentation. Comply with requirements of part 20 of title 10, CFR (Reference (o)) for records of occupational exposure to NRC-regulated and other sources of radiation. For deployments, submit radiation exposure documentation per Reference (f).

f. Personal Health Information. Ensure personal health information obtained from medical or exposure surveillance is protected and used only for risk management, occupational disease prevention, treatment, adjudication of employee workers' compensation claims or veterans' disability claims, or for injury and illness reporting pursuant to subparts 1904 and 1910.1020 of Reference (l); part 293 of title 5, CFR; section 552a of title 5, United States Code; DoD 6025.18-R; DoDD 5400.11; and DoD 5400.11-R (References (p) through (t), respectively).

g. Medical Records

(1) Maintain and control access to civilian personnel exposure and medical surveillance records for the duration of employment plus 30 years, except where substance-specific OSHA standards require longer retention.

(2) Maintain, retain, and dispose of military personnel exposure and medical surveillance records according to DoD Component directives.

3. TRAINING AND EDUCATION

a. Implement policies to ensure OEH personnel receive:

(1) Training specific to protecting workers from OEH hazards.

(2) Formal and informal training courses, education programs, and other developmental activities to improve their capability to advise commanders or equivalent and management officials.

(3) Support for continuing education, consisting of a blend of technical specialty, management, and leadership development courses.

(4) Where feasible, professional military education, graduate-level OEH education, and developmental assignments within the DoD Components, Federal agencies, or OEH professional organizations.

(5) Training and work assignments to encourage professional OEH credentialing.

b. Integrate OEH education and training into every level of a DoD Component's organization to help enhance the observable and measurable overall operational effectiveness.

(1) Reference (c) and Federal laws require personnel receive training and education needed to perform a specific operation or task in a safe and healthful manner. This includes pertinent information about the job, including proper working conditions, hazards, symptoms of toxic exposure, best work practices, required PPE, and other safety and risk management training requirements. Other requirements are outlined in regulations and directives governing the specific operations or activities.

(2) To encourage efficient use of resources and to avoid unnecessary duplication, before establishing additional training and education resources, use existing programs in the DoD Components or Federal agencies. Ensure the following training is provided:

(a) Executive-Level Leaders. Include the commander's responsibility for the program, requirement for commanders to oversee and track OEH program performance, history of OEH, the business advantages (cost and savings) of prevention, risk management principles, Executive Branch and departmental policies and initiatives, and the importance of protecting people from hazards and improving mission performance by eliminating mishaps, injuries, and occupational and environmental illnesses and injuries.

(b) Leaders and Commanders (All Levels). Include risk management principles, tools, and techniques necessary to create and maintain a culture that promotes a safe and healthful work environment and actively engages and involves personnel at all levels in their safety and occupational health.

(c) Supervisors. Include the management skills needed to implement the DoD Components' or Federal agencies' policies and programs. These skills include:

1. Fostering a workplace where hazards are identified and assessed and risks from these hazards are managed.

2. Identifying and controlling hazards and being able to teach subordinates to identify and control hazards.

3. Motivating subordinates to take an active role in their OEH.

4. Recognizing the importance of reporting and investigating illnesses.

5. Developing skills needed to implement OEHPs at the working level.

6. Enforcing action to ensure subordinate compliance.

7. Evaluating effectiveness of OEH controls, including proper use and wear of PPE.

(d) Civilian Employee Representatives. Consistent with part 1960 of Reference (1), provide OEH and risk management training, depending on local needs, to prepare such representatives to assist in the maintenance of safe and healthful workplaces.

(e) Nonsupervisory Personnel. Include the risk management process and specialized job-specific OEH training as appropriate to the work performed. This includes the provisions of relevant OEH standards; hazards associated with any materials used in the workplace or processes; hazard reporting; mishap, injury, and illness reporting; responsibility to follow assigned risk control procedures; and consequences of noncompliance.

4. RESEARCH AND DEVELOPMENT. Perform research and development to provide for continuous improvement in:

a. Techniques to identify and assess exposures and health effects of military-unique occupational and environmental conditions.

b. Health criteria to assess risk to reduce and prevent impact of military-unique activities on health or mission.

c. Methods to assess chemical, physical, and biological hazards and the health consequences of the exposure to the hazards.

5. PROGRAM EVALUATION AND REVIEW

a. Within each DoD Component, conduct annual reviews of OEHPs by assessing program workload, health outcomes, management effectiveness, and resource use.

b. Provide the OEHPs' status to ASD(EI&E) as part of the SOH program in-progress review requirements of Reference (c).

c. Evaluate IH and OEM effectiveness using the performance measures in the appendix to this enclosure.

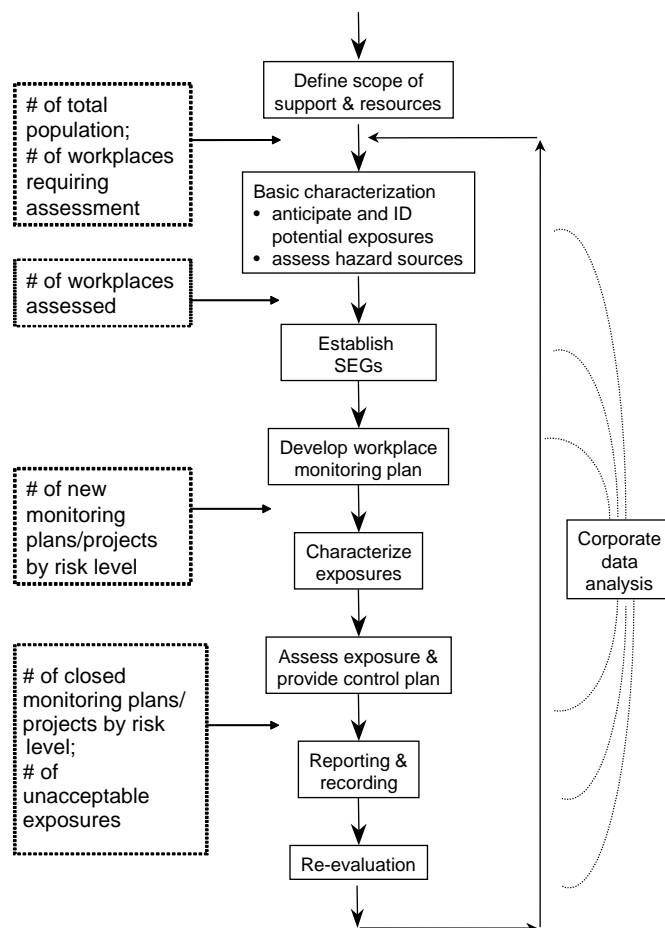
Appendix  
Performance Measures

## APPENDIX TO ENCLOSURE 3

### PERFORMANCE MEASURES

1. IH PERFORMANCE MEASUREMENT APPROACH. IH effectiveness is monitored by the rate of military member and civilian employee exposures to health hazards. This measure is intended for commanders to monitor their organization's effectiveness in reducing work-related occupational and environmental exposures. Because the rate of personnel exposures to health hazards is heavily influenced by the completion of work site assessments, the rate of completion for work site exposure assessments is also measured. DoD Components may delay use of these performance metrics until information systems are available to collect and report the rates. The relationship of the metrics measurements to the IH exposure assessment process is provided in Figure 1.

Figure 1. IH Metrics Measurement Locations in the DoD IH Exposure Assessment Process



## 2. PERCENTAGE OF WORKPLACE HAZARD CHARACTERIZATIONS COMPLETED.

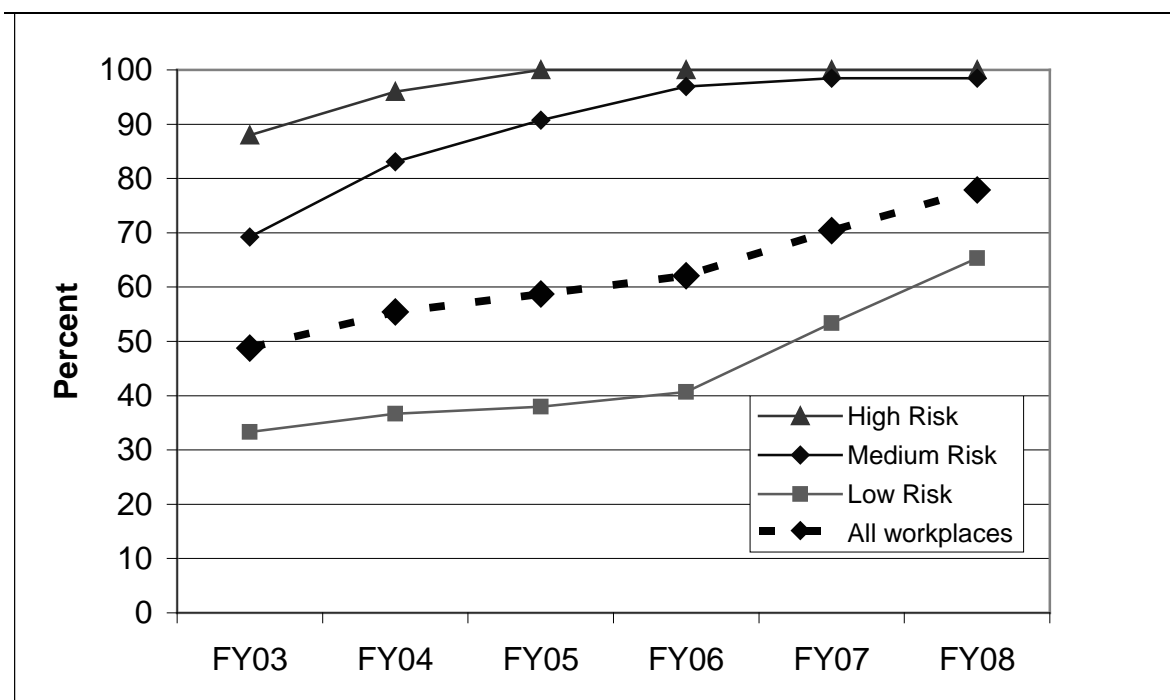
Measure the degree to which hazards are identified to commanders by measuring the percentage of hazard characterizations completed during the fiscal year using the following formula:

Percentage of Workplace Hazard

$$\text{Characterizations Completed} = \frac{\# \text{ workplaces assessed} \times 100\%}{\# \text{ workplaces requiring assessment}}$$

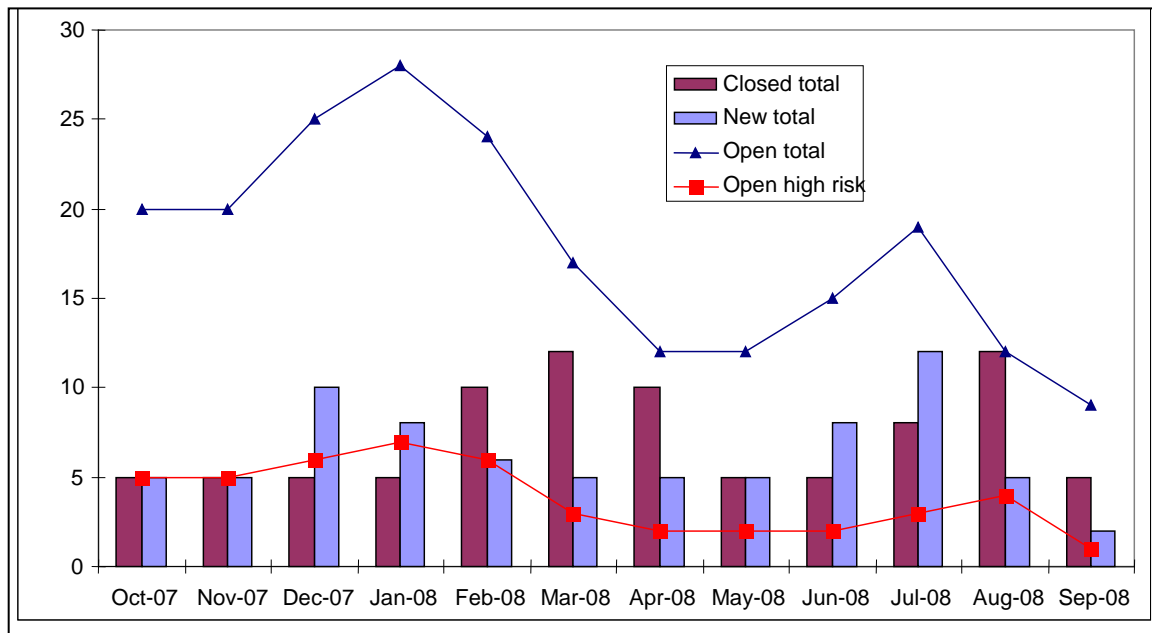
The desired rate is 100 percent of workplaces assessed. Where rates fall below 100 percent, pursue additional resources or management efficiencies in completing required hazard characterizations. Where the percentage of workplaces assessed by workplace risk level (e.g., rates for high-, medium-, and low-risk workplaces) is measured, pursue completion rates of 100 percent for the highest risk workplaces first. (See sample with notional data at Figure 2.)

Figure 2. Sample of Percentage of Workplace Hazard Characterizations Completed



3. **MONITORING PLAN COMPLETED.** Measure the degree to which risks remain unassessed, leaving commanders with insufficient information for risk control decisions, by measuring the total number of new, completed, and open items in the workplace monitoring plan for all risk levels, and measure the number of open high-risk items. (See sample with notional data at Figure 3.) DoD Components may also report the number of open monitoring plan items for medium- and low-risk items. The desired trend is toward reducing open monitoring plans or projects to zero. Where open plans or projects provide commanders an incomplete understanding of OEH risks, pursue additional resources or management efficiencies in completing plans or projects. Pursue completion for the highest risk plans or projects first.

**Figure 3. Sample of Risk Management Status of Workplace Monitoring Plan**

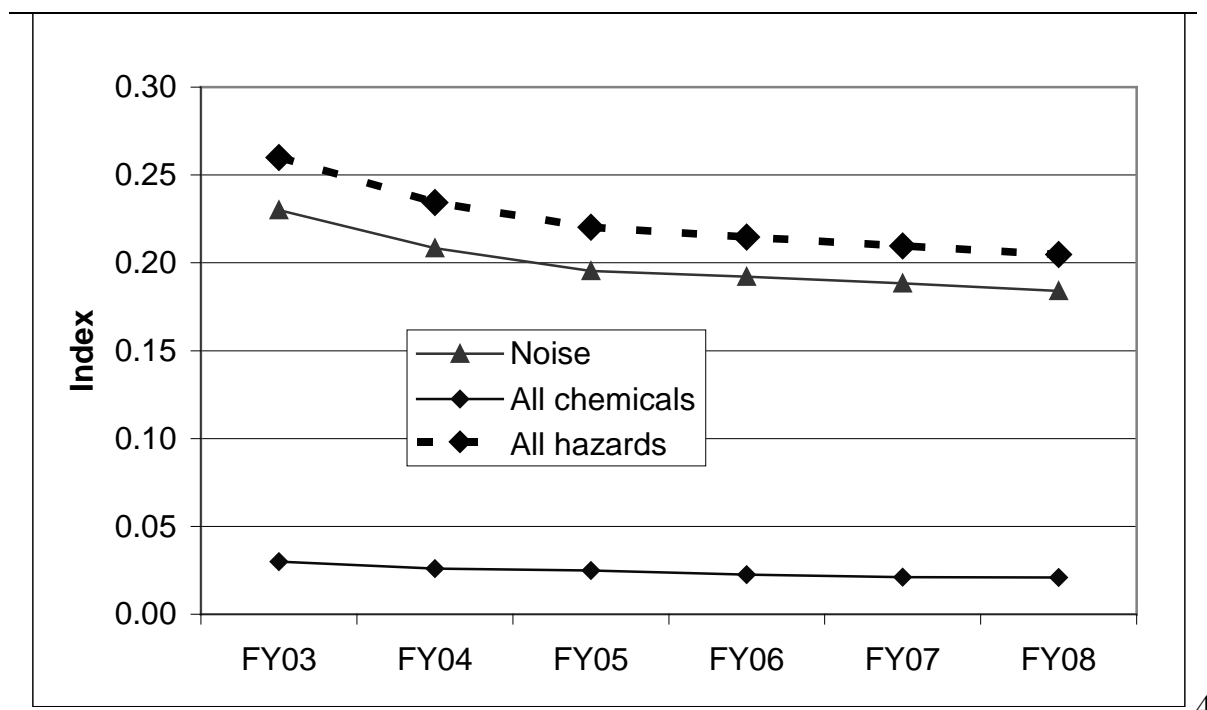


4. **INDEX OF UNACCEPTABLE EXPOSURES.** Measure the risk to the mission from personnel injury, illness, and disability, and the risk of long-term health effects to personnel and liabilities to the organization by measuring the index of unacceptable personnel exposures using the following formula:

$$\text{Index of Unacceptable Exposures} = \frac{\# \text{ unacceptable exposures}}{\# \text{ of total population}}$$

The desired level is an index of zero unacceptable exposures. (See sample with notional data at Figure 4.) Pursue elimination of unacceptable exposures according to Reference (c). The Index of Unacceptable Exposures may be further analyzed by hazard or hazard type (noise, radiation, chemical, etc.) to establish relative priorities for eliminating unacceptable exposures.

Figure 4. Sample of Index of Unacceptable Exposures



4

a. Unacceptable Exposure. A condition in which a significant risk (e.g., occupational illness) is associated with a SEG's exposure profile, the probability of adverse health effects is significant, or there is evidence of adverse health effects associated with exposure to a hazard. (See definitions at Glossary for additional details.)

b. Number of Unacceptable Exposures. The total number of instances where an OEH staff member determines a person's exposure to a hazard is unacceptable. Each exposure found to be unacceptable is counted as a separate exposure. (Example: A person with unacceptable exposures to both noise and lead is counted as two exposures.) An exposure found to be unacceptable by more than one criteria or exposure route is only counted once. (Example: A person exposed above both the threshold limit values (TLVs) time-weighted average and TLVs short-term exposure limit for chlorine is counted as only one exposure.)

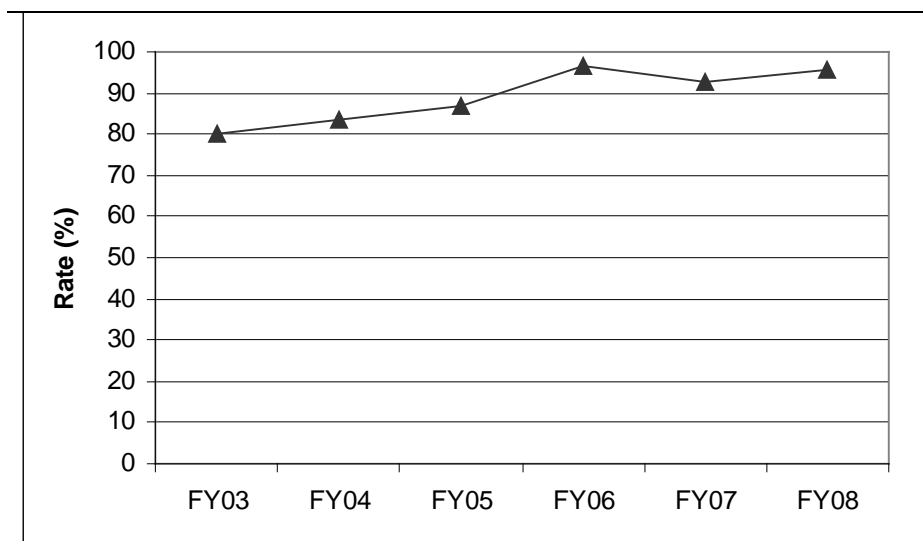
c. Total Population. Military members, civilian employees, and other personnel included as a potential population whose exposure is assessed for health risk. Typically, the total population is counted as the sum of the military and civilian end-strength of a military organization. Other personnel are included in the total population if the military organization has assumed responsibility for assessing their health risk.

5. OCCUPATIONAL MEDICAL SURVEILLANCE COMPLETION RATE. Evaluate the degree to which medical surveillance is occurring by measuring the percentage of personnel who receive required OEM exams for occupational exposures using the following formula (see sample with notional data at Figure 5):



$$\text{Occupational Medical Exam Completion Rate (\%)} = \frac{\text{\# of personnel receiving required medical exams} \times 100\%}{\text{\# of personnel requiring medical exams for occupational exposures}}$$

Figure 5. Sample of Occupational Medical Exam Completion Rate



a. Receiving Required Medical Exams. A person receives all exposure-based OEM exams at the frequency identified by the health care provider.

b. Required Medical Exam. Following the procedures of Reference (d) or the DoD Component equivalent procedures, a health care provider reviews employee occupational exposures, or surrogates of exposure such as working location or duty title, and determines appropriate medical examination parameters.

## GLOSSARY

### PART I. ABBREVIATIONS AND ACRONYMS

ADUSD(ESOH)	Assistant Deputy Under Secretary of Defense for Environment, Safety, and Occupational Health
ASD(EI&E)	Assistant Secretary of Defense for Energy, Installations, and Environment
ASD(HA)	Assistant Secretary of Defense for Health Affairs
CFR	Code of Federal Regulations
DHP	Defense Health Program
DOEHS	Defense Occupational and Environmental Health Readiness System
ER&S	Environmental Readiness and Safety
IH	industrial hygiene
IHWG	Industrial Hygiene Working Group
NRC	Nuclear Regulatory Commission
OEH	occupational and environmental health
OEHP	Occupational and Environmental Health Program
OEM	occupational and environmental medicine
OMWG	Occupational Medicine Working Group
OSHA	Occupational Safety and Health Administration
PPE	personal protective equipment
SEG	similar exposure group
SOH	safety and occupational health
TLV	threshold limit value

### PART II. DEFINITIONS

Unless otherwise noted, the following terms and their definitions are for the purpose of this Instruction.

acceptable exposure. An acceptable level of risk is determined by applying risk management. Examples of exposures considered acceptable include, but are not limited to, the following:

Exposures from processes that are currently controlled by engineering methods (e.g., ventilation, interlocks), but which would produce exposures that meet or exceed the occupational exposure limit should the control(s) fail or malfunction.

Exposures controlled by individual choice (e.g., OSHA Voluntary Respiratory Protection Program or equivalent).

assessed. A basic characterization of the health hazards in a workplace has been completed, and a report has been issued to the commander or workplace supervisor within the time frame required by the DoD Component policy (e.g., a report has been issued within the previous 12 months for a workplace requiring annual assessments). A basic characterization is an assessment of the defined demographic (workplace, process, SEG, organization) where the occupational health professional collects enough information to determine if further assessment is necessary. The basic characterization is valid until additional information, such as a change in production rates or mission, indicates a need for a new characterization.

assessment. Qualitative or quantitative information such as measurements, mathematical modeling, estimates based on similar operations, observations of work processes, and professional judgment.

characterization. The collection and organization of information needed to describe the workplace, workforce, and hazards so that exposures and health risks can be comprehended.

completed monitoring plan or project. OEH staff has completed the exposure surveillance as identified as a work task in the original monitoring plan or project description.

conceptual site model. Written description and visual representation of the known, suspected, and predicted relationships between the OEH threats identified at the deployment site and the human receptors.

control. Defined in Reference (c).

deployment. Defined in Reference (f).

deployment health hazard probability. Defined in Reference (i).

deployment health hazard severity. Defined in Reference (i).

DoD contractor. Defined in Reference (c).

DoD personnel. Defined in Reference (c).

environmental health risk assessments. Defined in Reference (i).

ergonomics. Defined in Reference (c).

exposure

The intensity, frequency, and length of time personnel are subjected to a hazard.

Also as defined in Reference (f).

exposure profile. The magnitude and variability of exposures for a SEG. This includes some understanding of the central tendency of the exposures (e.g., mean exposure) and some understanding of the breadth (i.e., variability) of the exposures (e.g., range and standard deviation) or frequency with which the exposures exceed the occupational exposure limit. (Adapted from Reference (k), Appendix XII, p. 335.)

force health protection. Defined in DoDD 6200.04 (Reference (u)).

hazard. Defined in Reference (c).

health risk communications plan. Defined in Reference (f).

health surveillance. Defined in Reference (f).

health threat. The potential for injury or illness to personnel based on current exposures to health hazards, including the protective effects provided by exposure controls currently being used.

health threat and countermeasures briefing. Defined in Reference (f).

IH. The art and science devoted to the anticipation, recognition, evaluation, and control of environmental factors arising in or from the workplace that may result in injury, illness, or impairment, or that may affect the well-being of workers and members of the community.

IH assessments. Reports developed by the intelligence community (e.g., Armed Forces Medical Intelligence Center) that identify potential local industrial operations and the hazards normally associated with those operations.

industrial hygienist

A DoD civilian employee who meets the requirements of the Office of Personnel Management's standard for the IH GS-0690 series (Reference (v)).

A DoD contractor employee who has a college or university degree or degrees in engineering, chemistry, physics, medicine, or related physical and biological sciences, and who, by virtue of special studies and training, has acquired competence in IH. Such special studies and training must have been sufficient in all of the above cognate sciences to provide the abilities to anticipate, recognize, evaluate, and control environmental factors.

A military officer commissioned in the medical services or biomedical sciences corps with equivalent education, training, and experience as described for the DoD contractor employee.

low-level exposures. Defined in Reference (i).

military operation. A military action to carry out a strategic, operational, tactical, or training mission that includes the relocation of forces and materiel to the operational area (home station, United States, or outside the United States).

new monitoring plan or project. OEH staff has identified the need to perform exposure surveillance for a group of employees, and has added the surveillance requirements to the office monitoring plan or project list.

occupational health risk assessments. Evaluations of hazards related to specific tasks or activities such as refueling areas, motor pools, flight line operations, and hazardous materials and waste disposal management. Unlike an environmental health risk assessment, occupational health risk assessments are typically focused assessments of SEGs. Occupational exposures may only be experienced by personnel conducting specific tasks or the exposures may be present at higher levels or greater frequency than those experienced by the overall population at risk.

OEH. All activities related to preventing OEH-related illnesses for DoD personnel. OEH includes, but is not limited to, IH, ergonomics, OEM, epidemiology, hearing conservation, radiation protection, OEH surveillance in military operations, engineering, and risk management of health hazards.

OEH hazards. Any chemical, biological, or physical health hazard. This includes a hazard resulting from a person performing an operation or task (e.g., performing vehicle refueling, operating a burn pit) as well as a hazard associated with the general ambient environment (ambient airborne smoke and dust).

OEH site assessment. Defined in Reference (i).

occupational exposure limit. Used by a health professional to help determine a worker's or population's health risk from exposure to a hazard. "Occupational exposure limit" is a generic term used to apply to all exposure limits, including but not limited to DoD standards from Reference (c), OSHA permissible exposure limits, DoD Component standards, military exposure guidelines (Reference (f)), environmental health limits, American Conference of Governmental Industrial Hygienists TLVs (Reference (w)), National Institute for Occupational Safety and Health recommended exposure limits, and other exposure limits reviewed for potential use.

OEM. The medicine specialty devoted to prevention and management of occupational and environmental injury, illness, and disability, and promotion of health and productivity of workers, their families, and communities.

open monitoring plan or project. OEH staff has not completed the exposure surveillance plan or project as identified in the original monitoring plan or project description, and the plan or project remains as a surveillance requirement.

physical hazards. A workplace stressor of acoustic, electromagnetic, ergonomic, mechanical, or thermal nature.

population at risk. Defined in Reference (f).

preliminary hazard assessment. Defined in Reference (f).

qualified OEH personnel. Personnel, such as physicians, nurses, industrial hygienists, sanitarians, etc., who by virtue of education, training, and experience have acquired competence in protecting personnel from health hazards by assessing health risks and recommending solutions to minimize these risks. The DoD Components determine qualification requirements and scope of practice for each specialty by balancing resource and personnel limitations with the competence required to adequately address the health hazard and resulting risk.

residual risk. Defined in Reference (c).

risk. Defined in Reference (c).

risk assessment. Defined in Reference (c).

risk decision. Defined in Reference (c).

risk management. Defined in Reference (c).

SEG. Primarily a term applied to garrison OEH assessment (where specific populations are more readily identified). A group of persons who experience exposures similar enough that assessing the exposures of any member of the group is predictive of exposures of all members of the group. Qualified OEH staff may establish SEGs by organization, process or task being performed, event or situation, job series, or geographic exposure location. For deployment operations, see definition of “population at risk.”

unacceptable exposure. A condition in which a significant risk for the development of occupational illness is associated with a SEG’s exposure profile regardless of use of PPE, the probability of adverse health effects is significant, or there is evidence of adverse health effects associated with exposure to a hazard (adapted from Reference (k)). Examples of unacceptable exposures include, but are not limited to, the following:

Example 1. The SEG exposure profile point estimate equals or exceeds an occupational exposure limit:

For airborne contaminants, the upper tolerance limit (95<sup>th</sup> percentile, 95-percent confidence) or the 95<sup>th</sup> percentile equals or exceeds an occupational exposure limit.

For noise dosimetry, the upper tolerance limit (90<sup>th</sup> percentile, 75-percent confidence) equals or exceeds an occupational exposure limit or the 95<sup>th</sup> percentile equals or exceeds an occupational exposure limit.

The situation where the 95th percentile is less than the occupational exposure limit but the upper tolerance limit (95th percentile, 95-percent confidence) is greater than the occupational

exposure limit, the SEG is considered “acceptable” with “uncertainty” thereby requiring additional information gathering. This recognizes that the exposure value calculated for the 95th percentile is only an estimate and there is a need to consider the confidence interval around that estimate. Once additional information is obtained, a decision with less uncertainty should be reached.

Example 2. The average or upper extremes of the exposure profile for a given hazard equal or exceed an occupational exposure limit and controls are recommended (e.g., respiratory protection).

Example 3. The hazard has no occupational exposure limit, but the probability (qualitatively defined by knowledge, experience, and professional judgment or determined by extrapolation from a similar process or similar hazard) of adverse health effects requires personnel to wear PPE (e.g., respiratory protection, chemically protective gloves).

Example 4. In the absence of an occupational exposure limit, the incidence and severity rates for the associated illness or injury (e.g., ergonomic work-related musculoskeletal disorders) for the exposed population exceeds expected injury or illness.

Example 5. The observable presence of skin contact when dermal absorption is a significant route of exposure.

Example 6. The observable potential for inadvertent ingestion when ingestion is a significant route of exposure.

Example 7. A hazard has a requirement for PPE that is independent of exposure levels. The hazard may or may not have an occupational exposure limit.

workplaces. Defined in Reference (c).

work processes. A set of activities or situations grouped and defined by an OEH professional for the purpose of associating this group of activities or situations with a corresponding set of potential hazards, exposures, and exposed workers. The OEH professional may choose to establish work process or operation groups by organizational structure, physical location in a building or in a deployed environment, or by type of hazard to be found.