US Army Corps
of Engineers ®
Walla Walla District

SAFETY AND OCCUPATIONAL HEALTH OFFICE

SAFETY MANUAL

NWWOM 385-1-1

2 December 2005

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No. 385-1-1

Safety and Occupational Health Office

SAFETY AND OCCUPATIONAL HEALTH PROGRAM

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Northwestern Division, Walla Walla District (District) Office Memorandum (NWWOM), prescribes policy, assigns duties, responsibilities, and establishes operating procedures relative to the overall implementation of the Safety and Occupational Health (SOH) Program. The policies and procedures set forth are based on and governed by requirements of higher authority. In some instances, more stringent policies have been established.

2. APPLICABILITY. The policies and procedures prescribed in this NWWOM are applicable to all employees of the District and apply to all missions of the District.

3. REQUIRED REFERENCES.

a. Code of Federal Regulation (CFR) Title 29, Chapter XVII, Parts 1910 and 1926, *Occupational Safety and Health Standards.*

b. 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*.

c. 29 CFR 1960, *Federal Employee Safety and Occupational Health.*

d. Engineering Regulation (ER) 385-1-92, *Safety and Occupational Health Document Requirements For Hazardous, Toxic, and Radioactive Waste (HTRW) Activities.*

e. ER 385-1-80, *Radiological Safety*.

f. Engineer Manual (EM) 385-1-1, *Corps of Engineer Safety and Health Requirements Manual.*

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This NWWOM supercedes NWWOM 385-1-1, 1 June 2002.

4. POLICY.

a. The Commander's safety policies can be found in appendix A.

b. Integration of safety into all activities and operational procedures is the basic concept of the Corps' SOH Program. Accident prevention and risk management will be applied as an operating function to all activities and procedures.

c. It is the policy of the District to provide visitors, contractors, and Government employees a safe and healthful environment, free from recognized hazards. Every reasonable effort will be made in the interest of accident prevention, fire protection, and health preservation. Visitors to operating projects and field offices will be given a safety briefing before visiting "work" areas.

d. All work will be done in accordance with EM 385-1-1, *Corps of Engineer Safety and Health Requirements Manual*, Occupational Safety and Health Administration (OSHA) standards, and other national consensus standards, such as American National Standards Institute (ANSI), National Fire Protection Association (NFPA), and National Electric Code (NEC), *etc*.

5. OBJECTIVES.

a. To establish and administer a safety program that will ensure managers, supervisors, and employees are motivated and trained to accept their safety responsibility.

b. To eliminate and control safety hazards by creating and maintaining safe working conditions, promoting and enforcing safe practices by both Government and contract employees, incorporating safety into the design of facilities, and providing for the safety of the visiting public.

c. To conserve Corps resources by preventing on-the-job injuries/illnesses and property loss/damage to ensure the most effective and efficient use of the District's resources. This includes Corps contractors. Employees are the Corps' most valuable resource; an investment in safety is an investment in our employees.

d. To require acceptable safety performance on all jobs from start to finish by all Corps and contractor managers, supervisors, and employees.

6. GENERAL RESPONSIBILITIES.

a. The Chief of the Safety and Occupational Health Office (SO) is responsible for the overall administration and management of this program.

b. Division and Office Chiefs are responsible for implementing and accomplishing the provisions of this program as specified in each applicable appendix to this NWWOM. Specific responsibilities are identified in paragraph 7, below.

c. Division and Office Chiefs and Project/Field Office Chiefs are responsible for the full application of the safety program to all functions and activities under their jurisdiction. Hazards and problems discovered that extend beyond the jurisdiction of the immediate supervisor will be brought to the attention of a higher authority. Effective implementation of the accident prevention program requires that every element of the organization assumes continuous accident prevention techniques in all its operations and applies every practical means for the promotion of accident prevention in the guidance, assistance, criteria, facilities, and equipment provided to users.

7. SPECIFIC RESPONSIBILITIES.

a. Division and Office Chiefs. The specific responsibilities of Division and Office Chiefs are as follows:

(1) Ensure all recordable accidents are promptly investigated and reported (see appendix B).

(2) Ensure each employee in a non-administrative job has an accurate job hazard analysis for his/her position (see appendix S).

(3) Ensure all employees are aware of their rights and responsibilities regarding safety and occupational health (see appendix X).

(4) Ensure annual safety inspections are conducted and safety deficiencies are corrected in a timely manner (see appendix X).

(5) Ensure each employee requiring personal protective equipment (PPE) is provided that equipment at Government expense (see appendix R).

(6) Ensure newly appointed supervisors receive basic safety training (see appendix N).

(7) Report all contractor hours worked to the SO by the 15th of the month following the month during which the contractor activity occurred. **This applies to all contracts for which EM 385-1-1, Safety and Health Requirements Manual, is applicable.**

b. Chief, Safety and Occupational Health Office. The specific responsibilities of Chief of SO are as follows:

(1) Advise the District Commander on all matters of occupational safety and health.

(2) Develop and manage a safety program, execute staff supervision, and coordinate safety activities.

(3) Study, survey, and evaluate the efforts expended toward the prevention of accidents on all phases of the activities being conducted.

(4) Keep the District Commander advised as to findings and make recommendations for changes or improvements where conditions so warrant.

(5) Conduct an annual safety management evaluation of key District leaders.

(6) Provide technical safety support necessary to achieve the objectives of the program.

(7) Make selective reviews of design documents, construction specifications, Accident Prevention Plans, Site-Specific Safety and Health Plans (SSSP), and Activity Hazard Analysis to ensure safety concerns have been addressed (see appendix S).

(8) Ensure guidance from higher authority relative to safety and health is communicated to the operating level and District safety and health procedures are updated to reflect such guidance.

(9) Receive and process all District exposure and accident reports; serve as technical advisor on all District Boards of Investigation (see appendix B).

(10) Manage the Workers' Compensation Program and inform others of important changes in the program. Ensure capable workers are brought back to work as soon as possible.

c. Chief, Engineering/Construction Division (in addition to the responsibilities identified above in paragraph 7.a.). The specific responsibilities of the Chief of Engineering/Construction Division are as follows:

(1) Ensure all employees working around or with hazardous materials are trained in Hazard Communication (see appendix M).

(2) Ensure all Hazardous, Toxic, and Radiological Waste Operations are conducted in accordance with 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*; EM 385-1-1, Section 28; and ER 385-1-92, *Safety and Occupational Health Document Requirements For Hazardous, Toxic, and Radioactive Waste (HTRW) Activities*.

(3) Ensure all employees involved in hazardous operations are included in the Medical Surveillance Program (see appendix Q).

(4) Ensure all employees exposed to noise at or above the action level are included in the Hearing Conservation Program (see appendix O).

(5) Ensure all employees who wear or may need to wear respirators have been trained, are medically qualified, and have respirators that fit properly and have been tested (see appendix U).

(6) Ensure all employees required to work in confined spaces be trained, including the proper use of gas detection equipment (see appendix G).

(7) Report all contractor hours worked to the SO by the 15th of the month following the month during which the contractor activity occurred. **This applies to all contracts for which EM 385-1-1, Safety and Health Requirements Manual, is applicable.**

(8) Insert the following paragraph in Architect-Engineer design contracts where appropriate:

> "Health and Safety Standards. The facilities, systems, and equipment design standards of the Occupational Safety and Health Act, Code of Federal Regulations, Title 29, Chapter XVII, Parts 1910 and 1926, as applicable, will be incorporated by the Architect-Engineer into all engineering design and analyses furnished pursuant to this contract. Any problems in incorporating these standards due to conflict with other technical criteria will be promptly submitted to the Contracting Officer for decision."

(9) Ensure all personnel are knowledgeable of safety standards applicable to the construction process.

d. Area and Resident Engineers (in addition to the responsibilities identified above). The specific responsibilities of the area and resident engineers are as follows:

(1) Will hold a monthly safety meeting. Minutes will be kept of those in attendance and the topic covered. An informational copy will be furnished to the SO. A rotational schedule assigning a different employee the task of presenting a safety topic at each monthly safety meeting is recommended.

(2) Require all quality assurance representatives to include in their daily reports [Engineering Form (ENG) Form 2538] specific safety observations, both positive and negative. Comments such as "No violations noted" are unacceptable.

(3) Review all plans and specifications for work in their projects to ensure safe design.

(4) Report all contractor hours worked to the SO by the 15th of the month following the month in which the contractor activity occurred. **This applies to all contracts for which EM 385-1-1, Safety and Health Requirements Manual, is applicable.**

e. Chief, Operations Division (in addition to the responsibilities identified above in paragraph 7.a.). The specific responsibilities of the Chief of Operation Division are as follows:

(1) Ensure operating project managers are evaluated annually for safety performance.

(2) Support the water safety program.

(3) Report all contractor hours worked to the SO by the 15th of the month following the month in which the contractor activity occurred. **This applies to all contracts for which EM 385-1-1, Safety and Health Requirements Manual, is applicable.**

f. Operating Project Managers (in addition to the responsibilities identified above in paragraph 7.a.). The specific responsibilities of the operating project managers are as follows:

(1) Designate a person as the collateral duty safety officer (see appendix F).

(2) Ensure the collateral duty safety officer is adequately trained.

(3) Implement a written program for those programs requiring local procedures or where the facility has unique equipment, *e.g.,* the control of hazardous energy.

(4) Hold a monthly safety meeting for managers and supervisors. Hold a weekly meeting for all other workers.

(5) Ensure all employees receive required safety training such as hazard communication, hearing conservation, the control of hazardous energy (see appendixes M and O), *etc*.

(6) Ensure all employees meeting the inclusion criteria are included in the Medical Surveillance Program (see appendix Q).

(7) Ensure employees are trained in critical confined space entry, fall protection, clearance procedures, and other critical programs (see appendix G and R).

(8) Ensure each operating project has implemented a written program for those programs requiring local procedure or where the facility has unique equipment,

e.g., hearing protection, the control of hazardous energy, respiratory protection (see appendixes O, M, and U), *etc*.

g. Chief, Civilian Personnel Advisory Center [(CPAC) (in addition to the responsibilities identified above in paragraph 7.a.)]. The specific responsibilities of the Chief of CPAC are as follows:

(1) Keep the SO advised of new or revised policies and procedures concerning workers' compensation, hazardous work, and other matters impacting on safety and occupational health.

(2) Co-manage employee's Official Medical Files (OMF) in conjunction with the SO or ensure medical providers maintain records in accordance with the Privacy Act.

(3) Coordinate pre-employment medical examinations with hiring officials.

h. Chief, Logistics Management Office (in addition to the responsibilities identified above in paragraph 7.a.). The specific responsibilities of the Chief of Logistics Management Office are as follows:

(1) Ensure the annual occupational safety and health/fire survey of all General Services Administration (GSA)-furnished office space is accomplished. Conduct fire drills as required.

(2) Ensure all Logistics Management employees working with hazardous materials are trained in Hazard Communication (see appendix M).

(3) Provide input on motor vehicle mileage to SO for the mileage report to be run by the 15th of each month.

(4) Provide the SO with notification of all motor vehicle accidents regardless of the amount of property damage to ensure statistics are accurate for accident trend analysis.

i. Chief, Real Estate Division (in addition to the responsibilities identified above in paragraph 7.a.). The specific responsibilities of the Chief of Real Estate Division are as follows:

(1) Ensure all leased facilities are compliant with OSHA standards. Real Estate Division personnel doing pre-lease inspections will become familiar with those portions of the standards that apply to the kind of space being leased. In addition, a paragraph will be written into leases that states, "The lessor will provide facilities that comply with OSHA standards."

(2) Ensure all logging/timber operations are conducted in accordance with applicable safety and occupational health standards.

j. Chief, Contracting Division (in addition to the responsibilities identified above in paragraph 7.a.). The specific responsibilities of the Chief of Contracting Division are as follows:

(1) Ensure all applicable safety clauses are inserted into appropriate contract documents.

(2) Ensure Material Safety Data Sheets (MSDS) are requested on all purchases of hazardous materials and these data sheets are directed to the product user.

k. Other team members, when making surveys and inspections of field office activities. The specific responsibilities of other team members are as follows:

(1) Observe the work from a safety point of view.

(2) Evaluate safety performance within their areas of responsibility.

(3) Discuss observed discrepancies with the official in charge.

(4) Follow all safety procedures when entering hazardous areas.

l. Line Supervisors and Lead Persons. The specific responsibilities of line supervisors and lead persons are as follows:

(1) Ensure the safety of all employees who work under his/her direction.

(2) Know the safety requirements and safe practices applicable to his/her work, including accident controls in his/her work methods.

(3) Instruct employees under his/her supervision in safe work practices.

(4) Provide employees with PPE and apparel as required by their work and ensure it is used. Supervisors will hold employees accountable for not using PPE and other unsafe work practices (see appendix R).

(5) Bring to the attention of higher authorities those hazards or safety problems extending beyond their immediate jurisdiction.

(6) Ensure employees attend required safety training and receive counseling regarding unsafe work practices when necessary (see appendix N).

(7) Document warnings to employees who violate safe work practices.

m. Employees. The specific responsibilities of employees are as follows:

(1) Will comply with all safety regulations.

(2) Are responsible for their own actions or inactions with regard to personal safety and the safety of others.

(3) Will notify their supervisor of any safety hazards and/or violations and will exercise "stop work authority" when required.

(4) Will correct or remove safety hazards within their control.

(5) Are encouraged to play an active role in the safety program.

8. PROCEDURES. The procedures to follow for this SOH Program are as follow:

a. Health Hazards. Potential health hazards from toxic materials, noise, waste disposal, or work environment will be evaluated and preventive measures will be implemented. Proposed plans, designs, operations, or use of new materials involving potential health hazards (not previously evaluated) will be brought to the attention of the SO. The SO will coordinate investigation and evaluation of the hazards.

b. Hazardous, Toxic, and Radioactive Waste Operations (HTRW). The HTRW operations will be conducted in accordance with 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*; EM 385-1-1, Section 28; and ER 385-1-92, *Safety and Occupational Health Document Requirements For Hazardous, Toxic, and Radioactive Waste (HTRW) Activities*.

c. Radiological Safety. Radiological safety matters will be executed in compliance with ER 385-1-80, *Radiological Safety*.

d. Preventing Contributory Negligence. Efforts will be made to prevent accidents that might result from negligence, wrongful acts, or omissions by employees of the Corps. In no instance will the general public be admitted to a hazardous area or where their presence could create interference with safety operations. When members of the public are admitted to Corps activities, they must be accompanied by Corps personnel and provided PPE commensurate with the operation. Visitors on official duty will be briefed on appropriate hazards and provided applicable PPE (see appendix R).

e. Public Recreation Areas. At Corps installations where public recreation is offered, the District operating elements will, in addition to their normal administrative and operating safety responsibilities, provide for the safety of the visiting public. This effort will be directed toward all recreational activities. In the absence of specific Federal regulations governing the use and maintenance of public use areas, National Consensus Standards will be used. Such standards include, but are not limited to the

following: The National Water Safety Congress, The National Safety Council, NFPA, ANSI, International Conference of Building Officials, *etc*.

f. Electrical Safety. The District will comply with the provisions of NEC and the National Electric Safety Code. The design of electrical distribution systems for civil works projects involving boat docks, boat yards, marinas, construction sites, and public buildings will incorporate adequate provisions for personnel ground-fault circuit interrupter protection. In addition, other circuits that supply receptacles in damp locations or outdoors, such as those for public use, recreational areas, and recreational vehicle parks, will also be provided with suitable personnel ground-fault protection.

g. Procedures for Obtaining a Waiver of an EM 385-1-1 Requirement.

(1) The request must contain the following information:

(a) Written explanation stating the requirement for which the waiver is requested.

(b) List of reason(s) why the exemption is needed.

(c) List of measures that will be taken to provide **equivalent protection.**

(2) This information must be routed through the District SO to the Division SO. The turnaround time will vary depending upon the complexity of the waiver requested. In all instances, requests for waivers must be forwarded to Headquarters, U.S. Army Corps of Engineers (HQUSACE) for a decision or, if a waiver has been granted by the Commanding General at Division, for informational purposes. In any case, only a Commanding General may grant a waiver. To expedite the process, the information can be sent via facsimile or electronic mail, but it must follow the aforementioned routing procedures and electronic routing must be followed up with a hard copy.

(3) Waiving an OSHA requirement involves the above-mentioned process, including staffing through HQUSACE in addition to approval by OSHA at the Washington, D.C. level.

(4) Waivers are infrequently granted. The justification must be strong and there must be support all along the chain of command. Serious consideration should be given before a request for a waiver is prepared.

9. OCCUPATIONAL SAFETY AND HEALTH ACT PROGRAMS FOR FEDERAL EMPLOYEES.

a. Executive Order 12196, *Occupational Safety and Health Programs for Federal Employees*, makes each Federal agency head responsible for establishing and maintaining an effective and comprehensive Occupational Safety and Health Program. The Occupational Safety and Health Administration Act is, therefore, applicable to Federal workplaces. The rights and responsibilities of employees as developed in 29 CFR, Part 1960, *Federal Employee Safety and Occupational Health*, will be honored. The EM 385-1-1, *Safety and Health Requirements Manual* will be complied with for all construction activities. When an operation is not covered under EM 385-1-1, pertinent OSHA standards will apply. Those operations not covered by EM 385-1-1 or OSHA standards will comply with appropriate Department of the Army, Department of Defense, or National Consensus Standards.

b. Department of Labor OSHA compliance personnel may visit contractor and Government work sites for a compliance inspection and are to be extended full cooperation when requested. When an OSHA visit is to be made to a Corps facility, the District SO will be notified.

c. Design of new construction, modification, and rehabilitation projects will incorporate the OSHA standards set forth in the Occupational Safety and Health Act, Code of Federal Regulations, Title 29, Parts 1910 and 1926, as applicable.

10. LOAN OF GOVERNMENT PLANT. The responsibility for the prevention of accidents on plant, including floating plant loaned by the owning District to another District or Division, will remain with the owning District. This responsibility can only be changed when operational control has been formally transferred in a Memorandum of Understanding signed by responsible officials for both the owning and using organizations.

11. USE OF "STOP WORK ORDER." If all other attempts to secure voluntary compliance with safety requirements are not successful, the Contracting Officer's representative or his designated representative may issue a work stoppage order. The order will apply only to that portion of the work affected by the actions or lack of actions by the contractor. All of the facts of the proceedings will be documented in writing. The contractor will be informed in writing of the extent of the work stoppage, the date and hour work was stopped, the reason for the action, and the conditions under which work may proceed. An accurate record will be kept on all personnel, material, and equipment the contractor has on hand during the work stoppage, as well as the time worked. This "Stop Work Order" is different from a suspension of work. Only the Contracting Officer can issue a "Suspension of Work" of the contract.

12. EVALUATING SAFETY PERFORMANCE. Safety effectiveness, like other management responsibilities, must be measured.

a. Safety Management Evaluations of pertinent District leaders will be conducted annually in accordance with appendix Y of this document.

b. An evaluation of safety performance will be done on all employees in accordance with Total Army Performance Evaluation System (TAPES).

13. APPLICATION.

a. Safety considerations of this regulation will be embodied in all planning, programming, and scheduling of work under direction or technical control of the Corps. The applicable and pertinent provisions of EM 385-1-1 and nationally recognized codes and standards for the protection of persons and property will apply to all operations supervised by the Corps whether by contract or Government forces. In circumstances where literal application of the requirement for a specific job has impractical aspects, the Division Commander is authorized to approve an adaptation that meets the obvious intent of the requirement. Whenever such occasion arises, the matter will be referred to the Division Engineer, ATTN: U.S. Army Corps of Engineers, Northwestern Division Safety Office (CENWD-SO), for a decision.

b. All plans, specifications, technical publications, designs, and operating and training procedures will be reviewed prior to their approval for conformance with established safety codes, standards, and principles. Responsibility for this review rests with the approving authority. Upon request, the SO will make selective reviews and analyses to evaluate performance of these responsibilities and ensure current safety requirements are incorporated into the design.

c. Staff and operating officials planning and supervising new, unusual, or particularly hazardous assignments will inform the SO in order that safety personnel can study the safety implications and provide an advisory review.

FOR THE COMMANDER:

/s/ 22 February 2006
DONALD A. PINCUS
MAJ, EN
Deputy Commander

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DISTRIBUTION:
Intranet, 2 copies to Library, and 12 copies to Safety Office

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POLICY LETTERS

APPENDIX A

POLICY LETTERS

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http://w3.nww.usace.army.mil/im/Recman/Publications/index.htm

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APPENDIX B

ACCIDENT INVESTIGATION AND REPORTING

APPENDIX B

ACCIDENT INVESTIGATION AND REPORTING

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APPENDIX B

ACCIDENT INVESTIGATION AND REPORTING

1. PURPOSE. This appendix prescribes policy and guidance for investigation and reporting of accidents occurring on Government or contractor operations to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District).

2. APPLICABILITY. This appendix applies to all District employees, activities, and contractors.

3. REQUIRED REFERENCES.

a. Army Regulation (AR) 385-40, *Accident Reporting and Records,* Chapter 4, 1.

b. U.S. Army Corps of Engineers Supplement 1 to AR 385-40, *Accident Investigation and Reporting.*

c. Engineer Pamphlet (EP) 385-1-40, *Boards of investigation*.

4. SCOPE. The primary mission of a safety program is to prevent accidents. In the event of an accident, this appendix provides the necessary procedures for the investigation and reporting of accidents within the District. This appendix also provides procedures for employees on temporary duty leave.

5. RESPONSIBILITIES. The responsibilities for the District Commander, Project Operations Managers, and Safety and Occupational Health Office (SO) Chief are as follow:

a. Ensure all accidents are reported in accordance with this policy. All accidents must be investigated promptly and reported to the District SO.

b. Ensure all accidents are investigated and analyzed to the extent required to identify causal factors and systemic deficiencies. Develop and implement countermeasures to prevent recurrence of similar accidents. Accident investigations are recorded for accident prevention purposes only. Findings and conclusions will not be used as a basis for determining legal liability or charges for negligence.

c. Provide consolidated accident data as required. Persons injured or involved in the accident will not prepare or sign accident reports.

6. ACCIDENT BASICS. An accident is any unplanned event that results in personal injury or property damage, which can be minor or serious. All accidents should be investigated regardless of the extent of injury or damage. Accidents are usually

complex, but can be broken down into three cause levels. Those three levels are as follow:

- Direct Causes: Examples of direct causes are an unplanned release of energy and/or release of hazardous material.

- Indirect Causes (symptoms): Examples of indirect causes are the presence of unsafe acts and/or an unsafe condition.

- Basic Causes: Examples of basic causes are the safety policies and decisions of management, personal factors, and/or environmental factors.

7. ACCIDENT CATEGORIES. All accidents are categorized as follow:

a. Class A. A Class A category accident is an accident with property damage of $1 million or more. It also covers an injury and/or occupational illness, which results in a fatality or permanent, total disability.

b. Class B. A Class B category accident is an accident with property damage of $200,000 or more, but less than $1 million. It also covers an injury and/or occupational illness, those results in permanent, partial disability, as well as when five or more personnel are hospitalized for inpatient care as the result of a single occurrence.

c. Class C. A Class C category accident is an accident with property damage of $10,000 or more, but less than $200,000. It also covers a nonfatal injury that causes any loss of time from work beyond the day or shift on which it occurred and a nonfatal occupational illness that causes loss of time from work or disability at any time.

d. Class D. A Class D category accident is an accident with property damage of $2,000 or more but less than $10,000. It also covers an injury or occupational illness that results in a medical visit.

e. Public Injury Accidents. Public injury accidents are injuries to recreating members of the public at a Corps Water Resources Development Project resulting in death, permanent disability, hospitalization, or potential claims against the government.

f. Motor Vehicle Accidents. All accidents involving the operation (whether moving or halted) of any Army vehicle resulting in injury, damage to vehicle, or to any other property in excess of $2,000. For the purpose of this appendix, "Army vehicles" will include the following:

(1) All Corps vehicles, regardless of who was operating the vehicle at the time of the accident.

(2) Vehicles leased or rented and operated by Corps personnel.

(3) Privately owned vehicles when used for official business, authorized by travel orders, and operated by Corps personnel.

(4) General Service Administration (GSA) vehicles operated by Corps personnel.

g. Private Property Damage. Accidental damage to private property, equipment, or material incident to a Corps activity, regardless of the amount of damage, will be reported.

h. Other Accidents. Accident reports must be submitted covering accidental explosions, fires involving ammunition and other explosives, exposure to microwave or ionizing radiation, chemical exposures, and contamination or damage of property from biological, radiological, or chemical agents.

8. ACCIDENT INVESTIGATION. A board of investigation is appointed by the Corps, Northwestern Division, Safety and Occupational Health Office, for government or contractor fatality, property damage, or fire over $50,000. The District SO will select informal boards of investigation. For all other accidents, the projects may select their own investigation team. The project Environmental Protection Specialist shall either be a member of the team or provide technical assistance. The investigative procedures are as follow:

a. Define the scope of the investigation.

b. Select the investigators.

c. Assign specific tasks to each investigator.

d. Prepare a preliminary briefing with the following information and present it to the investigating team.

(1) Description of the accident with damage estimates.

(2) Normal operating procedures.

(3) Maps/drawings (local and general).

(4) List of witnesses.

(5) Events that preceded the accident.

e. Visit the accident site to get updated information.

f. Inspect the accident site and complete the following.

(1) Secure the area. Do not disturb the scene unless a hazard exists.

(2) Prepare the necessary sketches and photographs. Label each carefully and keep accurate records.

g. Interview each victim and witness and complete the following.

(1) Appoint a speaker for the group.

(2) Get preliminary statements as soon as possible from all witnesses.

(3) Locate the position of each witness on a master chart (including the direction of view).

(4) Arrange for a convenient time and place to talk to each witness.

(5) Use sketches and diagrams to help the witness.

(6) Emphasize areas of direct observations. Label hearsay accordingly.

(7) Record the exact words used by the witness to describe each observation. Do not "put words into a witness's mouth."

(8) Keep accurate records of each interview.

(9) Use a tape recorder if desired and approved.

(10) Supply each witness with a copy of his or her statements. Signed statements are desirable.

h. Problem Solving Techniques. There are two techniques used to solve the problems associated with an accident.

(1) Change Analysis. Write a change analysis and include the following information.

(a) Define the problem (what happened?).

(b) Establish the norm (what should have happened) include information contained in the job or activity hazard analysis, as well as information contained in the standard operating procedures.

(c) Identify, locate, and describe the change (what, where, when, to what extent).

(d) Specify what was and what was not affected.

(e) Identify the distinctive features of the change.

(f) List the possible causes.

(g) Select the most likely causes.

(2) Activity Hazard Analysis. Write an activity hazard analysis and include the following information.

(a) Break the activity into basic steps.

(b) Identify the hazards associated with each step.

(c) Prescribe controls for each hazard.

i. Analyze the data obtained above and repeat any of the prior steps, if necessary.

j. Determine why the accident occurred, the most likely sequence of events, and probable causes [direct, indirect, or basic (see paragraph 6)].

k. Conduct a post-investigative briefing.

l. Prepare a summary report in narrative form, which includes the recommended actions to prevent a recurrence. The summary report will include the following.

(1) Background information.

- Where and when the accident occurred.
- Who and what were involved.
- Operating personnel and other witnesses.

(2) Account of the accident (what happened).

- Sequence of events.
- Extent of Damage.

- Accident type.
- Source of energy or hazardous material.

(3) Discussion (analysis of the accident – how, why, *etc.*).

- Direct causes (energy sources, hazardous materials).
- Indirect causes (unsafe acts and conditions).
- Basic causes (management policies, personal or environmental factors).

(4) Recommendations for immediate and long-range action to prevent recurrence. Identify remedies for the following.

(a) Basic causes.

(b) Indirect causes.

(c) Direct root causes such as reduced quantities, protective equipment, or structures.

9. REPORTING FORMS. When an accident occurs certain forms must be completed. For a hardcopy of these forms, contact the project area Administrative Officer or District SO. A visual of these forms can be found on website http://www.dol.gov.dol.esa.public/regs/compliance/owcp/forms.htm. The forms needed are as follow:

a. Engineering (ENG) Form 3394, *U.S. Army Corps of Engineers Accident Investigation Report*. This form must be completed following any accident resulting in any lost time illness or injury, medical treatment illness or injury, public fatality, property damage of $1,000 or more, and in any vessel/floating plant accident. This form must be completed by the supervisor or accident investigation team and submitted to the District SO within 7 days of the injury. The completed ENG Form 3394 and any attachments or copies and extracts will not be appended to or enclosed in any report or document, unless the sole purpose of the other report or document is to aid in accident prevention. Requests for copies of completed accident reports will be in writing and forwarded to the SO. Freedom of Information Act (FOIA) requests will be forwarded to Office of Counsel for action.

b. Compensation Act (CA)-1, *Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation*. The employee and his/her supervisor must complete this form for occupational injuries requiring medical treatment. The CA-1 must be submitted to the District SO within 3 days of the injury.

c. The CA-2, *Notice of Occupational Disease and Claim for Compensation*. The employee and his/her supervisor must complete this form for claims of occupational disease or illness. The CA-2 must be submitted to the District SO within 3 days of completion.

d. The CA-6, *Official Supervisor's Report of Employee's Death*. This form must be completed following the death of a government employee. It must be completed by the supervisor and submitted to the District SO within the first 24 hours of the fatality.

e. The CA-16, *Authorization for Examination and/or Treatment*. This form authorizes examination and/or treatment under the Office of Workers Compensation Program (OWCP), be completed only by an OWCP authorizing official and the attending physician, and submitted to the OWCP office in the Seattle District.

f. The CA-17, *Duty Status Report*. This form is for obtaining a duty status report on the injured employee and must be completed by the supervisor and the attending physician and submitted to the OWCP office in Kentucky.

g. The CA-20, *Attending Physicians Report.* The attending physician uses this form to report his/her findings on the injured employee. The CA-20 form and any medical reports are submitted to the OWCP office in Kentucky.

APPENDIX C

ASBESTOS MANAGEMENT

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ASBESTOS MANAGEMENT

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APPENDIX C

ASBESTOS MANAGEMENT

1. PURPOSE. The purpose of this appendix is to educate and inform the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel of the health risks and proper maintenance procedures when working with materials containing asbestos.

2. APPLICABILITY. This appendix is applicable District wide.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulations (CFR) 1910.1001, *Asbestos*.

b. 29 CFR 1910.134, *Respiratory Protection*.

c. 29 CFR 1926.1101, *Asbestos Construction*.

e. Environmental Protection Agency (EPA) 20 T-2003, *"Managing Asbestos in Place. A Building Owners Guide to O&M Programs for Asbestos Containing Materials"*.

d. Army Regulation 200-1, *Environmental Protection and Enhancement*, Chapter 10.

4. OPERATIONS AND MAINTENANCE (O&M) PROGRAM OBJECTIVES. The objectives of this O&M plan are to inform personnel of the presence of asbestos in the workplace and provide guidance for the routine and emergency maintenance involving asbestos. Adherence to this plan will help maintain an environment free of asbestos contamination within District buildings and facilities. Specific objectives include: (1) clean up asbestos fibers previously released; (2) prevent future release by minimizing asbestos containing materials (ACM); and (3) monitor the condition of asbestos within the District buildings and facilities. The O&M program will remain in effect until all asbestos containing materials are removed from the building or facility.

5. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Supervisors. The responsibilities of the District supervisors are as follow:

(1) Ensure an asbestos survey is conducted for all facilities within their control.

(2) Ensure all employees have been properly trained prior to working with asbestos.

(3) Implement an asbestos management plan at their operating project.

(4) Maintain an asbestos inventory of the operating project.

(5) Ensure employees who work with asbestos are included in the medical surveillance program (see appendix Q).

b. Employees. The responsibilities of the District employees are as follow:

(1) Attend training prior to working with asbestos.

(2) Attend asbestos awareness training.

(3) Participate in the medical surveillance program (see appendix Q).

(4) Wear appropriate personal protective equipment (see appendix R).

c. Safety and Occupational Health Office. The responsibilities of the Safety and Occupational Health Office are as follow:

(1) Maintain copies of asbestos plans and inventories.

(2) Maintain training records in a database.

(3) Coordinate asbestos surveys with the project safety officer.

(4) Maintain copies of asbestos exposure in an official medical file.

6. GENERAL. Only Asbestos Hazard Emergency Response Act (AHERA) qualified inspectors or AHERA project planners may perform asbestos surveys and collect samples. Those conducting asbestos air sampling shall have received training in air sampling for asbestos.

APPENDIX D

AUTOMATED EXTERNAL DEFIBRILLATOR USE POLICY

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APPENDIX D

AUTOMATED EXTERNAL DEFIBRILLATOR USE POLICY

1. PURPOSE. This appendix provides policy and guidance concerning the use of automated external defibrillators (AEDs) to the U.S. Army Corps of Engineers, Walla Walla District (District). These devices are used to assist in saving lives due to sudden cardiac arrest.

2. APPLICABILITY. This appendix is applicable District wide.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulations (CFR) 1910.269 (2000), *Occupational Safety and Health Standards, Electric Power Generation Transmission and Distribution*.

b. Revised Code of Washington (RCW) 4.24.300 (2000), *Persons Rendering Emergency Care or Transportation-Immunity from Liability-Exclusion*.

c. Oregon Revised Statues 30.801 (1999), *Liability for Emergency Medical Assistance with Defibrillator*.

d. Idaho Official Code 5-330 (2000), *Immunity of Persons Giving First Aid from Damage Claim*.

e. Engineer Manual 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

4. POLICY. Procurement of AEDs will be made based on an assessment of need. All hydroelectric Projects within the District meet this need under 29 CFR 910.269(b)(1)(ii) which states that all personnel in generating stations working on exposed or energized lines 50 volts or more shall be capable of being reached within 4 minutes by cardiopulmonary resuscitation (CPR) and first aid trained personnel.

a. Use of AEDs for the Public. Funds shall not be expended for placement of AEDs in parks/recreational facilities or in Ranger vehicles with the intent of providing advanced life support services to the public.

The primary purpose of purchasing AEDs will be to assist government employees working in high-risk occupations in remote locations. This does not negate the use of AEDs on contractors or visitors who may benefit from such care if they are within the response time of an AED.

b. Training. Operators of AEDs shall be designated in writing and trained in basic life support (BLS) and CPR. These designated operators can be both mandated (part

of their duty description) or BLS/CPR-qualified volunteers. The AED users shall receive training and refresher training in the use of AEDs in accordance with standards established by the local AED Medical Director (see paragraph 4.c.).

c. Standard Operating Procedures (SOP). Each operating Project or functional unit equipped with an AED shall develop a written SOP. The SOP shall:

(1) Designate a site AED coordinator.

(2) State the name of the local AED Medical Director.

(3) List those personnel who have received training on AEDs and who are on the AED responder team.

(4) State the location of each AED (the goal is a 3-minute or less response time).

(5) Describe the maintenance requirements and frequency of the AED.

d. Liability. All states within the District have Good Samaritan laws granting immunity to Good Samaritans. The Good Samaritan law covers employees providing emergency care within the scope of their training. The immunity provisions in regards to using AEDs are limited as follow:

(1) Individuals using the AED must have received training prior to use of the AED.

(2) The person(s) using the AED must, as soon as possible, call 911 or other emergency numbers.

(3) The AED must be maintained and tested as required by the manufacturer.

(4) General direction over the AED must be under the guidance of a licensed physician, designated as the AED Medical Director. The person(s) who acquires and maintains the AED must be trained in CPR. In addition, such person(s) must have contacted at least one local emergency medical service provider serving the area where the equipment is to be used and advised them of the location of the AED.

APPENDIX E

BLOODBORNE PATHOGENS PROTECTION

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BLOODBORNE PATHOGENS PROTECTION

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APPENDIX E

BLOODBORNE PATHOGENS PROTECTION

1. PURPOSE. This appendix establishes procedures to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) for preventing transmission of hepatitis B virus (HBV) or human immunodeficiency virus (HIV), and guidelines to follow if exposure is suspected or occurs.

2. APPLICABILITY. This appendix is applicable to all District elements where employees are potentially exposed to HBV or HIV.

3. REQUIRED REFERENCES. Title 29, Code of Federal Regulation, Part 1910.1030, *Occupational Safety and Health Standards, Bloodborne Pathogens.*

4. UNIVERSAL PRECAUTIONS. In order to prevent transmission of infectious agents, it is imperative that universal precautions be followed whenever there is a possibility of exposure to blood and body fluids. See annex A for barrier precautions to minimize exposure to HBV and HIV.

5. EXPOSURE REPORTING. Needle sticks and any exposure to blood or body fluids into the mucous membranes, especially those where no barrier precautions were used or available, must be reported immediately to supervisors who in turn should notify the Safety and Occupational Health Office (SO).

6. MEDICAL COUNSELING. Medical counseling will be provided for all workers tested positive for HBV or HIV through the Employee Assistance Program.

7. EMPLOYEE CLASSIFICATION.

a. As the first step in determining what actions are required to protect worker health, the working conditions, and specific tasks that workers are expected to encounter as a consequence of employment will be evaluated by supervisors using the form located in annex B. Each employee's position will be classified and the employee will be informed of the following:

(1) The risk of acquiring HBV and HIV.

(2) The availability of hepatitis B (HB) vaccine for employees who may be exposed to bloodborne pathogens as a result of performing their official duties. Note: the employer will provide HB vaccines to employees at risk of exposure. Routine titer tests are not provided at Government expense unless there is a suspected or known exposure. Those employees with low a titer test will receive a booster vaccine at Government expense.

(3) Policies outlined in this appendix, particularly those for universal precautions and safe disposal of sharps and other waste visibly contaminated with blood or body fluids (see annexes C and D).

b. The forms in annexes B and C will be completed in triplicate. The original copy will be sent to the SO for review. The duplicate is to be kept in the supervisor's files, and the third copy given to the employee.

c. After review by the SO, the original form will be forwarded to the Civilian Personnel Advisory Center (CPAC) for placement in the employee Official Medical File (OMF).

d. Each newly hired employee or any employee transferring to a new position will be trained by the employee's supervisor during orientation.

8. TRAINING. Initial and annual training programs will be established for all employees who perform Category I and/or Category II tasks as outlined in annex B. No worker should engage in any Category I and/or Category II task before receiving training. The training program must include:

a. Standard operating procedures (SOPs) pertaining to the required Category I and/or Category II tasks.

b. Transmission modes of HBV and HIV.

c. Types of protective clothing and equipment generally appropriate for Category I and/or Category II tasks, and basis for selection of clothing and equipment.

d. Appropriate actions to take and persons to contact if unplanned Category I or Category II tasks are encountered.

e. Requirements for work practices and protective equipment specified in written SOPs covering tasks to be performed.

f. Access to and use of personal protective equipment (see appendix R).

g. Proper disposal of contaminated clothing and/or equipment.

h. Corrective actions to take in the event of spills or personal exposure to fluids or tissues and the appropriate reporting procedures.

9. WHAT TO DO IF AN EXPOSURE INCIDENT OCCURS. A post-exposure medical evaluation and follow-up must be made available **immediately** for employees who have had an exposure incident (*i.e.*, the employee will be sent to the doctor). Again, an exposure incident means a specific contact (eye, mouth, mucous membrane, non-intact

skin, or parenteral) with potentially contaminated blood or body fluids. At a minimum, the evaluation and follow-up must, at least, include the following elements:

a. Document the routes of exposure and how exposure occurred.

b. Identify and document the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law.

c. Obtain consent and test source individual's blood as soon as possible to determine HIV and HBV infectivity and document the source's blood test results. If consent is not obtained, the employer must show that legally required consent could not be obtained. Where consent is not required by law, the source individual's blood, if available, should be tested and the results documented.

d. If the source individual is known to be infected with either HIV or HBV, testing need not be repeated to determine the known infectivity.

e. Provide the exposed employee with the source individual's test results and information about applicable disclosure laws and regulations concerning the source identity and infectious status.

f. After obtaining consent, collect exposed employee's blood as soon as feasible after the exposure incident and test blood for HBV and HIV serological status.

g. If the employee does not give consent for HIV serological testing during the collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days.

h. Provide HBV and HIV serological testing, counseling, and safe and effective post-exposure prophylaxis following the current recommendations of the U.S. Public Health Service.

i. Post - Exposure Evaluation. If an exposure incident occurs, the employer must give the health care professional responsible for the employee's hepatitis B vaccination, post-exposure evaluation, and follow-up a copy of the Occupational Safety and Health Administration standard. The employer also must provide to the health care professional evaluating the employee after an exposure incident, a description of the employee's job duties relevant to the exposure incident, documentation of the route(s) of exposure, circumstances of exposure, results of the source individual's blood tests, if available, and all relevant employee medical records, including vaccination status. All diagnoses must remain confidential.

10. RECORDS. Records will be maintained and documented with the following information:

a. Classification actions.

b. Training records indicating dates, names of persons conducting training, names of persons receiving training, and content of training sessions.

c. Observations of compliance with work practices and use of protective equipment and clothing.

d. Conditions associated with each incident of mucous membrane or other exposure to body fluids or tissue, and a description of any corrective measures taken to prevent a recurrence or other similar exposure.

e. Vaccination records of personnel classified as doing Category I and/or Category II tasks.

f. Declination forms signed by personnel who, although classified as doing Category I and/or Category II tasks, have chosen not to receive the hepatitis B vaccine.

11. PERSONNEL RECORDS. The CPAC will place the necessary documentation in the personnel records and will maintain a copy of these records for the length of employment plus 30 years.

APPENDIX E

BLOODBORNE PATHOGENS PROTECTION

ANNEX A

Universal Precautions to Minimize Exposure to HBV and HIV

APPENDIX E, ANNEX A

UNIVERSAL PRECAUTIONS TO MINIMIZE EXPOSURE TO HBV AND HIV

Medical history and examination cannot reliably identify all persons infected with HBV, HIV, or other bloodborne pathogens. Therefore, all blood and body fluids from all persons will be considered potentially infectious. Employees will rigorously adhere to the following infection control precautions to minimize exposure to blood and body fluids. Use appropriate barrier precautions when contact with blood/body fluids is anticipated.

1. Gloves will be worn for touching blood/body fluids, mucous membranes or non-intact skin, and items or surfaces soiled with bloody body fluids. High-risk body fluids include wound drainage, semen, vaginal secretions, and breast milk. Body fluids of lesser risk include urine, feces, saliva, and vomitus. If the fluid cannot be identified, it will be assumed to be of high risk.

2. Masks and protective eyewear/face shield will be worn during procedures that may splatter blood/body fluids on an employee's mouth, nose, or eyes.

3. Ambulance bags or similar shielding devices must be readily available and used for resuscitation. Each cardiopulmonary resuscitation provider will be furnished a device for personal use in order that familiarity with the device can be established. A good fact-to-bag seal is easier to achieve with a familiar device; therefore, assuring the device is used properly.

4. Wash hands or other skin surfaces immediately if soiled with blood/body fluids. Wash hands thoroughly with soap and water or a waterless disinfectant hand cleaner immediately after gloves are removed.

5. Employees with exudative lesions (draining cuts or sores) or chapped or abraded skin should not provide emergency care or handle contaminated waste or items until the condition is resolved.

6. Remove visible material and clean the decontaminated surfaces soiled with blood/body fluids with a fresh chlorine bleach solution (1 part bleach to 10 parts water).

7. As soon as is practicable, remove and place clothing saturated with blood/body fluids in a plastic bag. Take a shower before donning fresh clothing. Wash soiled clothing at home using hot water and usual detergent. Clothing should not be handled during placement into the washer, and washed separate from other laundry items.

APPENDIX E

BLOODBORNE PATHOGENS PROTECTION

ANNEX B

Risk of Exposure to HBV or HIV
Sample Format

APPENDIX E, ANNEX B

RISK OF EXPOSURE TO HBV OR HIV
SAMPLE FORMAT

Employee Name: _____

Job Title: _____

Location (Office Symbol): _____

1. Category I - The employee performs tasks involving an inherent potential for mucous membrane or skin contact with blood, body fluids, or tissues or a potential for spills or splashes. Universal precautions should be applied for all procedures when it is likely that the employee will have contact with blood or body fluids to prevent transmission of bloodborne pathogens. HB vaccine is highly recommended for these employees.

2. Category II - The employee performs tasks involving no exposure to blood, body fluids, or tissues during the normal work routine, but the employee may be required to perform unplanned Category I tasks. Universal precautions should be used to perform any Category I procedures. HB vaccine is recommended for these employees.

3. Category III - The employee performs tasks involving no exposure to blood, body fluids, or tissues during the normal work routine. No special precautions are necessary to prevent transmission of bloodborne pathogens.

4. The employee's position involves the following work-related tasks:

	I Routine Task	II May be Required	III Never Done
Administers first aid to accident victims			
Applies dressing or bandages to wounds			
Administers mouth-to-mouth resuscitation			
Cleans or performs maintenance on items or equipment which may be contaminated with potentially infectious materials			
Picks up or processes waste which may contain items contaminated by blood or body fluids			

5. I have read the above information and have had an opportunity to provide additional information and ask questions. I understand I may obtain further information about policies and procedures to minimize the risk of transmission of HBV/HIV from the bloodborne pathogen program, or by contacting the Safety and Occupational Health Office.

Employee's Signature _____Date_____

Supervisor's Signature_____Date_____

APPENDIX E

BLOODBORNE PATHOGENS PROTECTION

ANNEX C

HBV Information
Sample Format

APPENDIX E, ANNEX C
HBV INFORMATION
SAMPLE FORMAT

Employee Name_____ Title_____

Location _____

1. Hepatitis B is a viral infection caused by the hepatitis B virus (HBV) that causes death in 12 percent of patients. Most people with hepatitis B recover completely, but approximately 5-10 percent become chronic carriers of the virus. Most of these people have no symptoms, but can continue to transmit the disease to others. Some may develop chronic active hepatitis and cirrhosis. HBV also appears to be a causative factor in the development of liver cancer. Thus, immunization against Hepatitis B can prevent acute hepatitis and reduce sickness and death from chronic active hepatitis, cirrhosis, and liver cancer.

2. The hepatitis B vaccine is a recombinant vaccine derived from yeast cells. A high percentage of healthy people who receive three doses of vaccine achieve protection against hepatitis B infection. Full immunization requires three doses of vaccine over a 6-month period, although some persons may not develop immunity even after three doses. The vaccine is given in the upper arm in the deltoid muscle. There is no evidence the vaccine has ever caused hepatitis B or acquired immunodeficiency (AIDS); however, persons who have been infected with HBV prior to receiving the vaccine may go on to develop clinical hepatitis, in spite of immunization. The duration of immunity is unknown at this time, but is probably long-term.

3. Persons who have a known hypersensitivity to yeast should not receive this vaccine. The vaccine is also not recommended for pregnant women or nursing mothers.

4. Very few adverse reactions have been recorded. The most typically reported reactions are local site soreness, swelling, and tenderness. Some other reactions reported are nausea, vomiting, abdominal pain/cramps, headache, lightheadedness, fatigue, and weakness. There have been no reported deaths associated with this vaccine.

ACCEPTANCE: I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring HBV infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. I wish to receive the hepatitis B vaccine.

Employee's Signature _____ Date _____

Supervisor's Signature_____ Date_____

DECLINATION: I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring HBV infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee's Signature _____ Date _____

Supervisor's Signature_____ Date_____

APPENDIX E

BLOODBORNE PATHOGENS PROTECTION

ANNEX D

Safe Disposal of Sharps and Other Contaminated Medical Waste

APPENDIX E, ANNEX D

SAFE DISPOSAL OF SHARPS AND OTHER CONTAMINATED MEDICAL WASTE

Distribute these disposal tips to all personnel. This information will also be placed in areas easily accessible to patrons.

1. Pick up needles, syringes, lancets, or other sharps by the syringe or handle end with pliers. Items that cannot be grasped in this manner will be carefully swept into a dustpan.

2. Do not attempt to remove the sharp from the holder.

3. Do not remove, bend, clip, or recap needles.

4. Place needles, syringes, lancets, and other sharp objects in a hard plastic or metal container with a screw-on or tightly secured lid. A plastic bleach or fabric softener bottle is suitable for this purpose. A coffee can will do, but the plastic lid will be reinforced with heavy-duty tape before use. To prevent accidental contact, do not hold the container while discarding the sharp object. Place the closed container into the regular trash receptacle for disposal.

5. Do not put sharp objects in any container that will be recycled or returned to a store.

6. Do not use glass or clear plastic containers.

7. Keep all containers with sharp objects out of the reach of children.

8. Soiled bandages, gloves, and other items will be placed in a securely fastened plastic bag. The bag will then be placed into a second plastic bag and securely fastened before discarding with other trash.

9. Do not compact trash.

10. Carry bags away from the body so as not to brush against any sharp objects that may protrude from the bag.

APPENDIX F

COLLATERAL DUTY SAFETY POSITIONS

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COLLATERAL DUTY SAFETY POSITIONS

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APPENDIX F

COLLATERAL DUTY SAFETY POSITIONS

1. PURPOSE. This appendix provides guidance to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) on the duties, responsibilities, and technical development of collateral duty safety persons.

2. APPLICABILITY. This appendix applies to all operating projects within the District.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1960.58, *Training of Collateral Duty Safety and Health Personnel and Committee Members*.

b. Engineering Regulation (ER) 1130-2-550, *Recreation Operations and Maintenance Policies*.

c. Engineer Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

d. Occupational Safety and Health Administration (OSHA) Training Institute, OSHA 600, *Collateral Duty Course for Other Federal Agencies.*

4. RESPONSIBILITIES. The responsibilities, listed below, vary according to position.

a. It is the responsibility of the Safety and Occupational Health Office (SO) to provide technical assistance to the project safety officer on request and to inform the project manager and project safety officer of training opportunities.

b. It is the responsibility of the Operations Project Manager to appoint a project safety officer from the project staff and ensure the project safety officer receives adequate training. Minimum training is the OSHA Training Institute, OSHA 600, *Collateral Duty Course for Other Federal Agencies*, or comparable. It is also the responsibility of the Operations Project Manager to establish a written list of duties for the project safety officer.

c. The Environmental Resources Specialist is responsible for the following.

(1) Serve as the Project Manager's primary resource for safety and occupational health issues.

(2) Be the program point of contact for the project hazard communication program.

(3) Coordinate and schedule safety training, with vendors, supervisors, and project managers.

(4) Act as liaison between the SO and project managers.

(5) Provide oversight for construction contract safety on the project when the Construction Quality Assurance Representative is not on site on a daily basis.

(6) Provide safety training and safety indoctrinations to new hires, including temporary employees.

(7) Conduct periodic inspections of respirators.

(8) Conduct safety inspections, including the observation of work practices.

(9) Chair safety meetings and/or safety committee meetings.

(10) Assist with the development of Position and Activity Hazard Analyses (see appendix S).

(11) Notify the industrial hygienist of upcoming work that requires monitoring.

(12) Prepare responses to safety inspection reports.

(13) Conduct monitoring (air and/or noise).

(14) Review accident reports for accuracy and completeness.

(15) Participate as a member or the chairperson of the ergonomics committee. This is often comprised of the same members as the safety committee.

(16) Coordinate medical surveillance examinations with workers and the Administrative Officer, to include industrial hygiene exposure surveys or health history updates when necessary.

(17) Review workers compensation claims for their project.

(18) Assist or provide technical support in all accident investigations within their jurisdiction.

d. The Construction Division will be responsible for the following.

(1) Construction Project Engineers and Quality Assurance representatives will provide oversight of contractor safety programs and are responsible

for informing the contractor of any safety deficiencies or non-compliance with the contract safety requirements.

(2) Document safety comments on daily construction reports.

(3) Discuss safety with the contractor before beginning of work at the pre-work conference.

(4) Review contractor safety submittals.

(5) Nominate contractors with outstanding safety programs, safety innovations, or safety records for the Commander's Contractor Safety Award (see appendix H).

e. There are a variety of other individuals who perform collateral duty safety work. These include but not limited to Park Rangers, who are responsible for public safety, and Dive Inspectors, who are responsible for Diving Safety. All individuals performing collateral duty safety work should have these duties specified in their job description and should be rated on their performance in their annual performance review.

APPENDIX G

CONFINED SPACE ENTRY

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CONFINED SPACE ENTRY

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APPENDIX G

CONFINED SPACE ENTRY

1. PURPOSE. This appendix prescribes procedures to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) for safe entry into and work conducted in confined spaces in accordance with 29 Code of Federal Regulation (CFR) 1910.146, *Permit Required Confined Spaces*.

2. APPLICABILITY. These procedures apply to all District employees.

3. REQUIRED REFERENCES.

a. 29 CFR 1910.146, *Occupational Safety and Health Standards, Permit-required confined spaces*.

b. 29 CFR 1910.1000, *Occupational Safety and Health Standards, Air Contaminants*.

c. Engineer Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. The Safety and Occupational Health Office (SO) shall be responsible for the following:

(1) Track confined space entry training.

(2) Maintain a master list of all confined spaces in the District.

(3) Assist operating project manager/engineers in evaluating the hazards of confined spaces.

(4) Ensure that the procedures in place at each operating project are reviewed annually.

b. Project Manager/Division Chief/Branch Chief shall be responsible for the following:

(1) Develop standard operating procedures (SOP) for confined space entry at their project (see annex for SOP).

(2) Ensure that a competent person evaluates all confined spaces to determine whether the confined space should be classified as a permit-required confined space.

(3) Maintain a comprehensive list of all permit-required confined spaces and provide a copy to the SO.

(4) Ensure that monitoring data is collected and maintained for each confined space. Atmospheric tests made shall include time, date, permissible exposure limit concentrations, employees' names, description, and location of the space.

(5) Ensure that all affected employees attend confined space training, commensurate with their duties.

(6) Maintain training records, for entrants, attendants, and rescue personnel.

c. Employees shall be responsible for the following:

(1) Attend confined space entry training, annually.

(2) Respect permit required confined space signs.

(3) Be aware of and comply with confined space entry procedures.

5. DEFINITIONS. Definitions for term used in this appendix are as follow:

a. Atmosphere. Refers to the gases, vapors, mists, fumes, or dusts within a confined space.

b. Attendant. An individual stationed outside one or more permit-required confined spaces that monitors the authorized entrants and who performs all the attendant's duties as assigned in the Confined Space Entry Program.

c. Authorized Entrant. An employee who has been authorized by the employer to enter a permit-required space is an authorized entrant. As a minimum, authorized entrants must be trained in the hazards of confined space entry.

d. Confined space. Refers to any space that:

(1) Is large enough and so configured that an employee can bodily enter and perform assigned work?

(2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).

(3) Is not designed for continuous employee occupancy.

e. Hazardous atmosphere. An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (unaided escape), injury, or acute illness from one or more of the following causes:

(1) Flammable gas, vapor, or mist in excess of 10 percent of its Lower Flammable Limit (LFL).

(2) Airborne combustible dust at a concentration that meets or exceeds its LFL.

(3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.

(4) Atmospheric concentration of any substance for which a dose or a Permissible Exposure Limit (PEL) is published in 29 CFR 1910.1000, *Air Contaminants,* which could result in employee exposure in excess of its dose or PEL. **(Note: An atmospheric substance that is not capable of causing death, incapacitation, and impairment of ability to self rescue, injury, or acute illness due to its health effects is not covered by this provision.)**

(5) Any other atmospheric condition that is immediately dangerous to life or health. (Note: For air contaminants for which Occupational Safety and Health Administration has not determined a dose or PEL, other sources such as material safety data sheets may be used).

f. Lower Flammable Limit (LFL). Refers to the minimum concentration of a combustible gas or vapor in air (usually expressed in percent by volume at sea level) that will ignite if an ignition source (sufficient ignition energy) is present.

g. Non-Permit Confined Space. A confined space that does not contain or, with respect to atmospheric hazards, have potential to contain any hazard capable of causing death or serious physical harm.

h. Oxygen Deficiency. Refers to an atmosphere with less than 19.5 percent oxygen by volume. Normal air at sea level contains approximately 21 percent oxygen by volume.

i. Oxygen Enriched. Refers to an atmosphere with greater than 23.5 percent oxygen by volume.

j. Permit-Required Confined Space. A confined space that has one or more of the following characteristics:

(1) Contains or has a potential to contain a hazardous atmosphere (see definition above).

(2) Contains a material that has the potential for engulfing an entrant.

(3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller section.

(4) Contains any other recognized serious safety or health hazard.

k. Prohibited Condition. A prohibited condition is a condition in a permit space that is not allowed by the permit during the period for which the permit is authorized.

l. Qualified Person. A person designated by the Project Engineer or their designee, in writing, as capable (by education and/or specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control and/or protective action to ensure worker safety.

m. Rescue Service. The personnel designated to rescue employees from permit spaces.

n. Respirator (approved). A device that is designed to protect the wearer from inhalation of harmful atmospheres and has been approved by the Bureau of Mines, the National Institute for Occupational Safety and Health, and Mine Safety and Health Administration.

o. Retrieval System. The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

APPENDIX G

CONFINED SPACE ENTRY

ANNEX A

STANDARD OPERATING PROCEDURE

Appendix G
Confined Space Entry

Annex A - Standard Operating Procedures

G-1 PURPOSE. The purpose of this annex is to establish the minimum requirements [standard operating procedures (SOP)] for safely entering confined spaces. This SOP is intended to meet the Occupational Safety and Health Administration requirement for a written program as identified in 29 Code of Federal Regulations (CFR) 1910.146(c)(4), and Engineer Manual (EM) 385-1-1, section 06.1.05.

G-2. SCOPE. This SOP applies to all operations where US Army Corps of Engineers (Corps) employees, and/or contractor employees must enter confined spaces at all Walla Walla District (District) facilities. **Note:** Contractor employees must, at a minimum, meet Corps standards, but must also comply with State standards which may be more stringent than Federal or Corps standards.

G-3. PERSONNEL AND RESPONSIBILITIES.

a. Supervisors will ensure all confined space entry operations are performed in accordance with this SOP. Only personnel in a supervisor position may serve as the entry supervisor.

b. Authorized Entrants are responsible for:

(1) Knowing the hazards that may be encountered during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

(2) Properly using equipment needed to safely enter confined spaces and perform the necessary task.

(3) Communicating with the attendant, as necessary, to enable the attendant to monitor entrant status and alert entrants of the need to evacuate the space should a prohibited condition develop.

(4) Exiting permit spaces as quickly as possible whenever; the attendant gives an order to evacuate, recognizes warning signs or symptoms of dangerous conditions, or receives an alarm from a monitoring device.

(5) Reviewing the permit and Activity Hazard Analysis prior to entering any confined space.

c. Attendants are responsible for:

(1) Knowing the hazards that may be encountered during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

(2) Being aware of possible behavioral affects of hazardous atmospheres on entrants.

(3) Continuously maintaining an accurate count of entrants in the permit space and updating the permit as authorized personnel enter and leave the permit space.

(4) Remaining outside the permit space during entry operations.

(5) Communicating with entrants to monitor their status and alerting entrants of the need to evacuate as necessary.

(6) Monitoring activities inside and outside the permit space and ordering entrants to evacuate if prohibited conditions develop. Such conditions may include, but are not limited to:

a. Changes in entrants' behavior that may result from exposure to hazardous atmospheres.

b. Outside conditions that may endanger the entrants by preventing the attendant from effectively performing his/her duties.

(7) Summoning rescue services if assistance is needed by entrants to exit a permit space.

(8) Controlling access to permit spaces and limiting entry to only authorized entrants.

(9) Performing non-entry rescue if needed.

Note: The attendant must not perform any duties/activities that interfere with his/her ability to monitor and protect authorized entrants.

d. Entry Supervisors are responsible for:

(1) Knowing the hazards that may be encountered during entry, including information on the mode, signs or symptoms, and consequences of exposure.

(2) Ensuring that permits comply with this program, that all permit-required testing is performed, and that the procedures and equipment required by the permit and AHA are in place prior to endorsing the permit and allowing entry.

(3) Terminating entry and canceling the permit at the end of their shift, once operations are completed, the space is reclassified as non-permit, or a prohibited condition develops.

(4) Verifying that rescue services are available, and that a means for summoning them is in place.

(5) Preventing unauthorized individuals from entering the permit space.

(6) Ensuring entry conditions remain acceptable throughout operations.

(7) Only individuals in supervisory positions may serve in the capacity of entry supervisor.

e. The Rescue Team is responsible for:

(1) Understanding the confined space standard, the potential hazards associated with confined spaces at the project, and proper use of personal protective equipment (PPE) and rescue equipment necessary for performing permit space rescues.

(2) Efficiently carrying out rescues as necessary. To establish and maintain proficiency, rescue teams are encouraged to conduct a minimum of one rescue drill annually. The drill should involve removing a person from a permit required confined space (PRCS) or areas that accurately simulate a permit space.

(3) Being trained and certified in basic first-aid, cardio pulmonary resuscitation (CPR), and bloodborne pathogens and all specialized equipment they may be required to use.

f. Environmental Compliance Coordinator is responsible for:

(1) Working with Supervisors to conduct and/or coordinate the training required by this SOP.

(2) Perform, document, and maintain the initial confined space survey (see figure G-1 for example) and update the inventory as needed (see figure G-2 for example).

(3) Conducting the annual SOP review. The SOP review is scheduled to be conducted in January of each year. The SOP review consists of reviewing the previous calendar years canceled permits and evaluating confined spaces recently identified.

(4) Developing and updating the facility confined space written SOP.

(5) Train personnel on the Confined Space Program or coordinate training through qualified vendors or in-house trainers.

G-4. TRAINING.

a. Personnel who participate in PRCS entry operations shall receive training on this SOP by a training vendor qualified in confined space training or designated project personnel who is qualified as a trainer. The training will cover the following:

(1) Identifying confined spaces and how they are classified.

(2) An understanding of the precautions necessary to safely enter and perform duties in confined spaces.

(3) Roles and responsibilities of those involved in a PRCS entry (entry supervisor, attendant, entrant, and rescue).

(4) The permit and permit system.

(5) Proper use of tools and equipment necessary to safely perform PRCS entry operations (air monitoring, tripod, harness, *etc.*).

(6) Potential hazards of Project confined spaces.

b. Formal SOP training shall be documented by project administrative staff and the Environmental Compliance Coordinator (ECC).

G-5. PREPARATION, ISSUANCE, USE, AND CANCELLATION OF ENTRY PERMITS.

a. The Job Lead will request a Permit (sequentially numbered) from Operations.

(1) Entry permits will be prepared by the Job Lead with the assistance of authorized entrants and attendants. The potential hazards of the space to be entered and the control measures implemented to establish acceptable entry conditions will be verified and documented on the permit.

(2) The permit will identify potential hazards associated with the space as well as hazards that may be introduced to the space during the entry (paint vapors, flammable chemicals, welding, *etc*.).

Note: See figure G-2 for Project Confined Space Inventory (each project will have to submit their own within this plan. A copy of the complete survey (see figures G-3 and G-4 for samples) can be found in this plan and the Environmental Coordinators Office.

b. Once the space has been opened and safe entry conditions have been established, the job lead will request authorization from the entry supervisor to enter the space and perform the assigned activity.

c. Once the entry supervisor signs the permit, the job lead and entrants may enter the space and perform the assigned task. The completed permit shall be reviewed by authorized entrants prior to entering the space and shall be posted in a conspicuous location near the PRCS entrance during the entire operation.

d. The permit duration may not exceed the time required to complete the assigned task identified on the permit or one work shift, whichever is shorter.

e. The entry supervisor will cancel the entry permit when (see figure G-2):

(1) The space is safe to reclassify as a non-permit space (no potential for an atmospheric hazard);

(2) Entry operations under the permit are safely completed; or

(3) A condition that is not allowed under the entry permit develops in or near the permit space.

f. Authorized entrants, the entry supervisor, and the attendant will document on the canceled permit any problems encountered during the entry operation so appropriate revisions to the permit space program can be made.

g. Canceled permits shall be filed with Operations and a copy forwarded to the Environmental Compliance Coordinator (ECC). The ECC will review canceled permits at the end of the calendar year. Once a canceled permit has undergone this review, it may be discarded.

G-6. PERMIT-REQUIRED CONFINED SPACE ENTRY (Atmospheric and other physical hazards exist).

a. Prior to allowing entry into a PRCS, the entry supervisor shall verify the measures taken to establish and maintain acceptable entry conditions within the permit space. Once the required controls are in place and acceptable entry conditions have been established, the entry supervisor may sign the permit and authorize entry.

b. The Permit form includes the following information:

(1) The space to be entered.

(2) The purpose of the entry.

(3) The date and duration of the permit.

(4) The names of authorized entrants who are inside the space (roster, see figure G-5. for example).

(5) The name of the attendant.

(6) The name and signature of the entry supervisor.

(7) Anticipated hazards associated with the space.

(8) Control measures necessary to maintain acceptable entry conditions.

(9) Acceptable entry conditions.

(10) Results of initial and periodic tests that have been performed to monitor entry conditions. The name(s) of the individual(s) performing the tests must also be listed.

(11) Available rescue services and how they may be contacted.

(12) Communication procedures to be used by the authorized entrants and the attendant.

(13) Equipment used for PPE, testing, communications, rescue, ventilation, *etc*.

(14) Additional permits (hot work).

G-7. ENTRY INTO PRCS CONTAINING ONLY ATMOSPHERIC HAZARDS.

a. When permit spaces contain only an atmospheric hazard that can be effectively controlled through ventilation, an Alternate Entry Procedure may be utilized. The alternate procedure allows authorized entrants into the space and does not require rescue services or an attendant. The permit will be used and filed in accordance with procedures identified in section G-5 of this document.

b. Prior to entering a confined space under this procedure, all atmospheric hazards must be controlled and acceptable entry conditions established. The atmosphere must be tested with a calibrated, direct reading instrument that is capable of identifying the known or anticipated atmospheric hazards.

c. When the alternate entry procedure is utilized, the space must be:

(1) Continuously ventilated,

(2) Continuously monitored with a calibrated, direct reading air monitoring device during entry, and

(3) Barricaded to prevent unauthorized entry.

c. The space must be evacuated if:

(1) The ventilation system fails to function properly,

(2) The calibrated direct reading air monitoring device fails to function properly, or

(3) The air monitoring device produces an alarm.

d. Activity Hazard Analyses will be developed for all operations utilizing this method of confined space entry. The atmospheric conditions will be recorded on the permit prior to entering the space.

e. Should an unsafe condition develop during the entry, the space will be evacuated and the hazard eliminated and/or controlled.

G-8. NON-PERMIT CONFINED SPACES.

a. Permit required confined spaces may be reclassified as non-permit spaces provided the space does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death, or serious physical harm. All other physical hazards must be eliminated. The permit form is set up to allow the Entry Supervisor to reclassify as appropriate.

Note: Atmospheric hazards controlled through ventilation are not considered to be eliminated. Physical hazards that are locked out, removed, *etc*., are considered to be eliminated.

b. An activity hazard analysis must be developed for confined space entry operations conducted under this method.

c. Should a hazardous condition develop during the entry, the space will be evacuated, the condition evaluated, and additional controls implemented as required.

G-9. CONTRACTOR ACTIVITY.

a. Prior to allowing contractor personnel to enter permit spaces, the Corps contract representative will:

(1) Provide the contractor representative with a copy of this SOP.

(2) Ensure the contractor representative is aware of potential hazards.

(3) Inform the contractor representative that operations involving entry must comply with Federal requirements.

(4) Inform the contractor representative of the precautions and procedures utilized by Corps employees.

(5) Ensure that operations are coordinated such that Project operations do not interfere with contractor operations and/or adversely affect the conditions in the space to be entered by the contractor.

(6) Ensure permit entry operations are reviewed at the conclusion of the contract to identify any hazards not previously identified.

b. Contractors shall:

(1) Develop a written confined space entry program and implement confined space entry procedures in accordance with the Occupational Safety and Health Administration regulations (29 CFR 1910.146), the Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1), and appropriate state program.

(2) Classify confined spaces prior to entry using the decision logic provided in the references cited in previous paragraph as well as decision logic required by appropriate state program, which ever is more stringent.

(3) Provide and/or arrange for rescue services when it is determined permit required confined spaces will be entered on the project.

G-10. AIR MONITORING EQUIPMENT.

a. Direct reading air monitoring equipment will be utilized to detect hazardous atmospheres prior to and during confined space entry.

b. Only air monitoring equipment manufactured by (ID manufacturer) is approved for use by Project personnel.

c. A designated employee or group will be responsible for calibrating the air monitoring equipment on a monthly basis and maintaining a calibration log.

d. A list of air monitoring equipment will be attached to the Project Confined Space SOP, (see figure G-5 for sample).

G-11. ANNUAL REVIEW OF SOP.

a. The ECC shall review canceled permits, program requirements, and the effectiveness of this SOP annually.

b. This SOP review is scheduled to be performed in January of each year.

G-12. DEFINITIONS.

a. **Acceptable Entry Conditions** means the conditions that must exist in a permit space to allow entry and ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

b. **Attendant** - The individual assigned to monitor the conditions inside and outside of a permit required confined space and warn entrants of prohibited conditions.

c. **Authorized Entrant** means an employee who is authorized by the employer to enter a permit space.

d. **Confined Space** - an enclosed area that meets each of the following criteria:

(1) Large enough and so configured that an employee can bodily enter and perform work;

(2) Has limited or restricted means of entry or exit;

(3) Is not designed for continuous employee occupancy.

e. **Entry** means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

f. **Entry Supervisor** means the person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry when prohibited conditions develop.

g. **Non-permit Confined Space** means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

h. **Permit Required Confined Space (PRCS)** - is an enclosed area that meets all the criteria to be classified as a confined space and has one or more of the following characteristics:

(1) Contains or has potential to contain a hazardous atmosphere.

(2) Contains a material that has the potential for engulfing an entrant.

(3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section.

(4) Contains any other serious safety or health hazard (chemical, temperature, wildlife, insects, mechanical, *etc.*).

i. **Prohibited Condition** means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

j. **Rescue Service** means the personnel designated to rescue employees from permit spaces.

G-1. Example of Confined Space Survey

CONFINED SPACE SURVEY

LOCATION OF SPACE: **CONFINED SPACE #**

DATE OF SURVEY: **PERMIT REQUIRED: YES NO**

(circle one)

CLASSIFICATION OF SPACE	YES	NO
1. Is the space large enough to enter and perform work?		
2. Does the space have limited means of entry and exit?		
3. Was the space designed for continuous human occupancy?		
4. Does the space meet the definition of a confined space?		
5. Comments		

CLASSIFICATION OF CONFINED SPACE	YES	NO
1. Does the space have the potential to contain a hazardous atmosphere?		
2. Does the space have a configuration such that it might trap or asphyxiate an entrant?		
3. Does the space contain other than serious safety and/or health hazards that may impede self rescue?		
4. Does the space meet the definition of a permit required confined space?		
Comments		

POSSIBLE ATMOSPHERIC HAZARDS
POSSIBLE PHYSICAL/CONTENT HAZARDS
REASONS FOR ENTERING SPACE
NECESSARY CONTROLS
FREQUENCY OF ENTRY
ANNUALLY_____ WEEKLY_____ QUARTERLY_____ DAILY_____ MONTHLY_____ OTHER_____
Is the Alternate Entry Permit Procedure an option for this space? Y N
SURVEY COMPLETED BY:

Figure G-2. Example: Confined Space Inventory.

Facility Confined Spaces Which Need to be Entered
Lower Monumental

The spaces below are identified as confined spaces or Permit Required Confined Spaces based on entry for inspection purposes only. To enter any of the spaces listed below for purposes other than inspection may cause a confined space to be reclassified to a Permit Required Confined Space. This emphasizes the need to perform an Activity Hazard Analysis and proper space classification (Figure 6-1, EM 385-1-1) for each confined space entry.

Number	Space		Permit Required	Hazards
		Example information below		
1.	LoMo	#1 Governor Sump	Y	Low O_2
2.	LoMo			
3.	LoMo	#3 Governor Sump	Y	Low O_2
4.	LoMo	#1 Governor Pressure Tank	Y	Low O_2
5.	LoMo	#2 Governor Pressure Tank	Y	Low O_2
6.	LoMo	#3 Governor Pressure Tank	Y	Low O_2
7.	LoMo	#1 Draft Tube	N	
8.	LoMo	#2 Draft Tube	N	
9.	LoMo	#3 Draft Tube	N	
10.	LoMo	#1 Scroll Case & Penstock	N	
11.	LoMo	#2 Scroll Case & Penstock	N	
12.	LoMo	#3 Scroll Case & Penstock	N	
13.	LoMo	#1 Brake Housing	N	
14.	LoMo	#2 Brake Housing	N	
15.	LoMo	#3 Brake Housing	N	
16.	LoMo	#1 Air Housing	N	
17.	LoMo	#2 Air Housing	N	
18.	LoMo	#3 Air Housing	N	
19.	LoMo	#1 Stator Housing	N	
20.	LoMo	#2 Stator Housing	N	
21.	LoMo	#3 Stator Housing	N	
22.	LoMo	Air Compressor Intake Closet	N	
23.	LoMo	Transformer Deck Drainage Pump Sump	N	
24.	LoMo	Drainage Sump	N	
25.	LoMo	Sewage System Sump	N	
26.	LoMo	Unwatering Sump	N	
27.	LoMo	375 Air Compressor Receiver Tank	Y	
28.	LoMo	Powerplant Elevator Pit	N	

Figure G-3. Example: Confined Space Entry Permit.

Confined Space Entry Permit

Facility/Location _____ Date _____
Purpose of Entry _____ Exp. Date _____
Entry Supervisor _____ Attendant _____

Hazard Identification					
Hazard	**Yes**	**No**	**Hazard**	**Yes**	**No**
Atmospheric			Temperature		
Walking/Working Surface			Lighting		
Mechanical			Electrical		
Engulfment			Other:		
Confined Space Entry Checklist					
Method/Equipment	**Yes**	**No**	**Method/Equipment**	**Yes**	**No**
Clearance/Lockout/tagout			GFCI		
Purge/Inert			Communication Equip.		
Ventilated			Barrier/Secure		
Lighting			PPE		
Fire Extinguisher			Hot Work Permit		
Coordinate w/other crews			Air Monitor (calibrated)		
Ladder			Other:		
Rescue Items			First-Aid		

Air Monitoring Instrument Model: _____
Calibration Date: _____ Tester Name: _____

Air Monitoring					**Air Monitoring**				
Time	**O_2%**	**LEL %**	**H_2S (PPM)**	**CO (PPM)**	**Time**	**O_2%**	**LEL%**	**H_2S (PPM)**	**CO (PPM)**
	≤19.5	>10	>5	>15		≤19.5	>10	>5	>15

Standby Personnel Required and Present? _____ Yes _____ N/A

For Rescue and Emergency Services, Notify: _____

Entry Supervisor (Signature) _____
(The above signature indicates acceptable entry conditions have been established and Authorized Personnel may enter the space. Authorized Entrants must be identified on a Roster)

Figure G-4. Example: Permit Cancellation.

Permit Cancellation

This permit is being canceled for the reason indicated below. (Check One box).

	The space has been reclassified as a non-permit confined space. There is no actual or potential atmospheric hazard and all non-atmospheric hazards have been eliminated.
	The operation has been completed safely for the permit period.
	A prohibited condition developed and required evacuation of the space and additional planning to safely accomplish the task.

Comments – All personnel involved in the Permit Required Confined Space entry should review the operation and identify: 1) problems encountered, 2) suggestions for improving similar operation in the future, *etc*. Your comments are encouraged and will bring more value to the annual review of the program.

Entry Supervisor Signature _____ Date _____

Authorized Entrant Roster (Example)

Confined Space _____

Permit Number _____ **Date** _____

Name	Time In	Time Out	Time In	Time Out
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Figure G-5. Specialized Equipment Sample.

Specialized Equipment

1. Air Monitoring Equipment

2. Self Contained Breathing Apparatus

3. Tripod

4. Rescue Basket

5. Etc.

APPENDIX H

CONTRACTORS SAFETY AND HEALTH AWARD PROGRAMS AND CHIEF OF ENGINEERS AWARDS

APPENDIX H

CONTRACTORS SAFETY AND HEALTH AWARD PROGRAMS
AND CHIEF OF ENGINEERS AWARDS

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APPENDIX H

CONTRACTORS SAFETY AND HEALTH AWARD PROGRAMS AND CHIEF OF ENGINEERS AWARDS

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix, prescribes policy and procedures for recognizing contractors for significant achievements in safety or occupational health. Nomination procedures are also provided for the Chief of Engineers Awards.

2. APPLICABILITY. This is applicable District wide.

3. REQUIRED REFERENCES.

a. Department of Defense Instruction 1400.25-m, Section O, Subchapter 451, *Awards*.

b. Engineer Regulation 385-1-94, *Contractor Award for Safe Performance*.

c. Northwestern Division Regulation 385-1-1, Appendix G, *Safety and Occupational Health Award Program for Construction Contractors.*

d. U.S. Army Corps of Engineers, Safety and Occupational Health Office, Operations and Engineering Programs Manager (CESO-O), Memorandum, 26 March 97, Subject: Contractor Awards for Safe Performance - Implementing Guidance.

e. CESO-O, Memorandum, 12 May 97, Subject: Government Awards for Safe Performance - Implementing Guidance.

f. CESO-O, Memorandum, 6 November 97, Subject: Contractor Awards for Safe Performance - Implementing Guidance Update #1.

4. CONTRACTOR AWARD CRITERIA.

a. Each year, Division Commanders may nominate construction contractors for recognition of significant safety and occupational health achievements. Nominations from the District will be coordinated through the District Safety Office. All nominations will be sent to the Corps, Northwestern Division, Safety Office, by 15 January. The Northwestern Division will forward the nominations to Headquarters, U.S. Army Corps of Engineers, Safety Office, by 15 February.

b. Nomination criteria that could be considered include:

(1) Extended number of employee exposure hours without a lost time accident, or an extraordinarily low frequency or severity rate while performing hazardous work.

(2) Demonstrated excellence in management or initiatives of company safety and health programs, as demonstrated by continuing downward trends in the number of accidents, injuries, or illnesses.

(3) Other significant achievements, innovations, or safety measures that improve on the safety, quality, and cost of the job worthy of command recognition.

c. Nominated contractors shall have received an outstanding rating in the safety-rating element of the official performance evaluation, Department of Defense (DD) Form 2626.

d. Nominations shall be a short narrative statement.

5. DISTRICT COMMANDER'S SAFETY AWARD.

a. The District Commander may nominate any construction or service contractor within the District for special recognition. Nominations should be made before or near the close of a contract or milestone period. Nominations will be coordinated through the District Safety Office by submission of a short narrative summary. Any District employee along with the concurrence of his/her supervisor and the appropriate department head may make nominations. Nomination criteria should be based on the elements listed in paragraph 4.

b. The only form of recognition to a contractor or contractor employee will be in the form of a letter prepared by a person with first hand knowledge of the accomplishments. A letter signed by the Division or District Commander will be awarded for extraordinary achievements.

c. Monetary awards can only be given to contractors in rare cases for performance incentives, in which case safety may be a weighing factor in the incentive. There are also Award-Fee type contracts which are also rarely used, but here again safety can and will be used as a weighing factor or metric in the award fee.

6. GOVERNMENT AWARDS FOR SAFE PERFORMANCE.

Each year, the Division Commander may nominate a district within the Division to receive the Chief of Engineers Award for Safe Performance. This award includes the Chief of Engineers Safety Award for Excellence and the Chief of Engineers Safety Award of Honor. Nomination packages shall be submitted as stated in paragraph 4a. Criteria to use for these awards include:

- Safety and Occupational Health Management Evaluation, if evaluated for that given year.

- Achieved compliance with the Annual Accident Prevention Plan.

- Number of government employee fatalities/number of contractor fatalities.

- Number of recordable property damage accidents.

- Civilian lost time injury/illness rate.

- Contractor lost time injury/illness rate.

- Safety and Occupational Health Program unique or new initiatives which add value to an overall improvement for the U.S. Army Corps of Engineers Major Subordinate Commands, Laboratories, or Field Operating Activities.

- Improvement in occupational safety and health for government employees, customers, or the public including environmental and living/working conditions.

APPENDIX I

DIVING OPERATIONS

APPENDIX I

DIVING OPERATIONS

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ANNEXES

APPENDIX I

DIVING OPERATIONS

Chapter 1 - Introduction

1-1. PURPOSE. This U.S. Army Corps of Engineers (Corps) appendix prescribes policy and procedures and defines responsibilities for general safety and equipment requirements in support of underwater diving operations performed by contract personnel for the Walla Walla District. A list of acronyms used in this appendix can be found in annex A.

1-2. APPLICABILITY. This appendix is applicable to the Corps, Walla Walla District.

1-3. SCOPE. This appendix is directed at contract diving operations. Requirements contained in this policy meet or exceed those requirements found in the Engineering Manual (EM) 385-1-1. Dive tables used by contractors shall meet or exceed requirements of the current edition of the U.S. Navy Diving Manuals.

1-4. REQUIRED REFERENCES.

a. 29 Code of Federal Register (CFR) 1910, Subpart T, *Occupational Safety and Health Standards*.

b. EM 385-1-1, U.S. Army Corps of Engineers, *Safety and Health Requirements Manual*, Section 30, Contract Diving Operations.

c. Northwestern Division Register (NWDR) 385-1-1, *Safety and Occupational Health (SOH) Program*, Appendix I, *Diving Operations*.

d. U.S. Army Corps of Engineers, Huntsville Center Pamphlet (CEHNCP) 350-1-1, *The Purple Book, Managers and Supervisors Training Handbook*.

e. Naval Sea Systems Command (NAVSEA) 0994-LP001-0910 and NAVSEA 0994-LP001-0920, *U.S. Navy Diving Manuals*.

f. National Oceanographic and Atmospheric Administration, (NOAA) *Diving Manual,* Fourth Edition, 2001.

g. Washington and Oregon State Occupational Safety and Health Administration (OSHA) Regulations.

h. U.S. Coast Guard (USCG) Diving Regulations.

i. Association of Diving Contractors (ADC) Current Dive Standards.

1-5. GENERAL. The District Diving Coordinator (DDC) (for a description of the DDC duties, see annex B) may elect to implement and enforce more conservative diving requirements depending on conditions and activities. Only with the specific authorization of the DDC will the operational requirements be less than specified in this policy. Deviations or waivers from any procedures in EM 385-1-1 will require written approval from Headquarters, U.S. Army Corps of Engineers (HQUSACE).

1-6. REQUIREMENTS.

a. Operations. Requirements for diving operations are as follow: (for information on the conduct of a dive operation see annex C).

(1) Diving shall not be performed if the work can be reasonably accomplished using other means, such as dewatering, robotic cameras, assembly or fabrication above water, *etc*. Diving shall be conducted using surface supplied air, techniques, and equipment. Diving contractors shall not use Self-Contained Underwater Breathing Apparatus (SCUBA) diving unless specific authorization is given by the DDC.

(2) Prior to commencing diving operations, the contractor's dive supervisor and the Corps Diving Safety Officer (DSO) must agree that all hazards have been identified, and all precautionary measures and equipment clearances have met their satisfaction.

(3) A pre-dive conference will be conducted before any dive activity to discuss the dive mission, any potential hazards, site conditions, *etc*.

(4) Contractors shall collaborate with the on-site government DSO to determine the best course of action during emergencies. Control rooms at operating projects must be notified at once of any medical emergencies or serious injuries, hazardous materials spills, or other imminent hazards. A primary and secondary means of activating the Emergency Medical System shall be identified and placed in the Emergency Management Plan before the start of work.

(5) Divers shall use a ladder to enter and exit the water when operating from a floating barge, vessel, or structure (no jumping). If the distance from the water edge to the deck of the boat, barge, or other surface exceeds 6 feet, an assisted method of lowering and retrieving the diver shall be utilized. The lifting apparatus shall be rated for at least 600 pounds, accommodate two divers, and shall be utilized exclusively for the divers' use.

(6) At the request of the U.S. Government, underwater activities may be required to be videotaped and/or the dive displayed real time on a color monitor. Videotapes shall become the property of the U.S. Government. The DSO, at his/her discretion, may elect to forego taping in repetitive or routine work situations, but may at

any time request video taping of an operation. All diving operations shall have real time underwater video for each diver if not working on the same task, but not for the standby diver. Separate videotaping shall be available for each diver if not working on the same task.

(7) Live-boating shall not be used without specific approval of the DDC.

(8) The DDC or designee will qualify new divers for work within the Walla Walla District. Currently, the approval process is being sub-contracted to the Portland District DDC; however, the Walla Walla District DDC reserves the right to make selections/exceptions, *etc*., within his/her purview. Portland District currently has been tasked with reviewing pre-qualification papers, establishing lists of limited and unlimited divers, and qualifying contractors' eligibility to perform work for the Walla Walla District (see chapter 5 for submittals).

(9) The appointed dive supervisor shall remain topside in overall control of the diving operation. He/She shall not assume the duties of the diver or standby diver. He/She shall rotate into the diver position only if there is another competent, fully qualified appointed dive supervisor on the dive team, and the management transition is clearly made.

(10) The SCUBA diving (primary or standby) shall not be utilized without prior, specific permission by the DDC. The SCUBA diving will only be permitted on no-decompression dives or at depths less than 30 feet. The SCUBA diving will not be permitted when currents exceed 1 knot. The SCUBA diving is also not permitted when visibility is less than 3 feet, and SCUBA divers shall not enter confined or enclosed spaces. The SCUBA divers shall carry reserve air. Note: The SCUBA diving has only been approved on rare occasions and must be approved by the DDC and the Walla Walla District Safety Office.

(11) The standby diver shall be fully suited up with the exception of the diving helmet, bailout tank, fins, and/or weight belt and remain in the immediate vicinity of the dive site. The standby diver may not perform tending duties or other support activities that would compromise his/her responsibility as a standby diver. After the standby diver has checked his/her equipment, he/she may remove his/her diving helmet, weight belt, and bailout bottle so long as it remains in a position for instant deployment. In extremely hot weather, the standby diver may unzip his/her dry suit at the discretion of the DSO on duty. A standby diver may enter the water periodically to cool off, when necessary. Standby divers must remain in close proximity to the dive operation and must be free enough of residual nitrogen to allow diving at the "No Decompression Limits."

(12) When using a diver to set chokers or other rigging to a crane for the purpose of removing debris or lifting equipment, the diver shall be furnished a means of

exiting the water that does not rely on the crane once it has been committed to lifting the load.

(13) Diving in extremely cold conditions may require special considerations that may include: compressors and related equipment shall be located to provide safe access to all parts of the equipment for operation, maintenance, and repair. Safety appliances such as valves, indicating devices, and controlling devices such as regulators shall be constructed, located, and installed so they cannot be rendered inoperative by any means, including the elements. Other diving support systems are to be placed in a heated enclosure and diving personnel furnished with a refuge from the cold to dress. The divers may be required to utilize hot water diving suits to protect them from becoming hypothermic depending on the dive duration, water, and ambient air temperature and decompression schedule.

(14) In the event of an accident, a report shall be made, by both the DSO and independently by the dive supervisor. This report shall be submitted with the dive logs on a daily basis. All accidents shall be reported immediately to the DSO.

(15) Minimum dive team sizes are specified in EM 385-1-1 or as determined by the DDC after considering the diving support systems, the task at hand, weather conditions, dive platform, location, and other factors (see chapter 5).

(16) Dive jobs that require surface decompression as an integral part of the dive operation shall have a trained person, who is not a working diver or dive supervisor, operating the recompression chamber at all times. No further underwater work can be performed unless an additional chamber operator is on-site. In dive jobs where the chamber is required for emergency, first aid, or used for other unplanned decompression events, the diving supervisor may serve as the chamber operator, so long as he/she is specifically trained and experienced in hyperbaric chamber operations. All diving operations for the corresponding dive team shall be suspended during the chamber operations. If all operations are halted, then other divers as well as the dive supervisor may operate the chamber, if qualified to do so. For sites with multiple dive operations in progress, each dive operation shall have its own dive chamber, support equipment, and operator. At no time shall an attending physician, paramedic, or nurse work on a patient in a dive chamber under greater than ambient air pressure, unless they have been previously trained to do so, or unless permitted by the hyperbaric physician or Divers Alert Network (DAN) doctor.

(17) The DAN doctor or hyperbaric certified physician is the preferred medical consultant during dive related disorders or in the event, recompression therapy is required.

(18) The following are the Post Dive Procedures. Divers should be alert to any symptoms developing after a dive and should report immediately to the dive supervisor. Since many divers do not develop symptoms until well after the dive is over,

it is important that they use the buddy system for at least 1 hour after a dive. Dive actives should stop approximately 1 hour before the end of the shift to allow prompt treatment of a decompression symptom. The recompression chamber, recompression chamber compressor, and associated support equipment, shall not be dismantled, moved, or secured until 1 hour after the last diver has exited the water. Divers and the chamber operator must remain within 30 minutes travel time of a chamber for at least 1 hour after surfacing or following surface recompression. Divers shall have a method of immediate communication between the diver, chamber operator, and other competent persons in the event of a decompression symptom. Each member of the dive crew shall carry a contact list of emergency or contact numbers during the dive project. Divers should not attempt to fly in aircraft where the cabin pressure is less than an altitude pressure at 2,300 feet for up to 12 hours following a dive. Exceedance of the 2,300-foot altitude rule may be justified in the event of a medical emergency, but shall be at the discretion of the contacted emergency dive physician (*i.e.,* DAN doctor or hyperbaric physician). Divers shall have sufficient time to acclimatize to the ambient pressure at the dive site and shall be mobilized to the site allowing for adequate rest between mobilizing to the dive site and the start of the dive shift. Diving crew who arrive after an extensive mobilization time and are fatigued will not be allowed to work.

(19) Divers who experience a serious dive-related injury must obtain a medical release from a physician who is certified in hyperbaric medicine before returning to active dive status.

(20) Under no circumstances will free diving (breath holding) techniques such as snorkeling be employed unless the work is in less than 4 feet of water and the diver remains in constant view of a standby snorkeling diver. During this type of operation, a buoyancy compensator will be used. This type of diving would be limited to inspection of swim areas, boat ramps, *etc.* Prior approval for this type of diving must be given by the DDC.

(21) Divers shall be well rested before the start of the dive shift and shall not be allowed to dive if exhibiting signs or symptoms of fatigue or compromised abilities. No diver shall be allowed to dive if exhibiting symptoms of a cold or other respiratory ailment. If any diver is on medication, including over the counter medication, he/she may be required to have a physician's approval to dive. All medications shall be noted in the daily dive log.

b. Equipment. The equipment necessary for Corps dives is as follows:

(1) Life jackets approved by the USCG (orange in color) shall be used by all personnel on vessels or decks adjacent to the water except when protected by substantial railings or lifelines.

(2) Approved dual-lock recompression chambers are required for all diving operations. In some instances, the DDC or designee may grant waivers to this

requirement when conditions allow. There shall be one chamber per diver in the water. Recompression chambers should be shielded from sub-freezing temperatures and the inside shall be maintained at a temperature that is conducive to treatment of a diver. Recompression chambers shall be equipped with overriding outside controls for both the inner and outer locks.

(3) Bailout cylinders shall be a minimum of 30 cubic feet and shall be firmly attached to a harness. Larger cylinders may be required depending on length of penetration or other circumstances. Cylinders shall be checked for air pressure at the beginning of every dive for both the diver and the standby diver. No diving shall be conducted without the use of bailout cylinders.

(4) Band masks or other diving hats without "hard shell" protection shall not be used, except when specifically approved by the DDC. (An example of a potential exception is a diver working on a stage in shallow water where he/she spends part of the time with his/her head out of the water.

(5) Dive support vessels must be capable of safely carrying all personnel and equipment necessary to perform the diving operation and shall meet USCG requirements.

(6) It is recommended that tools and materials such as welding and grinding discs, *etc.*, used underwater be intended for that purpose.

(7) All equipment utilized on a dive site including dive hoses, whips, dive compressors, HP cylinders, hot water supply units, manifold racks, radios, *etc.* shall be clearly identified with an identification system. An equipment manual containing identification sheets for dive and support equipment shall be at the dive site. This equipment manual shall show the specifications, outputs, test data, recommended maintenance procedures, and evidence of maintenance, repairs, and testing and be available for the DSO to reference.

(8) Recompression chambers shall have a source of low pressure, high-pressure sources, and treatment gases, independent of the dive system. Compressors, HP backup, and treatment oxygen shall be appropriate for the type of dive, and dive tables. Sufficient fuel and treatment gas reserves shall be on site. An appropriate hyperbaric medical kit shall accompany every decompression chamber. It is recommended that at least one individual at the dive site shall have undergone a dive accident management course within the last 2 years, and shall have received current training (2 year refresher course) in hyperbaric first aid.

(9) Dive compressors shall meet the minimum volume and pressure requirements as outlined in the ADC Technical Standard 3 (2001) and the calculation for the air volume shall be based on the number of divers in the water plus the standby diver(s). Dive compressors shall be automatic in operation.

(10) All divers' personal equipment shall be serviced and maintained in accordance with manufacturers recommendations. Service and testing records shall be available to the DSO on site and shall be included in the on-site Dive Equipment Log. Maintenance logs shall include the diver's hat, bailout bottle, first stage bailout regulator, dive suit, and harness. Divers shall maintain their drysuits in operational condition. A diver using a dry suit that leaks excessively, particularity during cold weather shall be prohibited from diving until the suit is repaired or replaced.

(11) If cold weather and water temperatures dictate the use of hot water suits, the hot water units shall be equipped with a reserve hot water tank capable of holding 30 gallons of hot water or there shall be a backup hot water unit. The 30-gallon hot water unit is recommended to help temper the water to prevent the diver from getting large fluctuations in water temperature. Divers should wear a "shortie" suit or full wetsuit under the hot water suit so that in the event of a hot water unit failure, the diver shall be protected from exposure to the cold water. All hot water suits shall be fitted with an on/off valve that can be operated by the diver. An audible alarm and visual gauge shall monitor the output temperature of the hot water unit and shall be periodically checked throughout the dive. If utilizing a hot water diving system, there shall be a backup system, readily deployable in the event of failure of the primary hot water unit.

(12) The diver shall wear a harness with a D ring or the diver bailout harness shall be equipped with a D ring that is capable of supporting and lifting the diver in a vertical fashion out of the water, in the event of an emergency.

(13) The diver's ladder shall extend at least 3 feet below the water surface and shall be of sufficient size and design to support two divers. The dive ladder shall extend at least 3 feet above the surface of the deck or barge allowing the diver a secure method of ascent and descent.

(14) All dive stations shall be equipped with a Stokes type litter equipped with flotation. Stokes litters shall be equipped with lifting apparatus allowing a victim or patient to be transported by use of external lifting devices.

(15) Dive hoses shall be tested and shall be equipped with a separate strength member the full length of the umbilical. Reusable hose ends are prohibited. All whips and dive hoses shall be fitted with hose ends as recommended in the ADC and OSHA regulations. No quick disconnect fittings shall be permitted. Positive threaded, corrosion resistant, long barb type fittings are required. Dive hoses shall be color coded in accordance with the recommended ADC Technical Standard 6 (2001).

(16) All diving operations shall employ a diver's manifold box equipped with isolation valves for all inlet and outlet gas sources, pneumofathometer gauges, low-pressure and emergency gas backup sources, one-way valve between the inlet sources

and outlet valves, pressure relief valve or valves, and a low-pressure audible alarm. Manifold boxes shall have all controls clearly identified regarding their function.

(17) Two time keeping devices shall be provided for each diver. One shall show the correct time in hours, minutes, and seconds. The second shall be an elapsed time indicator displaying bottom time for each diver in minutes and seconds. Additional timing devices may be utilized to display elapsed time at decompression stops. Such time keeping devices shall be kept in plain view by the dive log sheet, be easily readable, identified as to which diver is being monitored, and periodically tested for accuracy.

(18) Sanitary facilities shall be available to the DSO and the diving crew within reasonable distance of the dive site. A source of clean drinking water will be supplied on every dive site and divers shall be instructed to hydrate as much as possible during diving operations, especially during hot weather and/or diving operations that utilize hot water suits.

(19) Color-coding and identification of all cylinders on the dive site is particularly important to differentiate between medical treatment oxygen, industrial oxygen, compressed air, nitrox, and other gasses. Fittings utilized for divers air supply shall not be similar to those fittings/hoses used for other gases on the dive site.

(20) Divers shall demonstrate that their individual weight belt meets the 191.430 OSHA standard for weight belts. All weight belts must be able to be removed easily by the diver or standby diver in an emergency.

(21) A medical oxygen kit that is sufficient for the size of the crew and duration of the job shall be available at every dive site.

(22) In the event that "no-decompression" limits are to be exceeded or when in water decompression stops are anticipated, a divers stage or a weighted down line, 3/4-inch diameter, marked at appropriate intervals for decompression stops shall be available to the diver.

(23) If the dive operation is being conducted from floating equipment, a rescue boat capable of transporting the boat crew and injured personnel shall be supplied and ready for immediate use for rescue or transportation.

(24) High pressure water blasting systems shall be equipped with a reverse thruster, 3-foot wand extension, and tip shield. Divers using wands should have a stationary work platform to work on.

c. Training. There are several training requirements for both commercial divers and Corps divers (see chapter 2 for requirements).

d. Document Submittals. It is required that all diving operation submittals shall be received by the office of the DDC at least 30 days in advance of the start of the diving operations. Exceptions can be made in emergency situations (see annex D for procedures). Only the DDC, or in his absence, the Deputy DDC, may accept dive plan packages (see chapter 5 for submittals). Note: Contractor qualification submittals, training, and medical information are handled through the Portland District DDC.

e. Pre-Qualification. Only the DDC or designee may qualify an organization for contract diving work in the Walla Walla District. A contractor wishing to be pre-qualified can submit their request either to the Portland District DDC or to the Walla Walla District DDC. Required document submittals must be received a minimum of 30 days in advance of the commencement of diving operations (see chapter 5 for submittals). Contractors who are not qualified will not be permitted to bid on diving jobs either as prime or sub-contractors.

f. Insurance Requirements. The contractor will, at their own expense, provide and maintain during the entire performance of the contract, a minimum of insurance (see chapter 5 for kinds and amounts).

g. Dive Physical Examinations. Divers shall be medically fit as attested by a currently licensed physician certified in diving physiology and hyperbaric medicine. Physical examinations of divers shall be received on a yearly basis.

1-7. RESPONSIBILITIES.

a. The Corps. Diving shall not be utilized as a work method if the work objective can be more safely and efficiently accomplished by other means (*e.g.* dewatering the structure, remote cameras, *etc.*). The Corps is responsible for determining the need for and scope of contract diving operations. The Corps is also responsible for defining diving policy and the requirements to which contract divers will adhere. In addition, the Corps will provide sufficient administration and field support to ensure that diving operations are conducted safely and in accordance with applicable regulations. These tasks are accomplished by the personnel described below using the activity sequence defined in annex C.

(1) The DDC. The Walla Walla District Commander will appoint a DDC who is responsible to the Commander for the proper management and administration of the Diving Safety Program within the Walla Walla District. The specific duties of the DDC are listed in annex B.

(2) The DSO. The Walla Walla District Commander will appoint or contract a sufficient number of DSOs to ensure that a DSO is present at each contract dive conducted by the Walla Walla District. The DSO is the Walla Walla District's representative at the dive site. The DSO's responsibility is to ensure that the dive

operation is adequately planned, equipped, staffed, and conducted according to the dive plan. The DSO is also responsible to ensure dive conditions, specified in the dive plan, have been established by the Corps and the contractor. The DSO has the authority to delay or stop a dive at any time. The DSO's sole responsibility is to the safety of the diver and the safe conduct of the diving operation, and he/she will not assume other duties concurrent to the diving operation. The specific duties of the DSO are listed in annex B.

(3) Others. In addition to the personnel described above, Resident Engineers, Project Managers, and dam personnel (*i.e.,* Chief of Operations and Chief of Maintenance) at each project are charged with ensuring the efficiency and safety of diving operations within their areas of responsibility. These individuals may, at their discretion, employ additional levels of supervision on diving operations, as long as the chain of responsibility remains clearly defined. In addition, they have the authority to stop a dive, but may not override a decision by the DSO to stop a dive for safety reasons.

b. Contractor. The contractor has primary responsibility to accomplish the objective of the dive efficiently and safely, as well as to adhere to all applicable regulations (see submittal requirements chapter 5). The contractor must ensure that the appropriate clearances have been obtained. Contractor in this regulation references diving contractors who may be working as a prime or sub-contractor.

APPENDIX I

DIVING OPERATIONS

Chapter 2 -Training Requirements

2-1. PURPOSE. This chapter defines responsibilities for the training of DSOs who provide safety and contract oversight for underwater diving operations performed by contract diving companies for the Corps, Walla Walla District.

2-2. GENERAL. Diving operations are among the riskiest of work activities performed in the Walla Walla District. Performing these diving operations in and around operating powerhouses, navigation locks, fishways, and floating plants, and often in extreme weather conditions, presents even more risk than is normally found in the commercial diving industry, in general. Like any activity in industry or construction, there is a significant overlap of safety venues. While diving operations are obviously the riskiest and most important aspects of a Diving Safety Program, it is still only one element in a mix of safety concerns. General construction safety, crane safety, small boat safety, shipboard safety, and Hazardous Material (HAZMAT) issues all bring added dimensions to safety of the work place. It is imperative that Corps personnel be trained to very high standards when they are responsible for the execution and oversight of contract diving operations. While this includes primary training in diving safety, it also is necessary to cross some boundaries into other supporting safety fields. It is also imperative that commercial divers be trained to meet or exceed the standards of the Corps.

2-3. REQUIREMENTS FOR CORPS DIVING PERSONNEL.

a. Mandatory Training. The following are mandatory training requirements.

(1) Corps approved Proponent Sponsored Engineer Corps Training (PROSPECT) program Dive Inspector or Dive Supervisor Course.

(2) Nitrox Gas Diving Operations when used. This training is not required unless Nitrox diving operations are being conducted (see chapter 3).

(3) Dive Inspector or Dive Supervisor PROSPECT Refresher Course (4-year intervals).

(4) First Aid, Cardio-Pulmonary Resuscitation (CPR) and Emergency Oxygen Administration.

b. Recommended Training. The following training is recommended.

(1) Small Boat Operations.

(2) Hazardous Waste Operations.

(3) Construction Safety.

(4) Dive Accident Management.

The DDC may elect to implement and enforce more conservative requirements depending on circumstances and activities. Only with the specific authorization of the DDC will the requirements be less than specified in this appendix.

2-4. REQUIREMENTS FOR CONTRACT DIVERS.

a. Commercial diving personnel must have successfully completed a formal training program presented by a recognized training organization according to standards set by the Association of Commercial Diving Educators. (Divers may be exempt from this requirement if they can document at least 5 years of experience in a variety of diving jobs and have been working in the trade before 1993. See annex D figures for sample forms). The Association of Diving Contractors (ADC) also issues a dive card that meets Occupational Safety and Health Administration (OSHA) standards (see chapter 4 for diving personnel requirements).

b. All dive team members shall be trained in the use of Nitrox Gas whenever that gas is being used (see chapter 3).

c. Whenever a recompression chamber is required on a dive job, at least two individuals on the dive team must be specifically trained in its use. At least one of the individuals shall not be the working diver, standby diver, or dive supervisor.

d. Commercial diving companies must be pre-qualified before commencing any diving operations for the Walla Walla District. In order to be found qualified, the diving company must have a demonstrated knowledge and expertise in the type of diving operations to be performed and have performed such work on a regular basis according to the standards established by the DDC.

e. Verification of dive team qualifications, experience, and medical records for divers, dive supervisors, and tenders will be provided to the DDC for review and approval prior to commencement of diving operations (see required submittals, chapter 5).

APPENDIX I

DIVING OPERATIONS

Chapter 3 - Nitrox Gas Diving Operations

3-1. PURPOSE. This chapter defines responsibilities for underwater diving operations performed with the use of Nitrox (EANx) gas as a breathing mixture by contract personnel for the Corps, Walla Walla District. This chapter is directed at controlling diving operations using Nitrox gas only. This chapter does not cover other mixed-gas formulas, *i.e.*, Tri-mix, Heliox.

3-2. DEFINITION. Nitrox (EANx) gas, for the purposes of this appendix, is defined as any Oxygen-Nitrogen mixture exceeding the ratio of 21 to 79 percent found naturally occurring in air.

3-3. GENERAL. The use of Nitrox gas for diving operations has become a routine and acceptable practice to improve safety to divers as well as improve the effectiveness of diving operations. While the benefits of using Nitrox gas can be significant, the use of any breathing gas in lieu of naturally occurring air brings with it hazards that must be addressed. Nitrox gas is mostly effective in shallow water with a maximum depth of 100 feet. It can significantly extend bottom time depending on the depth used. The DDC may elect to implement and enforce more conservative diving requirements, depending on conditions and circumstances. Only with the specific authorization of the DDC will the operational requirements be less than specified in this policy.

3-4. REQUIREMENTS.

a. Equipment. The following equipment is required:

(1) An approved dual-lock recompression chamber must be on-site, pressurized, and fully operational.

(2) Bailout bottles/cylinders, worn as a personal emergency air supply, shall be charged with the same Nitrox gas mixture as the primary breathing gas.

(3) Secondary or backup air supply must be equivalent to the primary gas mixture. All HP regulators shall be high flow, high volume design, and recommended for use as an emergency HP regulator for diving use.

(4) No diving equipment using greater than 40 percent Nitrox is allowed.

b. Training. All personnel, Corps and contractor, associated with any diving operation using any Nitrox breathing gas, shall be trained according to accepted diving industry standards through organizations such as The International Association of

Nitrox and Technical Divers, Professional Association of Diving Instructors, National Association of Underwater Instructors, or the equivalent. This must be a minimum of 4 classroom hours and must cover all aspects of Nitrox gas diving operations. This training must be fully documented by presenting a certificate of completion, or a letter from a documented Nitrox gas instructor, certifying the successful completion of the required training. Refresher courses are mandatory except for instructors in which a course refresher is required every 2 years. The specific training shall include the following topics:

- Oxygen partial pressure limits, Dalton's Law.
- Oxygen-Nitrogen breathing mixtures.
- Depth/time limits for oxygen during working dives.
- Central nervous system and pulmonary oxygen toxicity.
- Analysis of mixed-gas breathing media.
- Mixed-gas equipment (open circuit system).
- Mixed gas equivalent air depths formula and tables.
- Nitrox gas decompression tables.
- Nitrox gas residual nitrogen table.
- Nitrox gas surface interval table.

c. Tables. Divers shall be proficient with the interpretation of the following diving tables or formulas:

(1) Equivalent air depth formula.

(2) The NOAA Nitrox gas diving tables.

(3) Other industry accepted diving tables, so long as they are no less conservative than NOAA diving tables.

(4) A maximum partial pressure of 1.4 Atmosphere Absolute (ATA) for oxygen shall not be exceeded when diving with Nitrox gas.

d. Gas Supplies. All Nitrox gas shall meet the following requirements:

(1) All Nitrox gas containers shall be currently certified as to the oxygen-nitrogen mixture by the vendor supplying the gas and be clearly marked on each container by gas mixture percentage.

(2) Each container of Nitrox gas being placed on-line in support of diving operations must be tested prior to use with an approved Oxygen Analyzer by the diver or diving supervisor to confirm gas mixture and duly recorded on the first dive of the shift and every time a bottle is changed.

(3) All Nitrox gases shall be within +/- 1 percent of the certified mixture.

(4) The DDC shall specifically approve Nitrox gas mixtures that exceed 40 percent prior to use.

APPENDIX I

DIVING OPERATIONS

Chapter 4 - Dive Personnel Requirements

4-1. PURPOSE. This chapter defines the designation, training requirements, and use of contract diving personnel. The Walla Walla District has high minimum qualifications for contract diving personnel performing work in the Walla Walla District. This chapter extends to all personnel involved in contract diving operations within the Walla Walla District. Personnel in limited status can work on diving operations that are within the no-decompression limits, involve no penetration, no contaminated environment diving, or mixed-gas diving, at depths not greater than 3 ATA (66 feet) and initially, for the limited diver, in water with visibility of at least 3 feet.

4-2. GENERAL. The Walla Walla District recognizes several forms of diving status. The main ones include Limited Diver, Limited Dive Supervisor, Unlimited Diver, and Unlimited Dive Supervisor. The Limited Diver is a person who has significant underwater experience without having all the qualifications necessary to perform in any diving environment or having adequate experience with the diving equipment in use. The Limited Dive Supervisor is a person who has extensive experience and training in diving operations as a diver but lacks the experience to fully manage diving operations under all conditions. The Unlimited Diver has the same qualifications as the Limited Diver with no restrictions (depth of dive, *etc.*). The Unlimited Dive Supervisor has the same qualifications as the Limited Dive Supervisor with more experience. Dive Tenders need not have unlimited dive status, however, Standby Divers shall have the same dive requirement as the specific dive or task requires.

The DDC may elect to implement and enforce more conservative requirements depending on conditions and circumstances. Under no circumstances will the requirements be less than specified in this policy without the specific authorization of the DDC or his/her designee.

4-3. REQUIREMENTS.

a. Limited Diver. The requirements of the Limited Diver are as follow:

(1) Must have successfully completed a recognized commercial dive school (this can be waived for an individual who entered the dive profession prior to 1993, depending on experience level).

(2) Must have served as a dive tender for a minimum of 2 years.

(3) Must have worked on a variety of Corps dive operations.

(4) Must demonstrate maturity and responsibility.

b. Limited Dive Supervisor. The responsibilities of the Limited Dive Supervisor are as follow:

(1) Must have 5 years of experience as a commercial diver in an unlimited status.

(2) Must have worked on a variety of Corps dive operations.

(3) Must have documented experience in recompression chamber operation.

(4) Must have training and/or experience in emergency management protocols.

(5) Shall be familiar with the Corps, EM 385-1-1, *Safety & Occupational Health Manual*.

(6) Shall have knowledge of Corps document submittal requirements for diving operations, including Dive Plans, Emergency Management Plans, and Activity Hazard Analysis.

(7) Must demonstrate reliability, leadership, and organizational skills in managing a dive team under the expected conditions during the diving operation.

c. Unlimited Diver. The requirements of the Unlimited Diver are as follow:

(1) Must have successfully completed a recognized commercial dive school (this can be waived for an individual who entered the dive profession prior to 1993, depending on experience level).

(2) Must have served as a dive tender for a minimum of 2 years.

(3) Must have worked on a variety of Corps dive operations.

(4) Must have worked in a limited diver status for 2 years involving work at Corps facilities. Recommendation by Walla Walla District DSOs and concurrent approval by employer may provide means to waive this 2-year requirement due to exceptional performance and/or additional education.

(5) Must have a letter of recommendation from a Corps approved diving service contract employer and a satisfactory evaluation of performance by a Walla Walla District DSO.

d. Unlimited Dive Supervisor. Qualifications for Unlimited Dive Supervisor include an additional 2 years experience as a Limited Dive Supervisor. One or all of the following criteria could waive this additional experience requirement:

(1) Post dive school education.

(2) Recommendation of both the employer and the Walla Walla District DSO.

(3) Demonstration of exceptional performance, professionalism, and maturity.

e. Dive Tender. The requirements of the Dive Tender are as follow:

(1) Must have successfully completed a recognized commercial dive school or military training.

(2) Letter of recommendation from a Corps approved diving services employer or a satisfactory evaluation of performance by a Walla Walla District DSO.

f. Standby Diver. The Standby Diver must meet the same training and experience qualifications as the dive or task requires.

Qualification for any position may be rescinded at any time by the Walla Walla District DDC or his/her deputy due to unsafe work practices; unacceptable behavior that would contribute to an unsafe workplace; or failure to follow Corps and Walla Walla District regulations and policies. On site DSOs have the right to remove any person from the work site that fails to follow all pertinent regulations and policies and may recommend disqualification for cause. The DDC has the authority to grant status of dives that do not comply with all requirements or to temporarily waive such standards.

APPENDIX I

DIVING OPERATIONS

Chapter 5 - Contractor Pre-Qualification, Insurance, and Submittals

5-1. PURPOSE. This chapter defines responsibilities for contractors wishing to qualify for diving work in Walla Walla District.

5-2. GENERAL. All organizations that expect to furnish diving services to the Corps, Walla Walla District must pre-qualify prior to engaging in any diving operations on Corps property or operations that are under the control of the Walla Walla District. The applicant organization and its dive team personnel shall meet minimum standards in order to be found qualified. The Corps, Walla Walla District, requires all contract diving activities to be performed in accordance with the latest edition of the NAVSEA 0994-LP001-0910 and 0994-LP001-0920, *U.S. Navy Diving Manual*; the Corps EM 385-1-1, *Safety and Health Requirements Manual*; and the Walla Walla District Safety Manual NWWOM 385-1-1, Appendix I inclusive of all references listed therein. Other diving regulations, tables, *etc*., may be used as long as they are at least as restrictive as those cited above. Organizations seeking to furnish diving services to the Walla Walla District shall submit a brief company history, description of operational capabilities, list of other agency or Corps district diving qualifications or recommendations, and a current company Safe Practices Manual. This information must demonstrate that the organization has performed contract diving work on a regular and routine basis for at least the past 3 years and is able to accomplish such work in a safe and efficient manner.

5-3. APPROVAL PROCESS. The information covered in this chapter will be reviewed for pre-qualification status at both the organization and individual level. The applicant organization will be notified in writing of the review results as soon as possible. The Corps, Portland District, Diving Program Coordinator currently performs Walla Walla District reviews of applicant organizations. The Corps, Walla Walla District, reserves the right to do independent reviews and/or dismiss any pre-qualification status already given to a contractor or individual by Portland District.

5-4. INSURANCE. Applicant organizations must furnish certificates of the following insurance minimums.

a. Workmen's Compensation and Employer's Liability Insurance as legally required by the state wherein the work is being performed in the amounts specified by the applicable Federal and/or state Authorities, including Federal Longshoreman and Harbor Workers' and/or Jones Act Insurance, if they apply. Individual divers shall not be employed on a "contract basis" by approved diving contractors, unless they have been individually approved as a diving contractor by the Corps, meet all the requirements of a diving contractor, and have the required insurances, licenses, and permits. Copies of

the insurance coverage shall be supplied prior to the diving operation. Certificates of insurance shall be supplied to the Corps at least annually. If any changes (affecting the insurance coverage) occur to the contractor's insurance, the Corps shall be advised and a new certificate of insurance supplied.

b. Comprehensive, bodily injury, and property damage liability; minimum limits of $1 million for injury to or death of any person, $1 million for each accident or occurrence for bodily injury liability, and $300,000 for each accident or occurrence for property damage liability.

c. Automobile bodily injury and property damage liability; minimum limits of $1 million for injury to or death of any one person, $1 million for each accident or occurrence for bodily injury liability, and $300,000 for each accident or occurrence for property damage liability.

d. Single General Aggregate Limits or Combined Single Unit Coverage. If single general aggregate limits or combined single unit coverage is obtained for general liabilities and/or automobile liability coverage, minimum amounts will be the sum of the personal injury and property damage coverages required above. Umbrella form excess liability insurance coverage will be added to general liability automobile liability coverage to determine if minimum insurance limits are met.

e. At least once per month, the diving contractor shall supply a report certifying that the diving personnel have been paid the prevailing rate on the Corps project. Copies of this documentation shall be distributed to all participating diving personnel involved on the dive site.

f. The contract documents shall define the specific dive site as "Navigable or Non-Navigable" waters and the contractor shall provide the required insurance coverage based on this assessment. Anyone working on navigable waterways is also required to have Longshoreman's Act coverage.

5-5. EQUIPMENT. The applicant company shall provide dive compressor air purity certification as described in the Corps Safety Manual, EM 385-1-1, *Contract Diving Operations*, section 30.E. Equipment furnished by the contractor will also comply with the requirements of EM 385-1-1, section 30.E.

a. Only surface supplied air equipment with two-way voice communications shall be used.

b. Approved dual-lock recompression chambers are required on all dives. The DDC may permit waivers to this requirement on dives less than 30 feet in depth.

5-6. DIVE TEAM PERSONNEL. An important part of a dive company application for pre-qualification is assurance of an adequately trained and experienced diving staff.

Individual divers and dive team support personnel shall provide the following information for pre-qualification consideration.

a. Divers must show evidence of medical history and a current diving medical examination performed within the last 12 months (see sample form in annex D, figure I-D-1 and figure I-D-2).

b. All dive team members (*i.e.,* divers, tenders, chamber operators, dive supervisors) shall submit proof of having satisfactorily completed an authoritatively recognized First-Aid and CPR course and document that they have been trained in emergency oxygen administration.

c. Divers must provide training history and general commercial diving and marine construction experience, including any union or industry ratings or qualifications (see sample form in annex D, figure I-D-3).

d. To insure divers are performing contract dive work on a regular and routine basis, they must submit a detailed summary of commercial dives performed in the past 2 years. Dive log summaries must indicate the type of dive equipment utilized; working depth; bottom time; tools and equipment used; and the variety of dive work undertaken, such as, underwater construction, salvage, structure and vessel survey, underwater blasting and demolition, harbor and channel clearing, *etc*. (see sample form in annex D, figure I-D-4).

5-7. SUBMITTALS. In addition to the above-submitted information, the following documents must be submitted to the DDC. Photocopies of required documents shall clearly indicate the renewal or expiration date.

a. A copy of the scope of work will be furnished to the DDC and to the Safety and Occupational Health Office prior to issuing an invitation for bid.

b. A dive checklist will be provided in the contract, which will aid the contractor in providing the appropriate submittals and equipment requirements.

c. The contractor will prepare and submit to the Corps for approval a Dive Plan that conforms to the requirements of annex D. These documents will be available for review at the pre-dive conference. All personnel involved in the dive shall attend the pre-dive conference. Copies of the dive plan, hazardous analysis plan, emergency plan, *etc.* shall be distributed prior to the pre-dive conference to all attendees. Sufficient time shall be allotted to allow all attendees to understand and comment on the dive plan. Each member shall clearly understand his/her duties and responsibilities prior to commencing the dive operation. Minutes of the pre-dive conference shall be kept and a copy submitted to the on-site DSO.

d. The contractor will prepare and submit to the Corps for approval an Emergency Management Plan that conforms to the requirements of annex D. These documents will be available for review at the pre-dive conference and copies shall be distributed to all diving personnel prior to the pre-dive conference.

e. The contractor will prepare and submit to the Corps for approval for each operation an Activity Hazards Analysis that conforms to the requirements of annex D. This document will be available for review at the pre-dive conference and copies shall be distributed to all diving personnel prior to the pre-dive conference.

f. The contractor will develop and maintain a Safe Practices Manual. This manual will encompass the contractor's entire diving program and be available to each dive team member and the DSO at the dive location at all times. This manual will be submitted to the DDC for review and approval annually or upon any significant changes in company procedures, organizational structure, or staffing. Documentation of reading and understanding the contractors, Safe Practice Manual by all diving personnel shall be submitted by the diving contractor to the DDC and DSO at least 3 days prior to commencing any diving operation.

g. Dive logs or photocopies of logs shall be submitted to the DDC preferably at the end of each shift but no later than 48 hours after the end of the shift.

h. The contractor shall participate in the following meetings for each dive as described in annex C.

(1) Joint Review (when deemed necessary by the Corps DSO).

(2) Pre-dive Conference.

(3) Post-dive Debriefing.

APPENDIX I

DIVING OPERATIONS

ANNEX A

Acronyms

APPENDIX I, ANNEX A

DIVING OPERATIONS

Acronyms

ADC	Association of Diving Contractors
ATA	Atmosphere Absolute
CEHNCP	U.S. Army Corps of Engineers, Huntsville Center Pamphlet
CFR	Code of Federal Register
Corps	U.S. Army Corps of Engineers
CPR	Cardio-Pulmonary Resuscitation
DAN	Divers Alert Network
DDC	District Diving Coordinator
DSO	Diving Safety Officer
EANx	Nitrox Gas
EM	Engineer Manual
Fsw	feet sea water
HAZMAT	Hazardous Material
HQUSACE	Headquarters, U.S. Army Corps of Engineers
NAVSEA	Naval Sea Systems Command
NOAA	National Oceanographic and Atmospheric Administration
NWDR	North Pacific Division Register
NWWOM	Northwestern Division Office Memorandum
OSHA	Occupational Safety and Health Administration
PROSPECT	Proponent Sponsored Engineer Corps Training
SCUBA	Self-Contained Underwater Breathing Apparatus

APPENDIX I

DIVING OPERATIONS

ANNEX B

Description of Duties

APPENDIX I, ANNEX B

DIVING OPERATIONS

Description of Duties

B-1. DISTRICT DIVING COORDINATOR (DDC).

a. Responsibilities. The responsibilities of the U.S. Army Corps of Engineers (Corps), Walla Walla District (District), DDC are as follow:

(1) Manages the District Diving Safety Program and serves as the center of expertise for all underwater activities that involve diving or diving alternatives.

(2) Coordinates diving related training programs.

(3) Maintains District diving regulations.

(4) Reviews and approves the necessity for all dives within the District.

(5) Consults with Chief, Operations Division, to determine emergency diving circumstances.

(6) Maintains records and other documentation for contract diving organizations and diving personnel who are pre-qualified to perform diving operations for the District.

(7) Establishes minimum requirements for pre-qualified contract diving organizations.

(8) Establishes minimum qualifications for contract diving personnel performing diving operations for the District.

(9) Reviews and approves dive contractors Safe Practices Manuals.

(10) Performs field inspections and audits to ensure compliance with District and Corps regulations and requirements.

(11) Resolves conflicts in field interpretation of regulations and requirements.

(12) Develops and maintains standardized document formats for contractor submittals.

(13) Reviews and accepts:

(a) Dive Plans.

(b) Emergency Management Plans.

(c) Activity Hazards Analysis.

b. Qualifications. The qualifications of the DDC are as follow:

(1) Successful completion of a Headquarters, U.S. Army Corps of Engineers (HQUSACE) approved Diving Supervisor Training Course.

(2) Must have specialized hyperbaric chamber training and mixed gas training and maintain current status.

(3) Must have a minimum of 3 years experience on a wide variety of Corps diving operations.

(4) Conducts minimum of three diving operations annually to maintain diving proficiency.

B-2. DIVING SAFETY OFFICER (DSO).

a. Responsibilities. The responsibilities of the DSO are as follow:

(1) Serves as District's representative at the dive site to ensure the safety of the diving operation. The DSO shall not assume other duties concurrent to the diving operation.

(2) Acts as principal technical interface between the District and the contractor for any particular diving operation.

(3) Defines dive objectives with the project personnel.

(4) Assists in determination of the need for a dive and the diving techniques to be used.

(5) Conducts joint review with project and contractor personnel.

(6) Assists project personnel to establish safe clearance configuration. Must review and accept safe clearances prior to commencement of diving operations. Note: This varies by project site and is not applicable to all sites.

(7) Attends and assists the contractor's dive supervisor in the conduct of the pre-dive conference.

(8) Stops the dive if a safety violation or unsafe condition occurs or operational conditions change that could affect the safe conduct of a dive.

(9) Conducts post-dive debriefing.

(10) Ensures proper reporting of accidents and/or decompression sickness.

(11) Ensures dive is conducted in accordance with the dive plan and all applicable requirements and regulations.

(12) Ensures all dive related documents are provided to the DDC.

b. Qualifications. The qualifications of the DSO are as follow:

(1) Successful completion of a HQUSACE approved Diving Supervisor Course or Diving Inspectors Course.

(2) Observes at least three diving operations conducted by a senior DSO after initial Corps diving training.

(3) Conducts minimum of three diving operations annually to maintain diving proficiency.

APPENDIX I

DIVING OPERATIONS

ANNEX C

Conduct of a Diving Operation

APPENDIX I, ANNEX C

DIVING OPERATIONS

Conduct of a Diving Operation

The following is a brief description of the events that constitute the planning and execution of a typical dive for the U.S. Army Corps of Engineers (Corps), Walla Walla District (District). It may be modified, with concurrence of the District Diving Coordinator (DDC), to suit the particular requirements of a specific dive. Each aspect of the sequence should, however, be considered.

C-1. A condition is identified by project personnel for which diving may be required.

C-2. The need for a dive is determined by the Project Manager or Quality Assurance personnel in conjunction with the DDC using the guidelines of this policy.

C-3. A Dive Safety Officer (DSO) is assigned or contracted to work on the dive by the DDC and Construction or Operations Division.

C-4. A joint review is held with the members of the project staff, DDC, and the DSO. The purpose of the joint review is to agree that all technical and safety considerations have been addressed to the satisfaction of all involved.

C-5. Once the dive is defined, a specification is written identifying the dive objective, as well as equipment and personnel requirements. The services of a pre-qualified commercial diving organization are obtained through the appropriate contract solicitation process.

C-6. The contractor, then, prepares a Dive Plan Package consisting of a Dive Plan, Emergency Management Plan, and an Activity Hazards Analysis (see annex C) and submits them to the DSO and the DDC for review and approval.

C-7. Concurrently, the contractor submits certification to the DSO of contractor personnel and equipment, including compressed air quality certification. If this information is on file and current with the DDC, no action is necessary.

C-8. Immediately, before diving operations commence, a pre-dive conference is conducted by the Corps' DSO and the contractor’s dive supervisor and appropriate clearances are taken out. All individuals who will be involved in the diving operation will attend the pre-dive conference. The pre-dive conference will cover, as a minimum:

a. Objective and scope of dive operation.

b. Conditions in the operating area.

c. Techniques and equipment to be used.

d. Government personnel assignments and dive team assignments.

e. Anticipated hazards.

f. Reinforce normal safety precautions.

g. Discussion of special considerations.

h. Detailed review of Dive Plan, Emergency Management Plan, and the Activity Hazards Analysis.

i. Group discussion and questions.

j. Final acceptance of the dive plan and associated documents by DSO and dive supervisor.

C-9. A physical inspection is made of all operational equipment to ensure that all required clearances have been accomplished. The clearances are checked by the DSO and dive supervisor in conjunction with other project or plant personnel, if necessary.

C-10. The divers and tenders perform a final dive and support equipment check.

C-11. The dive operation is performed.

C-12. Upon completion of each dive, the Corps DSO and the contractor's dive supervisor conduct a post-dive debriefing. Changes to future parts of the operations will be coordinated with the Corps DSO. Divers are advised of the location of the nearest decompression chambers and cautioned on the limitations of their post-dive activities (*e.g.,* repetitive dives, traveling to higher altitudes, and flying). All divers will be issued a wallet-sized card with all emergency contact numbers.

APPENDIX I

DIVING OPERATIONS

ANNEX D

Dive Plan Package

APPENDIX I, ANNEX D

DIVING OPERATIONS

Dive Plan Package

D-1. PURPOSE. The U.S. Army Corps of Engineers, Walla Walla District (District), requires submittal of a Dive Plan Package in order to conduct a diving operation. A Dive Plan package includes a Dive Plan, Emergency Management Plan, and an Activity Hazards Analysis. The Dive Plan package provides basic information concerning the specific dive operation: The purpose of the dive, the mode of diving equipment to be used, diver assignments and rotation, expected conditions, maximum depths, expected bottom times, *etc*.

D-2. DIVE PLANS. The contractor for each diving operation shall develop the Dive Plan. Project specific information necessary to write the Dive Plan can be obtained from the Diving Safety Officer (DSO). The diving plan must be approved by the District Diving Coordinator (DDC) prior to commencement of diving operations, be at the diving location at all times, and be available to a Government representative upon request. The Dive Plan will be reviewed, in detail, at the pre-dive conference. All Dive Plans will become a part of the contract file. As a minimum, the Dive Plan will contain the following:

a. Purpose of the dive.

b. Names of dive team members with their assignments clearly defined.

c. Date, time, and location of the dive.

d. Diving mode used *(i.e*., surface-supplied air or Self-Contained Underwater Breathing Apparatus).

e. Breathing medium to be utilized.

f. Nature of work to be performed.

g. Expected surface and underwater conditions, including visibility, temperature, currents, equipment operating, or shut down*, etc*.

h. Maximum depth and bottom time, including planned or possible decompression times.

i. Planned rotation of divers to maximize diver utilization and minimize exposure to health risks (barotraumas, hypothermia, *etc*.).

j. The following statement shall be included on each Dive Plan: If, for any reason, the Dive Plan is altered in mission, depth, personnel, or equipment, the Corps DDC shall be contacted and shall review any revision prior to actual operation.

D-3. EMERGENCY MANAGEMENT PLAN. The Emergency Management Plan is information developed to deal with accidents when they occur and contains the location and phone numbers of emergency medical services, hyperbaric chambers, and transport services. Very important is a "Victim Transport Plan" to evacuate the victim from the dive site to a place where emergency medical service can be accessed in a timely manner. Procedures and phone numbers or other effective lines of communication should be developed to activate emergency services at the facility where work is being performed. The contractor will ensure the following specific emergency information is available at the dive site:

a. Location and phone number of nearest operational recompression chamber if not located at dive site.

b. Location and phone number(s) of nearest hospital(s).

c. Location and phone number of nearest U.S. Coast Guard Rescue Coordination Center.

d. Description of an emergency Victim Transport Plan, including phone number(s) of appropriate ambulance services.

e. Procedures and phone numbers or other lines of communications to activate emergency services at the facility where the work is being performed.

f. Procedure to deal with entrapped or fouled diver.

g. Actions upon loss of vital support equipment.

h. Actions upon loss of gas supply.

i. Actions upon loss of communication.

j. Lost diver plan.

k. Injured diver plan.

l. Actions upon discovery of fire.

D-4. ACTIVITY HAZARD ANALYSIS. The third part of the Dive Plan Package is designed to identify hazards and solutions before the job is started. The Activity Hazard Analysis (*i.e.,* Job Hazard Analysis or Job Safety Analysis) represents the dive team's best efforts to identify and reduce the exposure to risks in the work place. These risks can be from environmental

causes, equipment breakdown, or other unexpected circumstances (see annex for sample form). The Activity Hazard Analysis should contain the following components:

- The analysis should be job-specific.
- Identify the successive steps or phases of work.
- Identify the potential hazards associated with each step.
- Eliminate or reduce the hazard to acceptable levels. This can be by modifying equipment, changing practices, or methods, or even as simple as altering work schedules.

All the requirements sited in this appendix are the same for a prime contractor as for a subcontractor. Each contractor shall address the potential hazards associated with their phase of work. Sometimes that means a redundancy when dealing with a prime and several subcontractors. Experience shows that often members of the dive team do not see the original Activity Hazard Analysis that was submitted by the general contractor prior to the start of the project. Having a comprehensive analysis is assurance that the members of the dive crew are thinking of safety independently—that all safety and work hazards are recognized, not just dive-related hazards.

Each phase of work should have three areas addressed to ensure the safety of all involved. The first phase is general construction precautions that apply to all activities, crane safety, ladders, fire protection, fall protection, lockout/tagout, and others. Personal protective devices are also important; such as hardhats, proper footgear, hearing protection, personal flotation devices, and safety glasses, if necessary. The next phase is general diving safety considerations. For example, vessel traffic in the vicinity of the dive site, access to and from the water, loss of communications with diver, equipment failure, *etc.* The third phase has more task-specific information (*e.g.*, welding or burning precautions; hazards associated with high pressure blasters, pneumatic hammers, core drilling machines, grinders or other revolving equipment, lifting or jacking and other rigging equipment; *etc*.).

One of the primary benefits of the Activity Hazard Analysis is that many people receive an opportunity to analyze the work before the start of the project: The project manager, planner, or dive supervisor that created the document; the person reviewing and accepting the analysis on behalf of the customer; and, since the analysis is an important part of the pre-dive conference, the personnel who are about to perform the work. Because of several reviews, the analysis should be considered a “living document.” Everyone associated with the job shall have the opportunity to make additions before the pre-dive meeting and commencement of the diving operation.

Figure I-D-1

MEDICAL HISTORY
(To be completed by applicant)

NAME: _____ AGE:___ HEIGHT:____ inches WEIGHT:___ pounds.

ADDRESS: _____ PHONE:(_____)_____

1. a. Do you have previous experience in diving?____YES____ NO
   b. Have you done any flying?____ YES____ NO
   c. If yes, did you have trouble equalizing pressure in ears or sinuses? ____YES____NO
   d. Can you go to the bottom of a swimming pool without discomfort in the ears or sinuses?____ YES____ NO

2. a. Do you participate regularly in active sports?____YES____ NO
   b. If yes, specify sports: _____
   c. If no, indicate exercise you normally obtain: _____

3. Have you ever been rejected for service or employment for medical reasons?
   ____YES____ NO (If yes, explain in "remarks" or discuss with physician)

4. When was your last physical examination?____ DATE RESULTS_____

5. When was your last chest X-ray?____ DATE RESULTS _____
6. Have you had an electrocardiogram?__YES__NO____DATE RESULTS_____
7. Have you had an electroencephalogram?__YES__NO__ DATE RESULTS _____

CHECK IF YOU HAVE OR HAVE HAD, ANY OF THE FOLLOWING. EXPLAIN IN "REMARKS", GIVE DATES & PERTINENT INFORMATION, OR DISCUSS WITH THE PHYSICIAN.

8.	Frequent colds or sore throat. ____	25.	Dizzy or fainting spells or fits. ____
9.	Hay fever or sinus trouble. ____	26.	Trouble sleeping, frequent nightmares or sleepwalking. ____
10.	Chronic trouble breathing through nose. ____	27.	Nervous breakdown or periods of marked nervousness or depression. ____
11.	Painful or running ear, mastoid trouble, broken eardrum. ____	28.	A phobia for closed-in space, large open spaces, or high places. ____
12.	Hardness of hearing. ____	29.	Any neurological or psychological condition. ____
13.	Asthma or shortness of breath after moderate exercise. ____	30.	Train, sea or air sickness ____
14.	History of pleurisy. ____	31.	Alcoholism or any drug or narcotic habit. ____
15.	Chest pain or persistent cough. ____		

Figure I-D-1 (continued)

16. Fatigability. _____
17. Spells of fast, irregular, or pounding heartbeat. _____
18. High or low blood pressure. _____
19. Any kind of "heart trouble". _____
20. Frequent upset stomach, heartburn or indigestion; peptic ulcer. _____
21. Frequent diarrhea or blood in stool. _____
22. Stomach or backache lasting more than a day or two. _____
23. Rheumatism, arthritis, or joint trouble. _____
24. Kidney or bladder disease; blood, sugar or albumin in urine. _____
32. Recent gain or loss of weight or appetite. _____
33. Jaundice or hepatitis. _____
34. Tuberculosis. _____
35. Diabetes. _____
36. Rheumatic Fever. _____
37. Dental bridgework or plate. _____
38. Susceptible to panic. _____
39. Pain from altitude or flying. _____
40. Broken bone, serious sprain or strain, dislocated joint. _____
41. Head injury causing unconsciousness. _____
42. Severe or frequent headaches. _____
43. Any serious accident, injury, or illness not mentioned above. _____
44. Current medications _____
    How Often _____
    Name _____
    Dose Frequency _____
    Reason for taking medication _____

Figure I-D-1 (continued)

REMARKS

(Identify question number being explained**)**

I have not withheld any information and the above is accurate to the best of my knowledge.

Signature: _____
(Applicant) (Date)

I have reviewed this information with the applicant.

Signature: _____
(Physician) (Date)

Figure I-D-2

MEDICAL EXAMINATION
(To be completed by physician)

NAME:_____DATE OF BIRTH:_____

ADDRESS:_____PHONE: (_____)_____

A. MEDICAL HISTORY**:** Is there significant history that would disqualify applicant from diving (spontaneous pneumothorax, other)?
YES___NO___ (See accompanying Medical History).

B. EXAMINATION: Blood Pressure: Systolic_____ Diastolic_____Post-exertion_____

Pulse rate - Resting_____/Minute After exercise_____/Minute

(Please check items below if considered abnormal and indicate under "remarks", the pertinent details.)

1.	General appearance, including obesity, gross deformity, postural abnormalities.	13.	Eye grounds exam.
2.	Head and neck.	14.	Upper extremities.
3.	Eyes, visual acuity, need corrective lenses.	15.	Lower extremities.
4.	Nose and sinuses.	16.	Neurological.
5.	Ears, including hearing, otitis, Eustachian tube orifice, or external perforations.	17.	Psychiatric, including apparent motivation regarding diving, emotional stability, claustrophobia.
6.	Spine.	18.	Skin reactions or eruptions.
7.	Lungs and chest.	19.	Breath holding test:___minutes seconds
8.	Heart.	20.	Chest X-ray.
9.	Abdomen.	21.	Chest fluoroscope.
10.	Inguinal rings.	22.	Valsalva maneuver.
11.	Genitalia.	23.	Mouth and throat.
12.	Anus and rectum.	24.	Oxygen tolerance test.
		25.	Color Blindness

REMARKS_____
_____
_____
_____

Figure I-D-2 (continued)

IMPRESSIONS: (Check one)

APPROVAL - I find no defects which I consider incompatible with diving.

CONDITIONAL APPROVAL - I do not consider diving in this applicant's best interest, but find no defects which present marked risk. I have discussed my impression with the applicant. Risks must be noted on this report.

DISAPPROVAL - This applicant has defects which in my opinion clearly would constitute unacceptable hazards to his health and safety in diving.

Signature _____
Physician

Address _____

Phone (____)_____ Date_____

Figure I-D-3

DIVER TRAINING AND WORK EXPERIENCE SUMMARY

NAME: _____ DATE OF BIRTH:_____
Last First Mi

CURRENT EMPLOYER: _____

1. DIVE TRAINING SUMMARY (Military and Private Institution Courses, Descriptions, Dates):

2. DIVE EMPLOYMENT SUMMARY (Employer, Job Position(s), Period Of Employment):

3. TRAINING AND EXPERIENCE IN RELATED FIELDS (*i.e.*, General Marine Construction, Explosives, Welding Certifications, ROV Operator Experience, First Aid, CPR, Related Dive Medical Training, *etc.*):

I have not withheld any information. The above and/or attached is accurate to the best of my knowledge.

SIGNATURE OF APPLICANT_____

(Attach additional sheets if necessary)

Figure I-D-4

DIVE LOG SUMMARY

NAME: DIVE COMPANY: CURRENT TO (DATE):

DATES	JOB DESCRIPTION	LOCATION/CUSTOMER	TYPE EQUIP	MAX DEPTH	POSITION	BT

Page_____of _____

Figure I-D-5 **ACTIVITY HAZARDS ANALYSIS**

ACTIVITY: ANALYZED BY/DATE: REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Identify the principal steps involved and the sequences of work activities.	*Analyze each principal step for its potential hazards.*	*Develop specific preventive measures for each potential hazard.*
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS

APPENDIX I

DIVING OPERATIONS

ANNEX E

Diving Operations Checklist

Walla Walla District Diving Operations Checklist

Site: **Date:** **Inspector:**

1. Qualifications of Dive Team	NA	OK	NOT OK
Divers have been cleared through Portland District Diving Program	☐	☐	☐
Divers meet experience requirements, *i.e.*, unlimited diver.	☐	☐	☐
Two qualified chamber operators per shift.	☐	☐	☐
All crewmembers qualified CPR/First Aid and O^2 trained.	☐	☐	☐
Divers who have had a serious dive related injury must obtain a medical release from the doctor. Divers who have had a baro-trauma or decompression injury may be prohibited form diving on a Corps job for 30-60 days.	☐	☐	☐
Divers who are ill or who have an ear or sinus infection should not be permitted to dive.	☐	☐	☐

2. Pre Dive & General Operations & Procedures	NA	OK	NOT OK
Qualifications Submittals provided to Portland Dive Coordinator including medicals, training documentation, *etc*.	☐	☐	☐
Insurance documentation provided to Contracting.	☐	☐	☐
Safe Practices manual submitted and accepted and a copy available on site.	☐	☐	☐
Dive Plan Submitted and Reviewed by Dive Coordinator and QA and accepted.	☐	☐	☐
Emergency Management Plan Completed and Available on site, Complete with emergency phone numbers, means of communication.	☐	☐	☐
Pre Dive meeting conducted and attendance roster signed. Briefed on safety, unusual hazards, reporting of symptoms, *etc*.	☐	☐	☐

Diving operations are coordinated with other activities in the vicinity that are likely to interfere with the diving operation.	☐	☐	☐
Appropriate clearances have been locked/tagged out and verified by the Contractor Dive Supervisor and the Corps Dive Inspector.	☐	☐	☐
Regulators are kept from freezing, either by use of a space heater, heat tape, or kept inside a warm shelter.	☐	☐	☐
Air supply system inspected before each dive.	☐	☐	☐
Breathing Air shall be certified by the manufacturer and re-checked prior to using a new bottle or bank of air for oxygen content.	☐	☐	☐
Each container of Nitrox shall also be tested prior to use with an oxygen analyzer and shall be with 1 percent of the certified mix.	☐	☐	☐
No Nitrox exceeding 40-percent oxygen is permitted unless approved by the DDC.	☐	☐	☐
Video monitor, cameras, and lights are all operational.	☐	☐	☐
Divers have two-way communication with the dive supervisor.	☐	☐	☐
Divers have a way to safety enter and exit the water. Ladders shall extend 3 feet below and 3 feet above the water surface at a minimum.	☐	☐	☐
Dive Flag is properly displayed and is clearly visible in areas where marine traffic is likely.	☐	☐	☐
A stokes litter is available, the litter shall have flotation and shall have picking eyes for extraction from the water.	☐	☐	☐

3. Dive Equipment and Tools	**NA**	**OK**	**NOT OK**
Divers have a 30 cubic foot minimum reserve air tank and have checked the pressure at the beginning of the dive.	☐	☐	☐
A dual lock decompression chamber is available on site, one for each dive team in the water, is partially pressurized, and has sufficient reserve air and oxygen to conduct the most severe treatment table if needed.	☐	☐	☐

The chamber has a heat source to maintain temperature.	☐	☐	☐
A mask is used inside the chamber when administering oxygen so oxygen can be vented directly outside, thus reducing the number of purging cycles and reducing the likelihood of a fire inside the chamber.	☐	☐	☐
All gauges are calibrated every 6 months.	☐	☐	☐
Each equipment modification, repair, test, calibration, and maintenance service must be recorded.	☐	☐	☐
Air compressor systems must conform to certain requirements regarding valves, gauges, intakes, and respiratory purity. Compressor must have a check valve on the inlet, pressure gauge, relief valve, and drain valve.	☐	☐	☐
Hoses are tested annually at 1.5 X maximum working pressure.	☐	☐	☐
Umbilicals are marked every 10 feet for first 100 feet, 50 feet thereafter. Diving hoses shall be color-coded.	☐	☐	☐
Umbilical has a 3/8” synthetic safety line.	☐	☐	☐
Weight belt has a quick release mechanism.	☐	☐	☐
First Aid Kit on site.	☐	☐	☐
Oxygen Treatment Kit Available.	☐	☐	☐
At least two timing devices per dive team in the water.	☐	☐	☐
When hot water suits are used, hot water-generating systems should have a 30-gallon reservoir. A backup system is also required.	☐	☐	☐
Tools used in underwater work should be designed for such operations and are in a good state of repair.	☐	☐	☐
High pressure water blasting units shall have a 3 foot wand extension, a reverse thruster, and a tip shield and should be working from a platform or on the ground.	☐	☐	☐
Burning and welding equipment is designed for underwater operations.	☐	☐	☐
Live boating is either not permitted or must meet certain guidelines.	☐	☐	☐

Compressed gas cylinders must meet certain requirements regarding design, maintenance, pressure testing, storage, and certification.	☐	☐	☐
Decompression chambers must be equipped with adequate atmosphere capacity, mufflers, suction guards, and fire extinguishing capabilities.	☐	☐	☐
Dive helmets have appropriate valves and ventilation capabilities.	☐	☐	☐
Divers shall be equipped with a harness with a D ring or the diver bailout harness shall be equipped with a D ring for extraction during an emergency.	☐	☐	☐

Post Dive	**NA**	**OK**	**NOT OK**
Breathing hoses are blown out and tapes closed.	☐	☐	☐
Dive activities are stopped 1 hr. before the end of the shift, or divers must remain within 30 minutes drive time of the chamber within 1 hour after surfacing.	☐	☐	☐
The dive chamber shall not be dismantled or made inoperable for up to 1 hour following the last dive.	☐	☐	☐
The diver should be visually observed after each dive and monitored for development of symptoms.	☐	☐	☐
Divers should not fly or exceed altitudes of 2,300 feet for up to 12 hours following a dive.	☐	☐	☐

Recordkeeping	**NA**	**OK**	**NOT OK**
A daily dive log is maintained for each dive.	☐	☐	☐
The employer must record the occurrence of any diving-related injury or illness that requires a dive team member to be hospitalized.	☐	☐	☐

APPENDIX J

APPOINTMENT OF DIVE OFFICERS

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APPOINTMENT OF DIVE OFFICERS

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Instructions

See most current Numbered Memorandum for Dive Officers at:

http://w3.nww.usace.army.mil/im/Recman/Publications/index.htm

Go to the above Intranet website, search on Publication Category, and select Numbered Memorandum. The most current Numbered Memorandum for Dive Officers will be in the 385 series (*e.g.,* 385-1-4. The title, Appointment of Dive Officers will show in the title column.

APPENDIX K

ERGONOMIC PROGRAM

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ERGONOMIC PROGRAM

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APPENDIX K

ERGONOMIC PROGRAM

1. PURPOSE. This appendix prescribes procedures to protect U.S. Army Corps of Engineers (Corps), Walla Walla District (District) employees who are at risk of cumulative trauma disorders (CTD). This appendix also prescribes procedures for designing the workplace to be compatible with human dimensions and capabilities thus reducing physical stress on the employee. Reducing physical stress on the employee will thereby increase productivity, worker satisfaction, improve morale, and decrease absenteeism and related medical costs.

2. APPLICABILITY. This appendix is applicable to all District personnel.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1910.950, *Occupational Safety and Health Standards, Ergonomics Safety and Health Management*.

b. Engineer Regulation (ER) 385-1-96, *USACE Ergonomics Program Policy*.

c. Engineering Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

d. Engineer Pamphlet (EP) 385-1-96, *USACE Ergonomics Program Procedures*.

e. Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH), 1994, *Applications Manual for the Revised NIOSH Lifting Equation*.

f. American National Standards Institute/Human Factors and Ergonomics Society (ANSI/HFES) 100, *Standard for Computer Work Stations.*

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Supervisors. The responsibilities of the District supervisors are as follow:

(1) Each supervisor is responsible for implementing and being familiar with the criteria established in this appendix.

(2) Identify ergonomic risk factors at his/her worksite(s) using the information given in this appendix.

(3) Request assistance from the Safety and Occupational Health Office (SO) or a project Environmental Protection Specialist (EPS) when a comprehensive ergonomic analysis is deemed necessary.

(4) Correct existing ergonomic hazards through redesign or modification of the workstations, work methods, tools, and equipment.

(5) Assure that purchases require all new office furnishings, tools, and equipment to be ergonomically designed.

(6) Attend mandatory training sessions for managers or request training through the SO.

(7) Provide training for employees who are considered moderate to high risk for CTD.

(8) Refer employees with physical complaints, associated with CTD, for prompt medical evaluation.

b. Employees. The responsibility of the District employees is as follow:

(1) Attend recommended ergonomic training sessions.

(2) Cooperate with managers/supervisors, SO, or others who perform ergonomic surveys of his/her workstation.

(3) Make recommended changes in their workstation that can be executed by the employee, such as proper placement of monitor, documents, chair adjustments, and housekeeping.

(4) Make changes in work habits as recommended in training or as a result of an ergonomic survey.

(5) Report promptly, symptoms or areas of discomfort associated with work tasks to the supervisor.

(6) Seek early medical evaluation of symptoms through the Occupational Health Unit, contract, or personal physician.

c. Safety and Occupational Health Office. The responsibility of the District SO is as follow:

(1) Implement the Ergonomic Program throughout the District.

(2) Provide mandatory training for managers.

(3) Provide training for employees who are identified at high risk for CTD, upon request of the supervisor and in regularly scheduled sessions.

(4) Provide ergonomic surveys of the worksite when employees are identified at moderate to high risk for CTD or upon request of the supervisor.

(5) Inform managers/supervisors of survey results through a written report of findings and recommendations.

(6) Provide medical evaluation, through the Occupational Health Unit, for symptoms associated with work tasks and refer when necessary for further evaluation and treatment. In addition, the Occupational Health Unit will play an integral role in determining where and when an ergonomic survey is indicated due to employees presenting physical complaints.

(7) Assist managers and supervisors with implementation of corrective measures through recommendation of types of tools, furnishings, work methods, *etc*.

5. WORKSITE ANALYSIS. The following items must be included in a worksite analysis.

a. The supervisor must make an initial determination of employees at risk of CTD using the following methods.

(1) Annual review of existing injury and illness records such as the Log of Injuries and Occupational Illnesses, Compensation Act (CA)-1 - Notice of Traumatic Injury, CA-2 - Notice of Disability, or ENG Form 3394 - Accident Investigation Report.

(2) Early recognition and analysis of employee observations, complaints, or suggestions regarding CTD symptoms or ergonomic stressors.

(3) Identify and analyze CTD trends in particular departments, job titles, and work areas.

(4) If musculoskeletal disorders have occurred in the past two years, the supervisor must proceed to further evaluation of the jobs.

(5) Corrective actions should be taken to remove the ergonomic hazards as soon as feasible.

(6) A baseline screening survey using ergonomic checklists.

b. Ergonomic Risk Factors. Identification of ergonomic hazards is based on ergonomic risk factors: conditions of a job process, work station, or work method that contributes to the risk of developing a CTD. Not all of these risk factors will be present

in every CTD-producing job, nor is the existence of one of these factors necessarily sufficient to cause a CTD.

(1) CTD Risk Factors. Some of the risk factors for CTD include the following:

(a) Repetitive and/or prolonged activities.

(b) Forceful exertions, usually with the hands or fingers (including pinch grips).

(c) Prolonged static postures.

(d) Awkward postures of the upper body, including reaching above the shoulders or behind the back, and twisting the wrists and other joints to perform tasks.

(e) Continual physical contact with work surfaces; *e.g.* contact with sharp edges of tables or desks.

(f) Restrictive workstations (inadequate clearances).

(g) Poorly fitting gloves, affecting grip strength.

(h) Excessive vibration from power tools.

(i) Cold or wet work temperature extremes.

(j) Inappropriate or inadequate hand tools.

(k) High-frequency and/or high-speed work or work pace near maximum.

(l) Unprotected exposure to excessive noise.

(2) Back Disorder Risk Factors. Risk factors for back disorders include items such as the following:

(a) Poor body mechanics such as, repeated bending over at the waist, repeated lifting from below the knees or above the shoulders, and twisting at the waist, especially while lifting.

(b) Lifting or moving objects of excessive weight or asymmetric size.

(c) Prolonged sitting, especially with poor posture.

(d) Lack of adjustable chairs, footrests, body supports, and work surfaces at workstations.

(e) Poor grips on handles.

(f) Slippery floors.

(3) Multiple Risk Factors. Jobs, operations, or workstations that have multiple risk factors have a higher probability of causing CTD. In general, employees exposed, for a period of 2 or more hours per day, to any risk factor are susceptible to developing a CTD. Likewise, some susceptible individuals may develop symptoms with less than 2 hours per day exposure to ergonomic risk factors. Supervisors must therefore consider all risk factors as potential problems and consider early intervention and correction.

(4) When risk factors are identified through screening surveys, the supervisor must proceed to identify the cause and fix the problem. If assistance is needed in acquiring a comprehensive ergonomic survey, the SO may be contacted.

c. Screening Surveys. The baseline screening survey is performed with an ergonomic checklist. These checklists include the *Employee Ergonomic Worksite Evaluation* and the *Computer Station Checklist* and can be obtained from the District SO. The checklist serves as a tool to assist the supervisor in determining the presence of ergonomic risk factors.

6. HAZARD PREVENTION AND CONTROL.

a. Engineering Controls. The focus of an ergonomic program is to make the job fit the person, not to force the person to fit the job. Designing or modifying the workstation, work methods, and tools to eliminate excessive stress can accomplish this.

(1) Work Station Design. Workstations should be easily adjustable and designed or selected to accommodate the worker that uses them.

(2) Workspace Design. The workspace should be large enough to allow for full range of required movements.

(3) Design of Work Methods. Work methods should be designed to reduce static, extreme and awkward postures, repetitive motion, and excessive force.

(4) Tools and Handle Design. Tools and handles, if well designed, reduce the risk of CTD. Tools and handles will be selected to eliminate or minimize the following stressors:

(a) Chronic muscle contraction or steady force.

(b) Extreme or awkward finger/hand/arm positions.

(c) Repetitive forceful motions.

(d) Tool vibration.

(e) Excessive gripping, pinching, and/or pressing with the hand and fingers.

b. Work Practice Controls. An effective program for hazard prevention and control includes procedures for safe and proper work that are understood and followed by managers, supervisors, and employees. Key elements include:

(1) Proper Work Techniques.

(a) Work methods that improve posture and reduce stress and strain on extremities.

(b) Correct lifting techniques (proper body mechanics).

(c) Proper use and maintenance of pneumatic and power tools.

(d) Correct use of ergonomically designed workstations and fixtures.

(2) New employee conditioning period. For new employees assigned to high risk areas a conditioning, or break-in period, should be required. New and reassigned employees should be gradually integrated into a full workload as appropriate for specific jobs and individuals.

(3) Monitoring. Monitoring should include periodic review of techniques in use and their effectiveness, including determination of whether the procedures in use are those that have been specified. If the specified procedures are not in use, then it should be determined why changes have occurred and whether corrective action is necessary.

c. Substitution. Substituting a new work process or tool for a work process with an identified ergonomic hazard can effectively eliminate the hazard (*i.e.,* replacing a large manual paper stapler with an automatic stapler when stapling large volumes of documents, thus reducing undue force on the hand).

d. Personal Protective Equipment (PPE). A PPE will be selected with ergonomic stressors in mind. Appropriate PPE will be provided in a variety of sizes, accommodate the physical requirements of workers and the job, and will not contribute to extreme postures and excessive forces (see appendix R for more details).

(1) Proper fit is essential. For example, gloves that are too thick or that fit improperly can reduce blood circulation and sensory feedback, contribute to slippage, and require excessive grip strength.

(2) Other types of PPE that may be selected for use should not increase ergonomic stressors.

e. Administrative Controls. A sound overall ergonomic program includes administrative controls that reduce the duration, frequency, and severity of exposures to ergonomic stressors. Examples of administrative controls include the following:

(1) Reducing the total number of repetitions per employee by such means as decreasing production rates and limiting overtime work.

(2) Providing rest pauses to relieve fatigued muscle-tendon groups. The length of time needed depends on the tasks overall effort and time required to finish.

(3) Increasing the number of employees assigned to a task to alleviate severe conditions, especially in lifting heavy objects.

(4) Using job rotation with caution and as a preventive measure, not as a response to symptoms.

(5) Verifying that mechanical, power tools, and equipment are in proper working order, and within the manufacturer's original specifications. Sufficient number of spare tools should be readily available.

(6) Minimizing slippery work surfaces and related hazards such as slips and falls through effective housekeeping.

(7) Encouraging task rotation so that the employee does not fatigue muscle-tendon groups by working on one task too long.

(8) Encouraging stretching and recommended exercise breaks to relax and condition muscles.

(9) Providing alternative duty assignments to allow injured muscle-tendon groups time to rest, assisting in the healing process. Alternative assignments should be provided when physical limitations (as identified by a health care provider) allow the worker to return to work performing less than his/her normal work requirements. Supervisors needing assistance with alternative duty assignments should contact the Management - Employee Relations Branch of the Human Resource Office.

7. MEDICAL MANAGEMENT.

a. Early treatment and intervention is the key to avoiding long term disabilities created by CTD. This means encouraging employees to seek early medical evaluation for musculoskeletal complaints and early assessment of the job for possible ergonomic stressors.

b. A health care provider must promptly evaluate employees with musculoskeletal complaints. Appropriate treatment and follow-up must be provided. The employee's personal physician, contract physician, or Occupational Health Unit usually does the initial evaluation.

c. When an employee is diagnosed with any of the following conditions, the effects of the job, either as a contributing or aggravating factor, must be considered:

(1) Carpal Tunnel Syndrome (hand - median nerve compression).

(2) Tendonitis or tenosynovitis.

(3) Ulnar nerve compression.

(4) DeQuervain's disease (thumb - radial nerve).

(5) Trigger finger.

(6) Ulnar nerve compression.

(7) Lateral epicondylitis (tennis elbow - ulnar nerve).

8. EMPLOYEE TRAINING AND EDUCATION.

a. Training is necessary for all levels of employees to enable them to understand and recognize potential ergonomic hazards and actively participate in their prevention and correction. When possible a health care provider or person knowledgeable in ergonomics shall conduct training as follows:

(1) Mandatory Training for Managers and Supervisors.

(a) Ergonomic awareness training must be provided for all managers and supervisors at least once and as needed thereafter.

(b) This training will be provided by the SO or through an outside source that is knowledgeable in ergonomics.

(c) For managers and supervisors unable to participate in scheduled sessions, special arrangements for training can be made through the SO.

(2) Employee training will be provided as follows:

(a) All employees whose jobs are considered at moderate to high risk for ergonomic stressors shall also receive training. This includes employees with jobs exposing them to identified risk factors for a period of 2 or more hours per day.

(b) The SO will provide, in conjunction with ergonomic surveys, regularly scheduled training sessions.

(c) Training will consist of the following topics:

- Ergonomic awareness and how to use proper control measures.
- Symptoms and description of the different types of CTD, and their treatment.
- Means of prevention, intervention, and causes of CTD.
- Protocol for reporting symptoms and requesting a job site analysis.

9. RECORDKEEPING.

a. Under the Occupational Safety and Health Act, all work-related illnesses must be recorded on the Log of Injuries and Occupational Illnesses, as an occupational illness. These are disorders caused, aggravated, or precipitated by repeated motion, vibration, or pressure. Supervisors should coordinate with the SO when reporting.

b. In order to be considered work-related the exposure at work either caused or contributed to the onset of symptoms or aggravated existing symptoms to the point that they meet Occupational Safety and Health Administration recordability criteria.

c. If the following criteria are met then a CTD illness exists that must be recorded on the Occupational Safety and Health Administration (OSHA) 300 log. There must be either physical findings, OR subjective symptoms and resulting action. Namely, there must be either:

(1) At least one physical finding (*e.g.*, positive Tinel's, Phalen's, or Finkelstein's test; or swelling, redness, deformity; or loss of motion), OR

(2) At least one subjective symptom (*e.g.*, pain, numbness, tingling, aching, stiffness, or burning), **AND** at least one of the following:

(a) Medical treatment (including self-administered treatment when made available to employees by their employer).

(b) Lost workdays (including restricted work activity).

(c) Transfer/rotation to another job.

(3) Occupational Injuries. Injuries are caused by events in the work environment. To keep recordkeeping determinations as simple and equitable as possible, back cases are classified as traumatic injuries.

(4) All medical records will be retained in the SO and maintained by the Occupational Health Nurse in accordance with the Privacy Act of 1974 and 29 CFR 1910.1020, *Access to Employee Exposure and Medical Records*.

APPENDIX L

FIRST AID AND CARDIOPULMONARY RESUSCITATION

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FIRST AID AND CARDIOPULMONARY RESUSCITATION

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APPENDIX L

FIRST AID AND CARDIOPULMONARY RESUSCITATION

1. PURPOSE. This appendix will set forth guidelines and standards to be followed by the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel in the areas of first aid and cardiopulmonary resuscitation (CPR) in accordance with 29 Code of Federal Regulation (CFR) 1910.151.

2. APPLICABILITY. This appendix applies to all District elements.

3. REQUIRED REFERENCES.

a. 29 CFR 1910.151, *Occupational Safety and Health Standards, Medical Services and First Aid.*

b. 29 CFR 1926.50, *Occupational Health and Environmental Controls, Medical Services First Aid.*

c. Engineer Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Safety and Occupational Health Office (SO). The responsibilities of the SO are as follow:

(1) Provide oversight of the First Aid/CPR Program.

(2) Maintain lists of trained first-aid responders in the SO and at each project/field office.

b. Division and Office Chiefs within the District. The responsibilities of the Division and Office Chiefs are as follow:

(1) Provide support to the program by soliciting volunteers from their staff to serve as “designated first-aid responders”.

(2) Ensure that each of their employees selected as designated first-aid responders receives training in first aid and CPR.

c. Project Engineer/Manager or Area/Resident Engineer. The responsibilities of the Project Engineer/Manager or Area/Resident Engineer are as follow:

(1) Identify an appropriate number of designated first-aid responders dependant upon the size of their staff and the nature of their work.

(2) Ensure that each of their employees who have been selected as "designated first-aid responder" receives the training in first aid and CPR.

(3) Provide training materials such as alcohol for disinfecting, bandages, slings, *etc*.

5. PROCEDURES. The procedures for this appendix are as follow:

a. Every injury and illness incurred on the job, regardless of degree of seriousness, will be given prompt attention.

b. Individual pieces of floating plants, drill crew vehicles, survey party vehicles, and other isolated field work units are required to have a 16-unit first aid kit.

c. Vehicles regularly utilized by employees working at remote sites, and security guard and ranger vehicles will have prescribed first aid kits.

d. Standard 16-unit first aid kits will be utilized in accordance with EM 385-1-1, section 03.B.

APPENDIX M

HAZARD COMMUNICATION

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APPENDIX M

HAZARD COMMUNICATION

1. PURPOSE. This appendix sets forth the procedures to ensure that the hazards of all chemicals used in the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) are evaluated and information concerning those hazards is provided to affected employees so they may protect themselves from those hazards. This appendix does not apply to hazardous, toxic, and radiological waste mitigation.

2. APPLICABILITY. This applies to all District employees that use or handle hazardous materials.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulations (CFR) 1910.1200, *Occupational Safety and Health Standards, Hazard Communication*.

b. 29 CFR 1960, *Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters*.

c. Engineer Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Safety and Occupational Health Office (SO). The responsibilities of the SO are as follow:

(1) Coordinate with the Contracting Division Chief, or the warehouseman to ensure that all purchases require suppliers to furnish a Material Safety Data Sheet (MSDS).

(2) Ensure that the Logistics Management Office Chief forwards all MSDSs to the user upon delivery of the materials.

(3) Maintain a complete copy of Hazardous Material Inventory for the District.

(4) Provide necessary training aids and materials.

(5) Coordinate Hazard Communication training with affected offices.

(6) Periodically check compliance on the labeling of hazardous materials.

(7) Periodically check compliance of the availability of MSDS information.

(8) Provide a sample hazard communication program on the District Intranet.

b. Supervisors. The responsibilities of the District supervisors are as follow:

(1) Ensure that a MSDS is requested for all local purchases of hazardous materials.

(2) Ensure that employees have been provided hazard communication training before work assignments.

(3) Maintain a current Hazardous Material Inventory and a MSDS for each item on the inventory.

(4) Designate a Hazard Communication Coordinator (HCC) to oversee the local program.

(5) Ensure that all secondary containers extending past one shift will be labeled with either an extra copy of the original manufacturer's label or something equivalent.

(6) Review incoming MSDSs for new products or changes to existing MSDSs and relay the information to all affected employees.

c. Project Safety Officer or HCC. The responsibilities of the District Project Safety Officer or HCC are as follow:

(1) Implement the Hazard Communication program locally.

(2) Review the project labeling system periodically and update as required.

(3) Ensure that Hazard Communication training is provided anytime a new chemical is introduced into the workplace and to all new employees before any initial work assignments.

(4) Review each MSDS for accuracy and completeness and consult with the SO if additional research or information is needed. The MSDS Pocket Dictionary (available in the SO) can be used as a guide for reviewing MSDSs.

(5) Maintain a Hazardous Material Inventory of all hazardous materials and update the inventory when necessary.

d. Employees. The responsibilities of the District employees are as follow:

(1) Attend Hazard Communication training prior to using hazardous materials and whenever a new hazardous material is introduced into the workplace.

(2) Inform supervisor of new hazardous materials in the workplace.

(3) Wear appropriate personal protective clothing and equipment (see appendix R for more details).

APPENDIX N

SAFETY TRAINING

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SAFETY TRAINING

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APPENDIX N

SAFETY TRAINING

1. PURPOSE. The purpose of this appendix is to educate and inform the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel of the Safety and Occupational Health (SOH) Training requirements.

2. REFERENCES. Specific references are cited throughout this appendix.

3. RESPONSIBILITIES. Each Supervisor/Lead will ensure the following:

a. All new and transfer employees are given a safety indoctrination to include:

(1) A review of their specific Job Hazard Analysis.

(2) Their rights and responsibilities regarding safety and occupational health.

(3) Accident reporting/Worker's Compensation Program.

(4) Reporting unsafe conditions.

b. All employees under their supervision are provided the appropriate training to safely perform their job.

4. GENERAL.

a. All Division, Branch, and Office Chiefs and Area, Resident, and Project Engineers will receive training that will enable them to implement the SOH Program as it pertains to their employees and functions. Such orientation should include coverage of Section 19 of Occupational Safety and Health Administration (OSHA), Executive Order 12196, and the District Safety and Occupational Program.

b. All supervisors will receive training that includes supervisory responsibility for providing and maintaining safe and healthful working conditions for employees. Introductory and specialized courses that will enable supervisors to recognize and eliminate or control occupational safety and health hazards in their working units will be emphasized. Such training will also include the development of skills in training and motivating subordinates toward assuring safe and healthful work practices.

c. Safety training may be accomplished in various ways. For example, employees may utilize resident courses, in-house training, and correspondence courses. Employees may also participate in safety meetings, toolbox sessions, and view safety videos available from the District Library.

d. The Safety and Occupational Health Office (SO) will assist in determining training needs, advise the supervisors of alternatives, and provide support and training materials. A large selection of safety videos is available from the District library. The SO maintains additional training materials that are available on request.

e. Employees that are represented by labor organizations recognized by the District will include both introductory and specialized courses that will enable such groups to function safely in their positions and prepare them for participation in workplace safety and health inspections.

f. The SO will maintain a database for SOH related training. To ensure safety training is documented, copies of sign-up sheets will be forwarded to the SO each quarter.

g. A training matrix depicting necessary training needed for most job categories in the Operations Division of the District is available at http://w3.nww.usace.army.mil/od/FCRPS/FCRPS_Train_Matrix.xls.

5. MANDATORY SAFETY TRAINING.

a. Occupational Noise Exposure. The employer shall institute a training program for all employees who are exposed to noise at or above a time-weighted average of 85 decibels or above. The minimum training requirements are identified in the referenced OSHA standard. The training shall be done annually.

Regulations Cited:	29 Code of Federal Regulation (CFR) 1910.95(k)&(1) and Engineer Manual (EM) 385-1-1, Section 05.C.
Audience:	This course is required for all individuals who are in the Hearing Conservation Program.

b. Emergency Evacuation Plans. The immediate supervisor shall review the plan with each employee upon initial assignment, whenever an employee is assigned to a new area, and whenever the plan changes.

Regulations Cited:	29 CFR 1910.38(a)(5)(ii)&(iii) and EM 385-1-1, Section 01.E.
Audience:	All employees.

c. Fire Extinguisher Use. Where portable fire extinguishers are provided in the workplace, the employer will provide training in fire extinguisher use and hazards

involved with incipient stage fire fighting. This will be done upon initial assignment and annually thereafter. Training may include video, demonstration, or written material.

Regulations Cited:	29 CFR 1910.157(g) and EM 385-1-1, Section 09.E.04 and appendix L.
Audience:	All employees.

d. Respiratory Protection. Both employees and supervisors of employees required to use respirators shall be instructed in the selection, use, and maintenance of respirators to include self-contained breathing apparatus. Instruction must include the limitations of respirators, fitting instructions, maintenance, and use.

Regulations Cited:	29 CFR 1910.134 and EM 385-1-1, Section 05.E and appendix L.
Audience:	Individuals who may be exposed to hazardous substances at or above the action level; *i.e*., paints, chemicals, wood dust, *etc*.

e. First Aid Services. In the absence of an infirmary, clinic, or hospital within a 5-minute response to the workplace, a person or persons shall be trained to render first aid. Any recognized first aid course is acceptable.

Regulations Cited:	29 CFR 1910.151(a)&(b) and EM 385-1-1, Section 03.A.
Audience:	Designated first-aid responders; employees with first-aid responsibilities, written or unwritten, and employees that routinely work in remote locations.

f. Automatic Electronic Defibrillator (AED). Operators of AEDs shall be trained in basic life support and cardio-pulmonary resuscitation.

Regulations Cited:	Engineer Circular (EC) 385-2-221.
Audience:	Employees designated in writing as an AED user.

g. Power Industrial Trucks (Forklifts). Only trained and authorized operators shall be permitted to operate a powered industrial truck.

Regulations Cited:	29 CFR 1910.178.
Audience:	Individuals designated by the employer to operate forklifts. Required prior to operation with a refresher course every 5 years.

h. Crane Operator Training. Only designated personnel shall be permitted to operate each specific type of crane. "Designated" is defined by OSHA as selected or assigned by the employer as being qualified to perform specific duties.

Regulations Cited:	29 CFR 1910.179(b)(8), 29 CFR 1910.180(b)(3), and EM 385-1-1, Section 16.C.
Audience:	Individuals that operate cranes.

i. Asbestos. The employer shall institute a training program to all employees exposed to airborne concentrations at or above the action level or excursion limit of asbestos. The training will be given upon initial assignment and annually thereafter. The training requirements are included in the referenced OSHA regulation. A shortened "awareness level" course should be given annually to all employees assigned to work in facilities containing asbestos. Maintenance and janitorial workers who disturb or come into contact with asbestos will also receive training.

Regulations Cited:	29 CFR 1910.1001(j)(5) and 29 CFR 1926.1101(k)(9).
Audience:	Individuals involved in asbestos abatement.

j. Hazard Communication. The training should include methods and observations used to detect the presence or release of a hazardous chemical, the physical and chemical hazards in the work area, measures available to employees for protection against the hazards associated with the chemicals used in the work area, and the written Hazard Communication program.

Regulations Cited:	29 CFR 1910.1200(h)(2) and EM 385-1-1.
Audience:	All employees working with or around hazardous chemicals/substances.

k. Lockout/Tagout or Safe Clearance Training. The requirements for this training are listed in the OSHA reference below:

Regulations Cited:	29 CFR 1910.147(7), ER 385-1-31, and EM 385-1-1.
Audience:	All individuals who work with or around hazardous energy sources. Employees directly affected by the program need thorough training and those that are not directly affected but work in close proximity need awareness-level training. The awareness-level training is to teach employees of the purpose of the program and of the importance of not tampering with locks or tags.

l. Boat Operator Training. Training covers safe boat operation, including Federal, State, and local laws and regulations. The course includes testing and licensing of boat operators.

Regulations Cited:	Engineer Regulation (ER) 385-1-91 and EM 385-1-1.
Audience:	All employees operating boats under 26 feet in length. NOTE: The United States Coast Guard currently exempts Corps employees from licensing for operation of boats over 26 feet in length. A new Memorandum of Understanding with the Coast Guard is currently being developed.

m. Diving Inspector or Supervisor. Provides Corps employees with skills, knowledge, techniques, and methods to monitor diving operations.

Regulations Cited:	ER 385-1-86 and EM 385-1-1.
Audience:	Individuals who will be inspecting contract diving operations; *i.e*., the District Diving Coordinator, his Alternate, and construction inspectors. This course is an approved U.S. Army Corps of Engineers Headquarters diving inspector course. Alternative courses must be approved by

the Headquarters, Safety and Occupational Safety Office (CESO).

n. Electrical Safe Work Practices. Provides both electrical workers and non-electrical workers with sufficient knowledge of electricity to recognize and avoid electrical hazards.

Regulations Cited:	29 CFR 1910.331 and EM 385-1-1.
Audience:	Individuals who will be working on, near, or with energized electrical equipment including but not limited to the following: premises wiring, wiring for connection to supply, other wiring, hydroelectric turbines/generators, and switch gear.

o. Pesticide Application. Prepares employees for obtaining a State pesticide application license.

Regulations Cited:	40 CFR 171.
Audience:	Employees who are required to be licensed pesticide applicators.

p. Bloodborne Pathogen Awareness Training. Informs employees of health hazards associated with exposure to blood and other body fluids.

Regulations Cited:	29 CFR 1910.1030.
Audience:	Mandatory for individuals identified as being high risk due to exposure to blood or bodily fluids. Awareness training is recommended for all employees.

q. Safety and Health Decision Making For Managers. This course meets the intent of OSHA's Hazardous and Toxic Waste (HTW) supervisory training requirement.

Regulations Cited:	29 CFR 1910.120.
Audience:	Individuals responsible for managing or supervising health and safety programs for employees working at hazardous waste sites, treatment storage, and disposal facilities, or responding to chemical emergencies.

Prerequisites:	Individuals must attend the 40-hour Safety and Health for Hazardous Waste Sites before attending this course.

r. Safety and Health for Hazardous Waste Sites. Meets the intent of OSHA's 40-hour training requirement for HTW work.

Regulations Cited:	29 CFR 1910.120.
Audience:	All employees working with or around hazardous wastes [Defense Environmental Restoration Program (DERP), Industrial Readiness Planning (IRP), Formerly Used Defense Sites (FUDS), Environmental Protection Agency (EPA), or Superfund sites].

s. Safety and Health for Hazardous Waste Sites - Refresher. Meets the intent of OSHA's 8-hour training requirement for hazardous, toxic, and radioactive waste (HTRW) work.

Regulations Cited:	29 CFR 1910.120.
Audience:	Those employees who have attended the 40-hour Safety and Health for Hazardous Waste Sites and are working on or plan to work on a DERP, IRP, FUDS, EPA, or Superfund site during the current year should attend this 8-hour refresher.

t. Confined Space. The employer shall provide training so that all employees involved in confined-space entry acquire the understanding, knowledge, and skills required to safely perform their duties associated with confined spaces.

Regulations Cited:	29 CFR 1910.146 and EM 385-1-1.
Audience:	All employees subject to entering confined spaces.

u. Back Injury Prevention. Provides information on proper lifting techniques, back exercises, and back physiology.

Regulations Cited:	EM 385-1-1.

Audience:	Mandatory for individuals who are employed in positions requiring lifting, repeated bending, and/or manual labor type positions. Recommended for all employees.

v. Lead/Cadmium. Provides information on the hazards of working with lead and cadmium.

Regulations Cited:	29 CFR 1910.1025, 29 CFR 1910.1027, 29 CFR 1926.62, and 29 CFR 1926.63.
Audience:	Individuals who work with lead at or above the action level or for whom the potential for skin or eye irritation exists. Lead awareness training is required annually. Individuals who have the potential for being exposed to cadmium. This is an annual training requirement. This training is required regardless of the exposure level.

6. RECOMMENDED SAFETY TRAINING.

a. Accident Investigation and Reporting. This training covers accident investigation techniques, when to report accidents, and how to complete accident report forms.

Regulations Cited:	Army Regulation (AR) 385-40 and EM 385-1-1.
Audience:	Individuals responsible for accident investigations; *i.e.*, supervisors, foremen, and construction representatives.

b. Underground Storage Tank Removal. Informs employees of safety and environmental issues associated with underground storage tank removal.

Regulations Cited:	EPA.
Audience:	Individuals who work with or around storage tank removal facilities.

c. Job Hazard Analysis. Provides an explanation of the job hazard analysis/activity hazard analysis process.

Regulations Cited:	29 CFR 1910.133, and OSHA Pamphlet 3071.
Audience:	Those individuals who are working with or are going to work with job hazard analyses.

7. See the District training matrix maintained by Civilian Personnel Advisory Center for additional courses based on job specialty.

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HEARING CONSERVATION

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APPENDIX O

HEARING CONSERVATION

1. PURPOSE. The purpose of this appendix is to educate and inform the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel of the proper procedures to prevent occupational noise-related hearing loss.

2. APPLICABILITY. This applies to all District personnel that are exposed to sound exceeding 85 decibels (dB), A-scale (A) steady state or 140 dB (A) impulse, regardless of the duration of exposure.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation 1910.95, *Occupation Safety and Health Standards, Occupational Noise Exposure*.

b. Engineering Regulation 385-1-89, *Hearing Conservation Program*.

c. Engineer Manual 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Safety and Occupational Health Office. The responsibilities of the Safety and Occupational Health Office are as follow:

(1) Provide program oversight and technical assistance.

(2) Recommend adequate controls for hazardous noise.

(3) Maintain noise measurement exposure and evaluation data.

(4) Ensure that audiograms are analyzed, reviewed, and compared to the employee's baseline audiogram.

b. Operating Project Managers. The responsibilities of the Operating Project Managers are as follow:

(1) Ensure his/her operating project has a written hearing conservation program in place.

(2) Ensure annual audiograms are given to all applicable employees and reviewed by a competent person.

(3) Ensure noise evaluations are conducted in areas and operations suspected of being noise-hazardous.

(4) Ensure adequate controls are implemented to reduce noise to below hazardous levels.

(5) Ensure exposed employees are notified of all designated noise-hazardous areas and equipment under his/her control and/or within his/her working environment.

c. Supervisors. The responsibilities of the District supervisors are as follow:

(1) Assure that areas and/or equipment designated as noise-hazardous are posted. Request noise evaluations of areas suspected of being noise hazardous, and evaluate work methods and procedures to detect suspected or potential noise hazards.

(2) Identify employees whose duties require exposure to designated noise-hazardous areas or equipment and ensure that these employees are included in the Hearing Conservation Program.

(3) Ensure that all employees entering a designated noise-hazardous area are furnished and wear appropriate hearing protective devices. Hearing protection will be made available near all designated noise-hazardous areas.

(4) Identify positions that require exposure to noise-hazardous areas and/or equipment when submitting recruitment actions to the Civilian Personnel Advisory Center.

(5) Enforce the use of hearing protective devices and implement disciplinary action when necessary.

d. Employees. The responsibilities of the District employees are as follow:

(1) Wear hearing protective devices.

(2) Take appropriate audiograms, as directed.

(3) Notify their supervisor of suspected noise hazards, hearing problems, and hearing protective devices in need of replacement.

5. DEFINITIONS. Definitions for sound measures and hearing tests are as follow:

a. Audiogram. A graphic record of hearing sensitivity resulting from an audiometric test. This record shows an individual's hearing threshold as a function of frequency.

b. Baseline Audiogram. The audiogram against which all future audiograms are compared.

c. Decibel. A measure of sound pressure.

d. dB(A). A weighted measure of sound pressure used with sound level meters. The weighting causes the sensitivity of the sound level meter to vary with the frequency and intensity of sound and in doing so duplicates the response of the human ear.

e. Impulse Noise. High-intensity noise, which exceeds 140 dB(A) and occurs with intervals greater than 1 second between peaks.

f. Steady Noise. Sound that does not significantly change in intensity or frequency with time.

g. Standard Threshold Shift. A change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2,000, 3,000, and 4,000 Hertz (Hz) in either ear.

6. GENERAL. A sample standard operating procedure is available from the Safety and Occupational Health Office upon request.

APPENDIX P

INDUSTRIAL HYGIENE PROGRAM

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APPENDIX P

INDUSTRIAL HYGIENE PROGRAM

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix prescribes requirements and policies to ensure that employees and the appropriate staff are trained to recognize, evaluate, and control hazards caused by exposure to hazardous materials such as toxic chemicals, biological, and physical agents.

2. APPLICABILITY. This appendix shall apply to all employees and activities of the District.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1910, *Occupational Safety and Health Standards*.

b. Department of Defense Instruction (DODI) 6055.1, *Occupational Safety and Health Program.*

c. DODI 6055.5, *Industrial Hygiene and Occupational Health*.

d. Army Regulation (AR) 40-5, *Preventative Medicine*.

e. Engineer Regulation (ER) 385-1-92, *Safety and Occupational Health Document Requirements for Hazardous, Toxic, Radioactive Waste (HTRW) and Ordinance and Explosive Waste (OEW) Activities*.

f. Engineering Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

g. Engineer Pamphlet (EP) 385-1-58, *Occupational Health Handbook*.

4. RELATED REFERENCES. American Conference of Governmental Industrial Hygienists, Inc. (ACGIH), *Threshold Limit Values and Biological Exposure Indices.*

5. GENERAL POLICY. The general policy of this appendix is as follow:

a. All activities, materials, and equipment shall be evaluated to determine the presence of hazardous environments or if hazardous or toxic agents could be released into the work environment. Identification of the chemical, biological, or physical agents to which workers are exposed must be accomplished as a first step to ensure healthy and safe work environments.

b. To ensure potentially hazardous work environments are identified, supervisors, with advice and assistance from a safety professional must complete a Position Hazard Analysis (PHA) for each position. Details concerning PHAs are discussed in appendix S. The analyses shall identify all substances, agents, and environments that present an occupational health hazard and identify a specific control (administrative or engineering) for the hazard. Testing and monitoring of work environments shall be accomplished using the guidance provided in EM 385-1-1.

c. Annual industrial hygiene (IH) surveys shall be conducted in workplaces with potential chemical, biological, and physical hazards. A qualified industrial hygienist or other competent person to formulate a hazard control/abatement program shall perform these annual surveys. The designated authority must approve this program before the start of any operations. These annual IH surveys are to be accomplished as part of the overall hazard inspection program detailed in appendix X. The hazard control program shall incorporate a risk and priority action system to systemically evaluate and eliminate hazards based on exposure potential and severity. A Risk Assessment Code system (RAC) and accompanying Priority Action Code system should be incorporated into the program.

d. Exposure, through inhalation, ingestion, skin absorption, or physical contact, to any chemical, biological, or physical agent in excess of the acceptable limits specified in the ACGIH, *"Threshold Limit Values and Biological Exposure Indices"* shall be prohibited. In case of conflicts between ACGIH and other standards or regulations Occupational Safety and Health Administration (OSHA), the more stringent shall prevail.

e. Hazardous or potentially hazardous exposures will be reduced by the following:

(1) Elimination or substitution of the agent or chemical.

(2) Use of engineering or work practice controls.

(3) By the use of personal protective equipment (PPE).

f. An industrial hygiene implementation plan (IHIP) will be developed listing IH functions, resources available, and a priority schedule for accomplishing the required tasks. Specific IH program and functional areas are discussed in paragraph 7 of this appendix.

6. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Safety and Occupational Health Office. The responsibilities of the Safety and Occupational Health Office are as follow:

(1) Ensure competent industrial hygienists and resources are available to effectively provide oversight of the IH program.

(2) Ensure that an IH program document is developed reflecting the activities and program requirements within the District, which is to be reevaluated at least annually.

(3) Review each employee's Industrial Hygiene Exposure Assessment (IHEA).

(4) Ensure that each supervisor has completed an accurate PHA or activity hazard analysis for his/her work area. Validate these analyses and incorporate in baseline or annual health hazard inventory data collection and analysis procedures.

(5) Develop an IHIP that will serve to prioritize and update program service requirements annually. Schedule and evaluate potentially hazardous work areas on an annual basis.

(6) Conduct IH surveys and assess results.

(7) Conduct a risk assessment to develop priorities for hazard abatement and control.

(8) Provide technical assistance concerning IH issues and concerns, including use of engineering controls, personal protective equipment, and respiratory protection.

(9) Ensure maintenance of worker exposure data record keeping in accordance with all applicable regulatory guidance.

(10) Conduct follow-up on abatement actions.

(11) Develop an IHIP annually.

(12) Develop a Health Hazard Inventory (HHI) for the District.

b. Project Safety Officer. The responsibilities of the Project Safety Officer are as follow:

(1) Develop an IHIP annually for the operating project.

(2) Develop and maintain a HHI for the operating project.

(3) Ensure that each supervisor has completed an accurate PHA or activity hazard analysis for his/her work area.

(4) Provide training to employees relative to exposures and controls.

c. Supervisors. The responsibilities of the District supervisors are as follow:

(1) Conduct a PHA for each employee to determine if health hazards are, or are likely to be present in their representative work area.

(2) Ensure Material Safety Data Sheets (MSDS) are obtained and reviewed for all hazardous chemicals in the workplace and displayed in an accessible location. When new substances are procured that are identified as being highly toxic or a reproductive hazard, the Safety and Occupational Health Office shall be contacted immediately for assistance.

(3) Inform employees of potentially hazardous operations and environments and ensure Standard Operating Procedures (SOP) are developed to minimize potential exposures.

(4) Ensure employees attend required training and/or retraining.

(5) Be aware of the employees under his/her supervision requiring medical surveillance and keep employees appraised of actions regarding their medical surveillance (see appendix Q for more information).

d. Employees. The responsibilities of the District employees are as follow:

(1) Demonstrate an understanding of the training above.

(2) Follow all SOPs, including the use of engineering and work controls.

(3) Call attention to any potential exposure situations to his/her supervisor.

7. INDUSTRIAL HYGIENE PROGRAM FUNCTIONS. The functions of this program are as follow:

a. Exposure Monitoring Plan. Breathing zone, hazardous material and chemical exposure monitoring, ventilation studies, and indoor air quality studies.

b. Industrial Hygiene Equipment Maintenance and Calibration. This will be coordinated with Logistics Management. Frequently no-cost calibration services are available at local Army posts.

c. Medical Surveillance and Occupational Health Program. All employees in the District who are potentially exposed to hazardous chemicals or environments shall be considered for inclusion in the medical surveillance program. Details concerning the Medical Surveillance and Occupational Health Program are contained in appendix Q.

d. Personal Protective Equipment Program. See appendix R for details.

e. Respiratory Protection Program. See appendix U for details.

f. Hazard Communication Program. See appendix M for details.

g. Asbestos Management. See appendix C for details.

h. Confined Space Entry Program. See appendix G for details.

i. Hearing Conservation Program. See appendix O for details.

j. Specification and Design Review. Review plans for new or modified equipment, construction, and purchasing or service contract activities to ensure appropriate and adequate engineering controls and sound design concepts are incorporated in all plans and specifications as they relate to IH or occupational health issues. Ensures appropriate criteria for storage and use of hazardous materials, equipment, and operations that produce chemical, physical, and/or biological hazards. Evaluates risks, recommends design changes, and provides approval or disapproval.

k. HTRW Safety and Health [including Ordinance & Explosives (OE) and Chemical Agent/Surety issues]. See ER 385-1-92 for details.

l. Ergonomics Program. See appendix K for details.

m. Bloodborne Pathogens Program. See appendix E for details.

n. Training. Training is provided, including but not limited to the following topics: OSHA guidelines, employee orientation, respiratory protection, asbestos, lead & cadmium, pesticides, hazardous waste operations, hearing conservation, personal protective equipment, and respiratory protection. See individual appendixes and appendix Z for details.

o. Epidemiological Investigations. Industrial hygiene assistance may be needed concerning disease or illness outbreaks. An epidemiologist or occupational health physician may be needed to assist in these investigations. The AR 40-5 contains information concerning this issue.

p. Contract Work. Special safety requirements pertaining to control of occupational health hazards on specific projects not included in EM 385-1-1 will be included in the contract specifications and reviewed by the industrial hygienist for Industrial Hygiene/Occupational Health (IH/OH) compliance.

8. PERIODIC IH REQUIREMENTS. The requirements of a periodic IH are as follow:

a. Monitoring. Air monitoring of welding/cavitation repair, personal noise monitoring, air monitoring of open-air solvent tanks, air monitoring for ozone in turbines, air monitoring during abrasive blasting operations, survey of air quality of compressors for supplied air respirators, air monitoring during painting operations, a hazardous material inventory, evaluation of engineering control, (*i.e.*, flow notes and velocities on paint booths, lab hoods, air exchange rates in battery charging, *etc*.).

b. Annual Training. Lead and Cadmium, Back Injury Prevention, Hearing Conservation, Respirator use, Hazard Communication, Laser Safety, PPE, Confined Space Entry and Bloodborne Pathogens. See appendix Z for specifics on training requirements.

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INDUSTRIAL HYGIENE PROGRAM

ANNEX A

Sample Health Hazard Inventory

APPENDIX P, ANNEX A

SAMPLE
Health Hazard Inventory (HHI)
(Project name)

Welding fumes-cavitation repair
Welding fumes-welding shop
Solvent tanks-natural resource garage, metal shop
Wood dust-Natural Resource wood shop
Noise-equipment operation, powerhouse, wood shop, metal shop, lawnmowers, weed eaters, and chainsaws.
Electromagnetic Fields (EMF)-powerhouse
Ozone-generator housing.
Poly Chlorinated Biphenyls (PCBs)-no PCBs known to be on site. May exist in some capacitors, but cannot be verified without destructive testing.
Pesticides -
Lead & Cadmium - welding
Asbestos - Each project has an asbestos inventory and management plan. Small-scale abatement using glove bags may be done on an irregular basis. Larger jobs are contracted out.
Paint vapors-paint spray booth
Indoor Air Quality (IAQ)
Radar from vessels
Exhaust and carbon monoxide-lockwall
Lighting-stairwells of powerhouse
Radon
Drinking Water Quality

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INDUSTRIAL HYGIENE PROGRAM

ANNEX B

Sample Walla Walla District Risk Assessment

APPENDIX P, ANNEX B

(SAMPLE)
Walla Walla District
Risk Assessment

This matrix should be used to prioritize IH needs based on the requirements of AR 40-5 and the Occupational Health Act of 1970. It is used to ensure safe and healthful working conditions at all operating projects within the District.

The priority scheme used to assess risk is as follows:

Exposure Frequency
0-12 (1 day/month or less)=Low (3)
12-52 (1 day/week or less)=Medium (2)
52+ (more than 1 day/week)=High (1)

Exposure Severity
I=Incidental (Process and/or products are used nearby), pass through the area or may conduct short inspection. Worker is not involved with the job that is producing the exposure.
L=Low [less than ½ the Permissible Exposure Limit (PEL) or Threshold Limit Value (TEL).]
M=Medium (From ½, up to the full PEL/TLV.)
H=High (Greater than the PEL/TLV)

		SEVERITY			
		H	**M**	**L**	**I**
FREQUENCY	**1**	H1	M1	L1	I1
	2	H2	M2	L2	I2
	3	H3	M3	L3	I3

APPENDIX P

INDUSTRIAL HYGIENE PROGRAM

ANNEX C

Sample Walla Walla District
Industrial Hygiene Implementation Plan (IHIP)

APPENDIX P, ANNEX C

Sample District IHIP

The implementation schedule for training and industrial hygiene services is based on the present mission of each project. The priority scheme used in this plan is as follow:

1. Has a direct bearing on worker health.
2. Is mandatory based on federal regulation or law.
3. Is recommended by national consensus standards or Safety Office professional.

PROGRAM FUNCTIONS	**RAC/ Priority**	**Frequency**	**Action**
Industrial Hygiene Program Document	2	Every 3 years	Safety Office
Position Hazard Analysis	2	As needed	Supervisor
Health Hazard Inventory	2	As needed	Op. Project
Industrial Hygiene Implementation Plan	2	As needed	Op. Project
Medical Surveillance Program and Coordination	1	As needed	Op. Project
Unscheduled work site visits (complaints, emergencies,	1	Upon request	Safety Office
Hazard Communication			
Hazardous material inventory	2	Annually	Op. Project
Hazardous material storage inspection	2	Annually	Safety Office
Asbestos Inspection, Management Planning, and Design	2	Upon request	Safety Office
Ordinance and Explosives clean-up activities to include conventional OE and Chemical Waste Materials	1	Upon request	Engineering/ Construction
Lead Hazard Control	L3	Upon request	Op. Project
Noise Monitoring			
Individual (personal) monitoring	H1	Quarterly	Op. Project
Octave band Analysis	H1	Upon request	Op. Project
Area surveys	H1	Biennial	Op. Project
Illumination Survey	M1	Upon request	Op. Project
Ventilation Review			
Measure exhaust in welding hoods	L2	Annually	Op. Project
Measure exhaust in wood shop	L2	Annually	Op. Project
Indoor air quality surveys	L1	Upon	Op. Project

		request	
Air Monitoring			
Monitor ozone	L3	Upon request	Op. Project
Measure exhaust in paint spray booths	H3	Annually	Op. Project
Welding fumes-cavitation repair	H2	Annually	Op. Project
Welding fumes-welding shops	M1	Annually	Op. Project
Hydrogen Sulfide-fish ladder pump-out	L3	Annually	Op. Project
Solvent tanks (parts washers)	I3	Upon request	Op. Project
Asbestos air sampling	M3	Upon request	Op. Project
Abrasive blasting	M2	Upon request	Op. Project
Training			
Hazard Communication	1, 2	Annually	Op. Project
Hearing Protection	1, 2	Annually	Op. Project
Respirator Use and Maintenance	1, 2	Annually	Op. Project
Bloodborne Pathogens	1, 2	Annually	Op. Project
Confined Space Entry	1, 2	Annually	Op. Project
PPE	1, 2	Annually	Op. Project
First aid and CPR	2	Biennial	Op. Project
Back Injury Prevention	3	Annually	Op. Project
Lead & Cadmium	2	Annually	Op. Project

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ANNEX D

Sample Operating Project IHIP

APPENDIX P, ANNEX D

Sample Operating Project IHIP
Operating Project Name

IH Function	Priority	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Annual Survey	2											
Update LOHHI	1											
Ventilation Survey (HVAC)	3											
Open surface tanks (solvents)	2											
Spray paint booths	2											
Periodic Sampling												
Welding (cavitation repair)	1											
Calibration of equipment	2											
Noise monitoring	1											
Training												
Confined space Training	2											
Hearing Conservation	2											
Respirator Training:	2											
Fit tests	2											
Medical Surveillance Interviews	3											
Wood dust	2											
Lead survey	3											
Annual Hazardous material Inventory												
Bloodborne Pathogens Training	2											

APPENDIX Q

MEDICAL SURVEILLANCE AND OCCUPATIONAL HEALTH PROGRAM

APPENDIX Q

MEDICAL SURVEILLANCE
AND OCCUPATIONAL HEALTH PROGRAM

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APPENDIX Q

MEDICAL SURVEILLANCE AND OCCUPATIONAL HEALTH PROGRAM

1. PURPOSE. The purpose of this appendix is to prescribe policy and responsibility to U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel for the execution of the Medical Surveillance and Occupational Health Program to:

a. Recognize, evaluate, and control health hazards in District workplaces.

b. Medically evaluate exposed employees to ensure personnel are physically and psychologically capable of performing required job tasks and physical and mental health is maintained during service or employment.

c. Reduce and keep to a minimum manpower and economic loss caused by occupational illness and injury of personnel.

2. APPLICABILITY. This applies to all District employees exposed to hazardous materials at or above the established action level for both physical and chemical hazards.

3. REQUIRED REFERENCES.

a. 5 Code of Federal Regulation (CFR) 293, *Administrative Personnel, Personnel Records.*

b. 5 CFR 339, *Administrative Personnel, Medical Qualification Determinations.*

c. Engineer Regulation (ER) 385-1-40, *Occupational Health Program*.

d. Engineering Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

e. Engineer Pamphlet (EP) 385-1-58, *Occupational Health Handbook, Medical Surveillance Program*.

4. RELATED REFERENCES.

a. 29 CFR 1910, Subpart Z - *Toxic and Hazardous Substances.*

b. American Conference of Governmental Industrial Hygienists, Inc.

c. American National Standards Institute (ANSI) B30.5, *Safety Code for Crawler, Locomotive, and Truck Cranes*.

d. Title 5, United States Code (USC) 7901, *Health Service Programs.*

5. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Safety and Occupational Health Office (SO). The responsibilities of the SO are as follow:

(1) Provide oversight of the Medical Surveillance Program (MSP) to include: review of industrial hygiene (IH) survey reports, review of medical results of **work-related** laboratory tests, and feedback from the reviewing physician, comparable to the sample letter on page Q-18 and Q-19.

(2) Maintain records of IH surveys, investigate, and ensure that work practices are modified if the results of an employee's medical examination indicate that he/she has a physiological disorder that is work related.

(3) Retain copies of agency letters and/or medical records in the employee's Official Medical File (OMF). The agency letter contains only work-related information. The examining physician usually maintains the complete medical records.

(5) Ensure that supervisors and their employees have completed an accurate Position Hazard Analysis (PHA) for each employee in accordance with EP 385-1-58 and EM 385-1-1 that details identified health hazards.

(6) Review completed PHAs and coordinate the completion of an Industrial Hygiene Exposure Survey (IHES) or comparable document for each employee. A sample IHES can be found on page Q-9.

(7) Incorporate the results of the IHES into baseline and annual Health Hazard Inventory (HHI) data collection and analysis procedures.

(8) Coordinate IH surveys in accordance with EP 385-1-58 to include baseline health hazard exposure assessments.

(9) Assist with risk assessments to help prioritize hazard abatement or control.

(10) Recommend corrective actions to manager regarding follow-up of abatement actions.

(11) Coordinate with program/project management, engineering, construction, and civil works operations organizations to ensure that IH requirements are fully integrated into engineering and construction work projects and that IH review of

specifications, scopes of work, *etc*., are conducted to identify, eliminate, or control health hazards.

(12) Provide technical assistance and oversight to ensure managers and supervisors provide IH and occupational health (OH) services to protect employees from recognized health hazards.

(13) Ensure training programs are conducted to inform employees of workplace health hazards and their potential effects and the proper use of personal protective equipment.

(14) Provide technical assistance to supervisors and employees concerning IH and OH issues and concerns.

(15) Conduct or coordinate announced or unannounced inspections and annual program evaluations to determine the adequacy of the IH and OH programs.

b. Supervisors or Operating Project Managers. The responsibilities of the District supervisors and Operating Project Managers are as follow:

(1) Develop an Industrial Hygiene Implementation Plan that will serve to prioritize and update program service requirements annually. Schedule IH surveys and evaluate potentially hazardous work areas on an annual basis.

(2) Review duties of positions and notify the Civilian Personnel Advisory Center (CPAC) and the SO of physical requirements, potential exposures, and special conditions of employment and personal protective equipment required for the position.

(3) Complete an accurate and current PHA for each employee potentially exposed to health hazards. Periodically review completed PHAs and provide updates to the SO.

(4) Notify the SO immediately of plans for introducing new activities, processes, or chemicals into the work environment.

(5) Inform employees of potentially hazardous operations and environments and ensure controls are developed and implemented to prevent or reduce exposures.

(6) Provide a list of all employees requiring medical surveillance based on previous medical surveillance records, union agreements, and employee age.

(7) Coordinate the distribution and completion of the IHES, work history forms, and/or coordinate and schedule interviews between a safety professional and the employee. Forward the completed forms to the reviewing/examining health facility.

(8) Facilitate the scheduling of the medical surveillance examinations.

(9) Provide the reviewing physician with job descriptions upon request.

(10) Ensure that all recommendations indicated on the agency letter are reviewed and evaluated for possible implementation. The decision to not implement a recommendation must be coordinated with the SO and the examining clinic/physician.

c. Employees. The responsibilities of the District employees are as follow:

(1) Maintain health status commensurate with the duties of their job (health maintenance is the primary responsibility of the employee).

(2) Demonstrate an understanding of the training completed.

(3) Comply with the requirements of ER 385-1-40, EP 385-1-58, EM 385-1-1 and this appendix.

(4) Report to their supervisor, any workplace condition, potential exposure, or physical ailment that would prevent them from the performance of their designated task or mission.

(5) Accurately complete the IHES, work-history form, and/or participate in interviews with Safety and Occupational Health professionals or Industrial Hygienists to accurately determine exposures.

(6) Receive a periodic medical examination. Employees may sign an information release and request the physician send the entire medical file to the SO for retention in the OMF.

d. Civilian Personnel Advisory Center. The responsibility of CPAC is as follow:

(1) Support the Safety and Occupational Health Manager in obtaining occupational health services for qualified personnel in accordance with EP 385-1-58 and applicable human resource regulations and guidelines.

(2) In coordination with the Safety and Occupational Health Manager, establish and oversee human resource requirements associated with the management of the occupational health program that the SO is not authorized to perform.

(3) Ensure that working conditions, as well as medical and physical qualifications are incorporated in the classification of positions and are required in the recruitment and placement processes.

(4) Ensure the maintenance of employee exposure, medical and workers' compensation data, *etc.*, records in accordance with 5 CFR Part 293.

6. INDUSTRIAL HYGIENE SURVEYS. Surveys and monitoring will be conducted in accordance with appendix P.

7. CRITERIA FOR INCLUSION IN THE MEDICAL SURVEILLANCE PROGRAM. The criteria necessary for inclusion in the MSP is as follow:

a. For each employee identified on the PHAs, a determination of whether the employee meets the inclusion criteria must be made. This determination will be made based on completed IHESs. If the job duty or tasks an employee performs results in the employee meeting the criteria required for inclusion in the program, the physical examination requirements, or appropriate laboratory tests will be identified using Medical Examination Requirements for Chemical and Physical Hazards.

b. All full-time permanent, temporary, part-time military and civilian employees of the Corps are eligible for inclusion in the MSP. Inclusion shall occur when their work with chemical, biological, or physical agents is of sufficient duration and concentration that physiological damage could occur; where required or provided for by Federal regulations; by physical standards of position descriptions; by Department Of Defense (DOD), Department of the Army (DA), or Corps requirements; by current collective bargaining agreements; or as otherwise recommended or required by the District. Employees under the age of 18 should not be exposed to certain hazards (see Department of Labor regulations).

c. The Threshold Limit Value (TLV) or Position Exposure Limit (PEL) of a substance is expressed as 8-hour, time-weighted averages (refer to American Conference of Governmental Industrial Hygienists, Inc. or 29 CFR 1910, Subpart Z - *Toxic and Hazardous Substances*). Extended or overtime shifts require adjustments of allowable limits. The following criteria will be utilized for including the employee in the MSP:

(1) If the exposure exceeds the more stringent of TLV-Time Weighted Average (TWA), TLV-[Short Term Exposure Limit (STEL)], TLV-Ceiling (C), Biological Exposure Index (BEI), or OSHA PEL, the employee is enrolled in the MSP.

(2) If the concentration of the material is less than the TLV or PEL but exceeds the Action Level concentration, the employees must work with the material at least 30 days in a year or 10 days in any month to be included in the MSP. Work is defined as being engaged in the normal activities of the job rather than serving in a purely supervisory, administrative, or consultative role.

(3) If an employee's exposure to a substance were less than the Action Level concentration, inclusion in the MSP would not be indicated, regardless of the time the employee performs the work, except as indicated below:

(a) Medical surveillance will be provided as required by Federal Regulations, DOD, DA, or Corps requirement, or as required by a current collective bargaining agreement.

(b) Specific medical examinations will be provided when they have been identified as being required for a job, or as provided for in 5 CFR Part 339, EM 385-1-1, or other pertinent requirements.

d. Employees whose exposures or conditions do not meet the inclusion criteria above shall not be included in medical surveillance unless a written justification for inclusion has been forwarded from the supervisor to the SO stating that medical surveillance is required to protect the health of the employee. The Safety and Occupational Health Manager will coordinate this action with an IH and/or Occupational Health Physician prior to approval or rejection.

8. PERIODIC MEDICAL EXAMINATIONS. The criteria under which an employee will receive periodic medical examinations is as follows:

a. Once it has been determined that an employee should be included in the MSP, each employee will complete a baseline work history. These work histories will be evaluated by a medically qualified health professional. The specific content of those examinations, including lab work, will be based upon the information contained in the work history.

b. Employees will receive periodic medical examinations based on a review of the employee's work history, union agreements, and work place exposures. Qualified medical personnel will determine the content of these examinations.

(1) Employees with incidental exposures do not need a comprehensive medical examination annually, *e.g.,* Hazardous, Toxic, and Radioactive Waste (HTRW) technical managers.

(2) Regardless of exposure, employees required to wear respirators must be medically cleared. This medical clearance is a less comprehensive.

(3) More frequent examinations may be required based on exposures.

c. Each employee's work history and a physician will review the results of each medical examination. A letter stating the medical condition of the employee, **as it pertains to the performance of his/her job** will be sent to the immediate supervisor. A comprehensive report of the employee's examination will be sent to the employee in a

confidential envelope. **Only work-related summary information will be examined by anyone other than the employee and the examining medical professionals. *The original copy of the medical records will be maintained by the examining clinic or physician for comparison with past or future examinations.***

d. It is important to determine whether or not a new hire should be included in the MSP as soon they are brought on board. Medical examinations for new hires must be completed within 6 months after hiring by the administrative officer. This prevents the gaining organization from "buying" physical conditions related to previous employment and establishes an accurate baseline from which to work toward determining reliable on-the-job exposures. Discrimination based on previous injuries or the suspected possibility of re-injury is illegal.

9. OCCUPATIONAL VISION PROGRAM.

a. Supervisors will determine the degree of eye hazard for each job in their area of responsibility.

b. Eye hazard areas will be posted and eye protection will be provided. The wearing of eye protection will be strictly enforced.

c. Illumination surveys will be conducted periodically to ensure that adequate lighting levels are maintained.

d. Periodic training in eye injury prevention will be scheduled annually.

e. Welders will receive annual eye examinations.

10. CRANE OPERATOR QUALIFICATIONS. Crane operators and operator trainees must meet the physical requirements as specified in ANSI B30.5. Those requirements are as follow:

a. Vision of at least 20/30 Snellen in one eye and 20/50 in the other with or without glasses.

b. Ability to distinguish colors regardless of position if color differentiation is required for operation.

c. Adequate hearing with or without a hearing aid for specific operation.

d. Operators will have sufficient strength, endurance, agility, coordination, and speed of reaction to meet the demands of equipment operation.

e. Evidence of physical defects or emotional instability that could render a hazard to the operator or others or that in the opinion of the examiner could interfere with the

operator's performance may be sufficient cause for disqualification. In such cases, specialized clinical or medical judgments and tests may be required.

f. Evidence that an operator is subject to seizures or loss of physical control will be sufficient reason for disqualification. Specialized medical tests may be required to determine these conditions.

g. Operators and operator trainees should have normal depth perception, field of vision, reaction time, manual dexterity, coordination, and no tendencies to dizziness or similar undesirable characteristics.

11. RESPIRATORY PROGRAM. Refer to appendix U.

12. HEARING CONSERVATION PROGRAM. Refer to appendix O.

13. BLOODBORNE PATHOGENS PROGRAM. Refer to appendix E.

14. ASBESTOS MANAGEMENT PROGRAM. Refer to appendix C.

15. EMERGENCY OPERATIONS DEPLOYMENT. In case of an emergency deployment the following document must be obtained:

a. Prior to deployment on local emergency operations exercises, all persons will provide a letter from their personal physician stating they are physically fit for the duties they will be assigned, along with a current record of their immunizations.

b. Prior to deployment on a national emergency response team all persons will complete the *Emergency Response Medical Screening and Clearance Packet* developed by the Corps, available through the Operations Division, Readiness Branch.

16. IMMUNIZATIONS. Personnel shall be offered at Government expense those immunizations determined necessary to prevent occupational disease or required for emergency operations deployment. Immunizations shall not be administered at Government expense for personal foreign travel. Immunizations are usually limited to Hepatitis B, Hepatitis A, and Tetanus. Immunizations are based on job-related potential exposures.

17. DEFINITIONS. Refer to EP 385-1-58.

18. VOLUNTARY HEALTH MAINTENANCE. Voluntary health maintenance occupational health services are encouraged, but not mandated. Title 5 USC 7901 provides the basic legal authority for providing both voluntary and required occupational health services. The services provided are as follow:

- Employee Assistance Program.
- Fitness Center.
- Exercise equipment at each operating project.

APPENDIX Q

MEDICAL SURVEILLANCE AND OCCUPATIONAL HEALTH PROGRAM

ANNEX A

Sample Forms and Letters

APPENDIX Q, ANNEX A

INDUSTRIAL HYGIENE EXPOSURE SURVEY (IHES)

INTERVIEW SUMMARY
EMPLOYEE DATA FOR HEALTH HAZARD
EXPOSURE ASSESSMENT

Employee Information: Date of Interview: _____

Last: _____ Date of Birth: _____
First: _____ Sex: M F
Middle: _____ SSN: _____

Agency: _____ Subunit: _____

Job Title: _____

Work Phone: _____ Name of Supervisor: _____
Work Address: _____

Home Phone: _____
Home Address: _____
_____
_____

Currently in Medical Surveillance Monitoring Program for:

CHEMICALS, NOISE, RESPIRATOR USE, OTHER (Specify):

Clearances Necessary (Circle as appropriate):

Boat (>45 Ft.) Crane Operator OTHER, i.e. Driver (CDL) (Specify): _____

Respirator User: Y / N Type of Respirator: Air Purifying/Supplied Air/SCBA

Represented by a Bargaining Unit? **No___ Yes___** Union:

EXPOSURE INFORMATION SUMMARY:
(For each item, circle entry for both Frequency and Severity)

Exposure	Frequency	Severity	Physician's Notes (Sign)
NOISE	L M H	I L M H	

Industrial Hygienist's Notes:

ASBESTOS L M H I L M H

Industrial Hygienist's Notes:

HEAVY METALS L M H I L M H

Welding Fumes (Mild Steel, Stainless Steel, Aluminum) or Other-- Be Specific (e.g., As, Hg)

Industrial Hygienist's Notes:

LEAD L M* H I L M* H

* > 30 days/year at Action Level

Industrial Hygienist's Notes:

CADMIUM L M* H I L M* H

* > 30 days/year at Action Level

Industrial Hygienist's Notes: [prior exposure > 60 months? Y / N

SOLVENTS L M H I L M H

(Please Specify Type)

Industrial Hygienist's Notes:

FORMALDEHYDE L M H I L M H

(And Other Aldehydes)

Industrial Hygienist's Notes:

DUSTS L M H I L M H
(Specify Type, e.g., wood, silica, etc.
Industrial Hygienist's Notes:

PESTICIDES L M H I L M H
Industrial Hygienist's Notes:

Other Significant Exposures Which Should Prompt Examination:
(Please circle, as appropriate, and provide any necessary clarifying comments)

HEAVY LIFTING L M H (Over 20 lbs)
Industrial Hygienist's Notes:

VIBRATION/ L M H
REPETITIVE MOTION
Industrial Hygienist's Notes:

CORROSIVES L M H I L M H
[*i.e.,* Acid, base, quick lime]
Industrial Hygienist's Notes:

HEAT STRESS L M H I L M H
[*i.e.,* Tyvek Suit
Industrial Hygienist's Notes:

OTHER (Specify) L M H I L M H
[*i.e*., PCBs, Ozone, EMF, Fiberglass, Conf. Space]
Industrial Hygienist's Notes:

IH Interviewer	**Date**	**Agency Representative**	**Date**

CODES:

Exposure Frequency:
L = Low 0 - 12 (one day/month or less)
M = Medium 12 - 52 (one day/week or less)
H = High 52+ (more than one day/week)

Exposure Severity:
I = Incidental (Process and/or products are used nearby). Worker may pass through the area or may conduct short inspection. Worker is not involved with job that is producing the potential exposure.
L = Low (Less than 1/2 the PEL or TLV.)
M = Medium (From 1/2, up to the full PEL or TLV.)
H = High (Greater than the PEL or TLV.

SAMPLE LETTER
APPLICANT NOTIFICATION

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT

SUBJECT: Required Medical Examinations Date:

TO: Applicant

FROM: Civilian Personnel Advisory Center

1. The position you have applied for has been identified as a position that is included within the organization's medical surveillance program, or which has established physical and health requirements. A medical examination has been scheduled for you with (Name and location of physician or clinic) on (date and time of examination). As an alternate you may chose to utilize a local qualified physician. If you chose to utilize a physician of your choice, the cost of examination will not be reimbursed and a physician working for this office will review the results.

2. This examination is to determine your medical suitability to perform the required tasks associated with the position, and to provide the physician with baseline data for future comparative purposes.

3. The information from the examination is required to evaluate your application for the desired position. Failure to report for the examination at the specified time may result in the deletion of your application for the position.

_____
Signature

SAMPLE LETTER
MEDICAL EXAMINATION REQUEST

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT

SUBJECT: Occupational Health Evaluation Date:

TO: Examining Physician

1. Mr./Ms._____ (Name of candidate)_____
has applied for a position as a _____(Name of job)_____
is employed _____(Name of job)_____
with the XXX District, US Army Corps of Engineers. Specific laboratory tests and physical examination requirements have been established for personnel performing the tasks associated with the position. These examinations and tests are required to evaluate the individual's capability to perform the required tasks.

2. This position has been identified and included within the agency's medical surveillance program.

3. The tests required are listed on the attached SF 78 and addendum thereto. These tests are based on evaluations of the prospective employee's worksite and the chemical, biological, and physical hazards associated with that worksite. **Please note that an audiogram is mandatory when block 3 on side 2 of the SF 78 indicates a hearing examination is required.**

4. Upon completion of the examination and analysis of the laboratory tests, an evaluation of the medical suitability of the prospective employee to perform the required tasks should be made. This must be indicated on the attached SF 78 and employee notification letter. If the individual is limited in performance, indicate the limitations on the SF 78 and employee notification letter.

_____
Signature

SAMPLE LETTER
OCCUPATIONAL HEALTH EVALUATION
(NEW HIRE)

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT

SUBJECT: Occupational Health Evaluation Date:

THROUGH: Civilian Personnel Advisory Center

TO: Prospective Employee

1. On _____at _____a pre-employment examination
(day, month, year) (location)
was conducted on _____.
(name of prospective employee)

2. The result of the evaluation was:

_____ Individual is Qualified and meets medical requirements of the position.

_____ Individual is Qualified with Restrictions. Indicate restrictions:
_____

_____ Individual is Not Qualified by failure to meet the medical requirements.

_____
Signature

SAMPLE LETTER
OCCUPATIONAL HEALTH EVALUATION
(BASELINE OR PERIODIC)

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT

SUBJECT: Occupational Health Medical Examination Results Date:

THROUGH: Civilian Personnel Advisory Center
Project Supervisor

TO: Employee

1. On_____ at _____, a _____
(day, month, year) (location) (type of examination)
was conducted on _____.
(name of employee)

2. The result of the evaluation was:

_____ Individual is Qualified and meets medical requirements of the position.
_____ Individual is Qualified with Restrictions. Indicate restrictions:
_____
_____ Individual is Not Qualified by failure to meet the medical requirements.

3. The condition which exists:

_____ May be occupationally related. The employee should be rescheduled for additional tests or consultation.
_____ Is not occupationally related. The employee should consult his/her own physician.

_____
Signature

SAMPLE LETTER
EMPLOYER NOTIFICATION
MEDICAL QUALIFICATIONS

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT

SUBJECT: Medical Qualifications Date:

TO: Employer

THROUGH: Civilian Personnel Advisory Center

PHYSICIAN'S WRITTEN OPINION in the case of:

Name: _____SSN: _____Dept./Code: _____

A medical monitoring examination was performed on the above noted individual. On the basis of the examination, the following comments are submitted:

A medical condition WAS or WAS NOT detected that would place the employee at an increased risk of material impairment of health from exposure to _____. Comments (if applicable):

Limitations ARE or ARE NOT recommended on this individual's exposure or use of personal protective equipment, including respirators. Comments (if applicable):

The employee has been counseled regarding the results of this medical evaluation and any medical conditions resulting from this exposure that require further evaluation or treatment.

_____ _____

Date (Examiner's signature and stamp)

Original: health record
Copies: employee
employee's command

SAMPLE LETTER
EMPLOYEE NOTIFICATION
NON-WORK RELATED SIGNIFICANT FINDINGS

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT

SUBJECT: Non-Work Related Significant Findings Date:

TO: Employee

FROM: USACE Reviewing Physician

As a result of a recent medical evaluation findings were observed that:

1. DO NOT IMPACT JOB REQUIREMENTS: The abnormalities noted below should be followed up with your personal physician. A copy of your medical records will be furnished to you upon receipt of your written request.

_____

_____

2. IMPACT JOB REQUIREMENTS: The abnormalities noted below impact your ability to perform certain job duties and require medical evaluation follow-up within 30 days of the date of this letter to determine if the condition has been corrected. Health maintenance is your responsibility. Please consult your personal physician for appropriate evaluation and treatment.

_____

_____

The required medical evaluation follow-up shall be performed by you in the following manner:

a. Provide a written report from your personal physician documenting the status of the condition in accordance with 5 CFR 339.104, “Medical Documentation or Documentation of a Medical Condition.” This report shall be sent by your physician to the USACE Reviewing Physician who will make a determination of your ability to fully meet your job requirements. Send the medical documentation to:

_____

_____

b. If medical documentation is not provided by your physician within 30 days of the date of this letter, arrangements will be made by the USACE Medical Surveillance Manager for the medical evaluation follow-up with a USACE Examining Physician to determine medical qualifications for the job requirements. This evaluation will be at Government expense.

Date	Corps Reviewing Physician

SAMPLE LETTER
EMPLOYER NOTIFICATION
NON-WORK RELATED SIGNIFICANT FINDINGS

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WALLA WALLA DISTRICT

SUBJECT: Non-Work Related Significant Findings Date:

TO: Employer

THROUGH: Human Resources Office

_____(name) _____ was examined on _____(date)_____ and non-work related findings were identified that affect job performance. The following work restrictions are noted:

_____

_____

_____

The employee has been advised to seek medical assistance to address the noted restrictions. The employee is required to provide medical documentation of the status of the condition per 5 CFR 339 (see the back of this form) within 30 days of the date of this letter to the Corps Reviewing Physician.

If this information is not provided within the specified timeframe, the employee will be scheduled by the Corps Medical Surveillance Manager for a medical evaluation follow-up by a Corps Examining Physician at Government expense. The results of that examination shall be evaluated by the Corps Reviewing Physician to determine medical qualifications to fully perform job requirements. You will be provided with an updated medical certification.

_____ _____

Date Corps Reviewing Physician

APPENDIX R

PERSONAL PROTECTIVE EQUIPMENT

APPENDIX R

PERSONAL PROTECTIVE EQUIPMENT

TABLE OF CONTENTS

APPENDIX R

PERSONAL PROTECTIVE EQUIPMENT

1. PURPOSE. This appendix prescribes to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) requirements, and policies for providing Personal Protective Equipment (PPE) necessary to protect the health and safety of District employees.

2. APPLICABILITY. The PPE will be provided to employees of the District as required based on hazard assessments. Maintenance of equipment is the responsibility of the user.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1910.132, *Occupational Safety and Health Standards, Personal Protective Equipment*.

b. 29 CFR 1910.135, *Occupational Safety and Health Standards, Head Protection.*

c. 29 CFR 1926.100, *Occupational Safety and Health Regulations for Construction, Head Protection.*

d. Army Regulation (AR) 385-10, *The Army Safety Program*.

e. AR 40-5, *Preventative Medicine*.

f. Engineering Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

g. American Society for Testing and Materials (ASTM) International Standards, F2412-05, *Standard Test Methods for Foot Protection.*

h. ASTM F2413-05, *Standard Specification for Performance Requirements for Foot Protection.*

i. American National Standards Institute (ANSI) Z87.1, *Occupational and Educational Eye and Face Protection.*

j. National Fire Protection Association (NFPA) 70E, *Standard for Electrical Safety Requirements for Employee Workplaces*.

k. The American Conference of Governmental Industrial Hygienist (ACGIH) *Threshold Limit Value (TLV) and Biological Exposure Indices Booklet*, dated 4 December 2001.

4. GENERAL POLICY. The general policy of this appendix is as follows:

a. Hazardous conditions which create exposure to injury will be eliminated or reduced whenever possible through engineering or administrative controls. When this is not practical or technologically feasible, the use of PPE will be permitted. The PPE should always be considered an interim or last resort means of accident prevention; if it is improperly used, or fails, the employee is immediately exposed to potential injury. The Occupational Safety and Health Administration (OSHA) standard, 29 CFR 1910.132, *Personal Protective Equipment*, shall be adhered to as applicable.

b. Wherever it is necessary by reason of hazards of processes, environment, chemical, radiological, or mechanical hazards, encountered in a manner capable of causing injury or impairment to the function of any part of the body through absorption, inhalation, or physical contact, PPE shall be utilized. The PPE for eyes, ears (hearing), face, head and extremities, protective clothing, respiratory devices, and protective shields and barriers, will be provided, used, and maintained in a sanitary and reliable condition whenever the aforementioned hazards are present. All PPE will be provided at Government expense.

c. A risk assessment shall be performed for each work activity to determine the need for PPE.

d. The PPE will not be provided and/or used as a substitute for items of work clothing that employees would normally provide at his/her own expense, according to the requirements and working conditions of the position. For example, an employee who normally works outside in the winter is expected to report to work properly dressed for outside work (*i.e*., heavy coat, hat, boots, gloves, *etc.). Some specialized cold weather clothing can be provided by the employer as an issue or check out item such as float coats, snowmobile suits, etc.*

5. RESPONSIBILITIES. The responsibilities of each person in the District are as follows:

a. Safety and Occupational Health Office (SO). The responsibilities of the SO are as follows:

(1) Provide technical assistance to supervisors and employees concerning the selection, use, and training needed to properly wear PPE and ensure compliance with all applicable regulations.

(2) Ensure that each supervisor has completed an accurate position hazard analysis (PHA) for each employee.

(3) Maintain records of current PHAs for justification of PPE procurement.

b. Supervisors. The responsibilities of the District supervisors are as follows:

(1) Conduct a hazard assessment to determine if hazards that would necessitate the use of PPE are, or are likely to be, present. If so, the supervisor shall ensure a PHA (noting the hazard and PPE utilized), is completed.

(2) Instruct each employee in the use and selection of the type of PPE that will protect the employee from the hazards identified in the above assessment.

(3) Communicate selected decisions to each employee.

(4) Select proper fitting PPE for each employee.

(5) Provide training to all employees who use PPE, and include training requirements in PHA. Each employee shall be trained in the following subjects:

(a) The need for when, where, how, and why to wear PPE.

(b) The specific types of PPE required.

(c) The proper way to don, doff, adjust, and wear PPE.

(d) The limitations of the PPE.

(e) The proper care, cleaning, and maintenance of PPE.

(f) Useful life, replacement, and disposal procedures for PPE.

(6) Provide retraining as necessary. Circumstances under which retraining may be required include:

(a) The supervisor has reason to believe that an employee does not have the understanding and skill required to properly use PPE.

(b) Changes in the workplace render previous training obsolete.

(c) Changes in the types of PPE to be used render previous training obsolete.

(7) Establish an inspection, cleaning, and maintenance program to ensure that PPE is maintained properly in a good working and sanitary condition.

(8) Verify in writing that the required workplace assessment has been performed.

(9) Verify that employees who are required to use PPE, have received the required training, been tested, and demonstrate an understanding of the proper use and procedures to be followed.

(10) Enforce the correct use of selected PPE.

c. Employees. The responsibilities of the District employees are as follows:

(1) Demonstrate an understanding of the training specified above, and the ability to properly use the PPE prior to using.

(2) Inspect, clean, and maintain PPE. Cleaning is particularly important for eye and face protection devices, where dirty or fogged lenses could impair vision. The PPE will be decontaminated or disposed of, in a manner that protects employees from exposure to hazards.

(3) Wear PPE as required.

(4) Discuss annually the effectiveness of his/her PPE in the PHA review process.

6. TYPES OF PPE. The different types of PPE are as follows:

a. Foot Protection.

(1) Protective footwear, such as rubber boots, protective covers, ice clamp-ons, and safety-toed boots shall be worn by all persons exposed to hazards of the feet (including, but not limited to, puncture, slipping, electrical, or chemical hazards). Minimum foot protection shall be leather or other protective work shoes or boots. Use of safety-toed shoes is required while performing maintenance and repair activities at all Operating Facilities or occupying areas where these activities are taking place, and is required of Service Contractors performing janitorial or yard maintenance. Appropriate safety shoes will be worn based on the foot hazards encountered.

(2) Employees who are required to lift, move, or carry material or objects that could cause foot injuries if dropped or employees who operate or work around moving equipment capable of causing foot injuries will be required to wear foot protection.

(3) All safety shoes/boots will meet ASTM F2412-05 and ASTM F2413-05 standards.

(4) The need for safety shoes/boots must be identified on the PHA with concurrence of the supervisor and employee before safety shoes/boots can be procured. The actual hazard and control, as listed on the PHA, must be specific (*i.e.,* compressive hazard/steel toe boot, uneven terrain/sturdy field boot with ankle support, chain saw use, wet or cold conditions, puncture requirement, electrical hazard protection, *etc*.).

b. Eye Protection.

(1) Protective eye wear will be furnished to all employees whose duties subject them to potential injury from flying particles, dust, chemicals, ultraviolet (UV) radiation, glare, or abrasive materials. Those employees who are furnished protective eye wear will be required to wear it at all times when engaged in the activity for which it is furnished. Areas where eye protection is required will be identified and posted with a sign stating "Eye Protection Required," or comparable wording, at all points of access. All employees engaged in operation, maintenance, or repair activities or occupying areas where these activities are taking place shall at least have on their person the minimum level of eye protection (safety glasses). This does not negate the fact that they may need to obtain additional eye protection based on the task at hand. For example, a person grinding, sanding, or chipping may need a full-face shield, whereas a welder would require filtered lenses. Refer to Table 5-1 and 5-2 in EM 385-1-1 to assist you in the proper selection of eye protection.

(2) Prescription ground safety glasses will be furnished to all employees who must wear corrective lenses and are subjected to the hazards stated in the above paragraph. All protective glasses furnished must conform to ANSI Z87.1. All frames for safety glasses, whether prescription or plain, will be equipped with safety side shields. Contact lens wearers are also required to wear appropriate eye and face protection.

(3) The purchase of sunglasses solely for the purpose of UV protection is not permitted. A UV protective lens, photo gray lens, *etc.* can be part of a prescription lens purchase.

(4) Non-prescription safety glasses or goggles will also be provided. The type selected will be appropriate for the hazard. The immediate supervisor should select the type of safety glasses or goggles because he/she is most familiar with the hazards associated with the tasks under his/her control.

(5) Guidance concerning protective eye protection is provided in EM 385-1-1.

(6) Procurement. When an employee's supervisor decides that eye protection is necessary and prescription ground safety glasses are required, either as original issue or as replacement for damaged glasses, a requisition with an accurate prescription from a doctor or clinic will be submitted as applicable.

c. Hearing Protection. Hearing protection will be worn in accordance with the District's Hearing Conservation Program (see appendix O for more details). Employees will wear hearing protection when noise levels exceed 85 decibels (dB), A-scale (A)-8 hr time weighted average (TWA), or when there is frequent impact noise. All persons engaged in operation, maintenance, and construction activities or occupying areas where these activities occur shall carry hearing protection with them, and use them when needed or when entering a posted noise hazard area.

d. Reflective Vests. All employees assigned to work along streets or highways or involved in backing heavy equipment or dump trucks or similar jobs will be provided highly visible, reflective vests or coats. These vests shall meet ANSI/Industrial Safety Equipment Association (ISEA) 107-1999 class 3 regulations. This includes surveyors and employees involved in emergency operations. The wearing of these vests is mandatory.

e. Hand Protection. The appropriate protective gloves shall be selected based on the hazard, glove manufacturer's charts, Material Safety Data Sheets (MSDS), and other appropriate guidance.

f. Back Belts. Appliances such as back belts, back braces, and wrist rests are not considered PPE. Before purchasing and using such devices, discuss their effectiveness with trained ergonomics personnel. The Office of the Surgeon General (OTSG) does not support the blanket use of back belts as an injury preventive measure.

g. Cold Weather Clothing and Other Special Equipment. The environmental conditions which justify the need for such clothing is described in appendix FF. This appendix lays out the full implementation process including ambient air monitoring and alternative means of protection. If the cold-stress monitoring plan/hazard analysis (see appendix FF) dictates the need for cold weather clothing (*i.e.*, insulated coveralls) it is authorized to purchase the clothing at Government expense to provide personal protection to employees from inclement weather. These items of wear, if not of a personal nature (*i.e.*, insulated underwear), shall remain the property of the Government and have the letters USACE stenciled on them. The employee is responsible for keeping the clothing clean and in good condition and returning it upon transferring, retiring, or otherwise leaving the project. Engineer Form (ENG) 4900 will be used to document cold weather clothing/equipment issued to employees. The employee will sign for the cold weather clothing/equipment before receiving them.

Employees may purchase insulated boots through the District boot allowance.

In addition, the Corps will provide some wet weather clothing for work in excessively wet areas, rubber coveralls for working in greasy or oily conditions, vests for visibility, hard-hat liners, and float coats/suits.

h. Head Protection. Hardhats are required to be worn by both Contractor and Government employees while engaged in any work activity throughout all project areas and field locations. Hardhats are not required in (1) administrative areas, (2) for school tours, (3) during enforcement and resource management activities where no overhead hazard exists, or (4) at the discretion of the Project Manager.

i. Electrical Protective Equipment. Employees working on electrical distribution systems shall be provided with the appropriate electrical protective equipment, which shall be inspected, tested, and maintained in safe condition in accordance with the standards referenced in table 5-4.

(1) Employees may use rubber gloves, sleeves, blankets, covers, and line hose only when required by special conditions for work on energized facilities. Rubber goods provided to protect employees who work on energized facilities must meet ASTM specifications. Electrical workers' rubber insulating protective equipment shall be visually inspected for damage and defects before each use.

(2) Electric flash protection shall be provided for any person who enters the flash protection zone. They must wear flame-resistant clothing and PPE, based on the incident exposure associated with the specific task. Refer to NFPA 70E for specific hazard risk classifications and clothing/equipment requirements. Synthetic clothing such as acetate, nylon, polyester, rayon, either alone or in blends with cotton, is prohibited in the flash protection zone.

(a) Employees must wear protective eye equipment whenever there is a danger from electric arcs, flashes, flying objects, or electrical explosion.

(b) Employees must wear flame-resistant clothing whenever they may be exposed to an electric flash. Flash suits and their closure design must permit easy and rapid removal. The entire flash suit, including the window, must have energy-absorbing characteristics suitable for arc-flash-exposure. Use clothing and equipment to maximize worker protection. Clothing and equipment required by the degree of electrical hazard exposure can be worn alone or be integrated with normal apparel. Protective clothing and equipment must cover associated parts of the body and all normal apparel that is not flash-flame resistant, while allowing movement and visibility. Do not wear meltable synthetic materials next to skin.

Table 5-4: Standards for electrical protective equipment.

SUBJECT	NUMBER AND TITLE
Head Protection	ANSI Z89.1, *Requirements for Protective Headwear for Industrial Workers,* 1997
Eye and Face Protection	ANSI Z87.1, *Practice for Occupational and Educational Eye and Face Protection, 1998*
Gloves	ASTM D120-02, *Standard Specification for Rubber Insulating Gloves,* 2002
Sleeves	ASTM D1051-02, *Standard Specification for Rubber Insulating Sleeves,* 2002
Gloves and Sleeves	ASTM F496-02, *Standard Specification for In-Service Care of insulating Gloves and Sleeves,* 2002
Leather Protectors	ASTM F696-02, *Standard Specification for Leather Protectors for Rubber Insulating Gloves and Mittens* 2002
Footwear	ASTM F1117-98, *Standard Specification for Dielectric Overshoe Footwear,* 1998
	ASTM F2413-05, *Standard Specification for Performance Requirements for Foot Protection.*
Visual Inspection	ASTM F1236-01, *Standard Guide for Visual Inspection of Electrical Protective Rubber Products,* 2001
Apparel	ASTM F1506-02A, *Standard Performance Specification for Textile Material for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards,* 2002a
Raingear	ASTM F1891-02a, *Standard Specification for Arc and Flame Resistant Rainwear,* 2002a
Face Protective Products	ASTM F2178-02, *Standard Test Method for Determining the Arc Rating of Face Protective Products,* 2002

(c) Employees must wear rubber-insulating gloves where there is a danger of hand or arm injury from electric shock or arc-flash burns due to contact with energized parts. Gloves made from layers of flame-resistant material provide the highest level of protection. Leather glove protectors should be worn over voltage-rated rubber gloves.

(d) Dielectric overshoes are required where electrically insulated footwear is used for protection against step and touch potential.

(e) Table 130.7(c)(9)(a) of NFPA 70E, 2004 should be used to determine the hazard/risk category associated with each task. Once the hazard/risk category has been determined, refer to Table 130.7(c)(10) of NFPA 70E, 2004 to determine the requirements for protective clothing or other PPE.

(3) An air test shall be performed on electrical workers' rubber insulating gloves before use each day.

(4) Protective equipment of material other than rubber shall provide equal or better electrical and mechanical protection.

(5) Only live-line tool poles having a manufacturer's certification to withstand at least the following tests shall be used:

(a) 100,000 volts per foot of length for 5 minutes when the tool is made of fiberglass, or

(b) 75,000 volts per foot of length for 3 minutes when the tool is made of wood, or

(c) Other equivalent tests.

j. Personal Floatation Devices. Type III, Type V, or better, U.S. Coast Guard-approved international orange personal floatation device (PFD) with retro-reflective tape strips sewn on front and rear shall be provided to and properly worn (zipped, tied, latched, *etc.,* in closed fashion) by all persons in the following circumstances (inflatable PFDs may not be worn by workers on Corps sites, see Figure 5-1):

(1) On floating pipelines, pontoons, rafts, or stages;

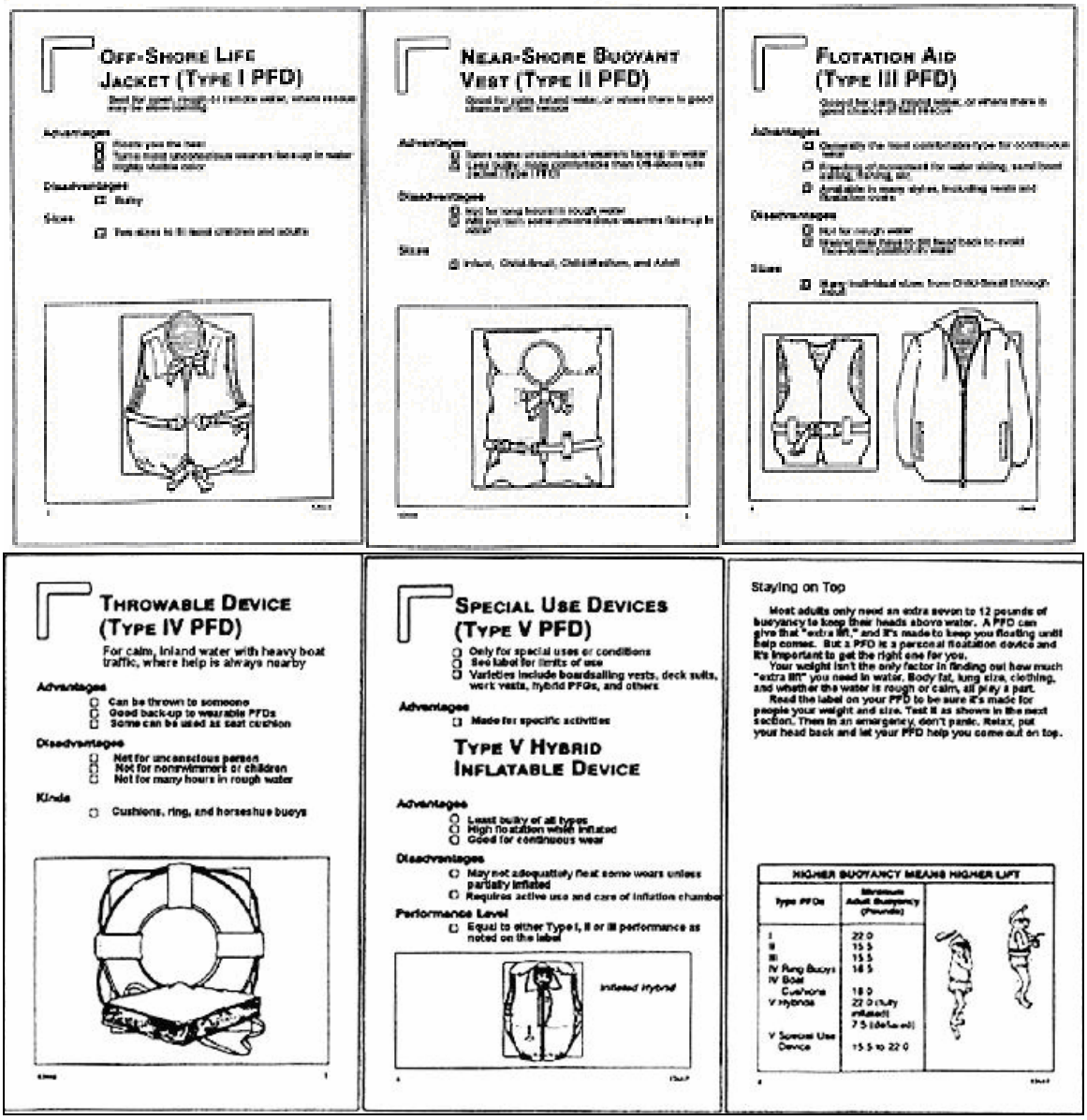
(2) On structures or equipment (including heavy operating equipment) extending over or next to water except where guardrails, safety nets, or fall protection devices are provided for employees;

(3) Working alone at night where there are drowning hazards, regardless of other safeguards provided (PFDs used for nighttime operations shall have a U.S. Coast Guard-approved automatically activated light attached to the PFD);

(4) In skiffs, small boats, or launches, unless in an enclosed cabin or cockpit; or

(5) Wherever there is a drowning hazard.

Figure 5-1. Personal Floatation Devices



k. Other. Based on Job Hazard Analysis other PPE should be provided to the employee. Examples include, but are not limited to, the following:

(1) Chemical resistant coveralls.

(2) Sunscreen.

(3) Insect repellents.

(4) Chainsaw chaps.

(5) Welding leathers.

(6) Body harnesses.

(7) Snake proof boots or leggings.

(8) Logging boots.

(9) Knee pads.

(10) Fall protection equipment.

APPENDIX S

POSITION HAZARD ANALYSIS/ACTIVITY HAZARD ANALYSIS

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APPENDIX S

POSITION HAZARD ANALYSIS/ACTIVITY HAZARD ANALYSIS

1. PURPOSE. The purpose of this appendix is to provide guidance to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel on the preparation of Position Hazard and Activity Hazard Analyses. The purpose of the Position Hazard Analysis (PHA) and/or the Activity Hazard Analysis (AHA) is to systematically identify hazards and specify controls to minimize or eliminate their effect.

2. APPLICABILITY. This appendix applies to all District employees and operations based on the severity of hazards associated with each operation. This generally includes all positions that involve fieldwork and excludes positions limited to only administrative tasks.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1910.132, *Occupational Safety and Health Standards, Personal Protective Equipment General Requirements*.

b. Engineering Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

c. Occupational Safety and Health Administration (OSHA) publication 3071, *Job Hazard Analysis*.

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Civilian Personnel Advisory Center (CPAC). The responsibilities of CPAC are as follow:

(1) Review, accept, and sign all PHAs.

(2) Forward copies of all accepted PHAs to the following: the employee, immediate supervisor, and the administrative officer if the employee works at a field office/project.

(3) Maintain the original PHA on file in the CPAC office.

b. Supervisors. The responsibilities of supervisors are as follow:

(1) Ensure that accurate PHAs are prepared and reviewed with every employee under their supervision if warranted by the nature of the job.

(2) Ensure that each PHA is accurate for each specific position.

(3) Review the PHA with each employee and ensure that both he/she and the employee understand it and sign it.

(4) Return the completed PHA to CPAC.

(5) Ensure that an AHA is completed for all major work activities. It is unreasonable to prepare an AHA for every activity. They should be limited to infrequent activities, high-risk activities, and/or new or unfamiliar activities. Activities involving crane operations, activities over water, work at heights, *etc*., are areas that should be considered.

c. Employees. Employees will actively participate in the development of AHAs and PHAs.

5. DEFINITIONS. The definitions for PHA and AHA are as follow:

a. The PHA identifies the hazards and hazard controls associated with a specific job series or position. Because there may be a wide variety of duties associated with personnel in the same job series, it is essential to develop a PHA that addresses an individual's specific duties.

b. The AHA identifies the hazards and hazard controls associated with a specific task or phase of work such as excavation. The phase is broken down into major steps. Hazards associated with these steps are identified, as are the controls for each specific hazard.

6. BACKGROUND. The terms Job Hazard Analysis, AHA, Safety Hazard Analysis, and PHA have been used interchangeably. The Corps' Safety and Health Requirements Manual uses the terms: Position Hazard Analysis and Activity Hazard Analysis. Those terms are used herein for consistency. To ensure that a PHA or an AHA is thorough and accurate, the supervisor and the employees knowledgeable with the task/position should be involved throughout the process.

a. The PHAs are used to:

(1) Justify procurement of safety equipment for individual employees.

(2) Indoctrinate new employees unfamiliar with the hazards associated with their new position or new tasks. Indoctrination should occur within 3 weeks of assignment.

(3) Identify whether an employee should be in the Medical Surveillance Program.

(4) Identify whether an employee is required to wear personal protective equipment (*i.e*., hardhat, respirator, *etc*.).

(5) Teach new employees the hazards associated with major job duties and the recommended safe job procedures.

b. Developing a PHA.

(1) Identify the major activity [*i.e*., inspection of construction, sampling on a hazardous, toxic, and radiation waste (HTRW) site, operating a vessel under 26 feet in length, *etc.*].

(2) Identify general locations at which these activities are likely to occur (*i.e*., construction sites, hazardous waste sites, operating projects, *etc.*).

(3) Identify probable hazards commonly associated with these activities. Keep in mind that every possible hazard cannot be identified. The hazard must be specific (*i.e*., compressive foot injury, oxygen deficiency, *etc.*)

(4) Identify the exact method of controlling each specific hazard (*i.e*., wear hard-toed safety boots, monitor air for oxygen, *etc.*).

c. The AHAs are used to:

(1) Review the task with all employees at a tailgate safety meeting prior to starting the actual task.

(2) Identify hazards that are difficult to control that may lead to alternate methods of accomplishing the work.

(3) Train new employees. The employee must learn the essentials of the job, the hazards associated with each step, and the recommended safe job procedures.

d. Developing an AHA:

(1) Identify the major activity (*i.e*., confined space entry, excavation, *etc.*).

(2) Break the job down into its major components. When identifying these, the criteria for selection should preclude jobs that are too broad or too narrow. For example, the complex task of constructing a maintenance building versus the simple act of hammering a nail illustrates the above two extremes. The AHA must start at the beginning with the very first work activity and continue through cleanup and/or the finished product.

(3) Identify probable hazards associated with these activities. Again keep in mind that every possible hazard cannot be identified. The hazard must be specific (*i.e.*, asphyxiation due to oxygen deficient atmosphere). To assist in identifying hazards, the following questions may need to be asked:

(a) Is there danger of striking against, being struck by, or otherwise making injurious contact with an object?

(b) Can the worker be caught in, by, or between objects or moving parts of machinery?

(c) Is there a potential for a slip, trip, or fall to the same level or another level?

(d) Is there a danger of strains caused by pushing, pulling, lifting, bending, or twisting?

(e) Are there environmental hazards (toxic gas, vapor, fumes, dust, heat, or radiation)?

(4) Develop practical, specific controls for each hazard. Do not use general precautions such as, "stay alert," "use caution," *etc*. For example, avoid something like "crane operator should have knowledge of EM 385-1-1." Write instead, "Crane operator will be certified and demonstrate proficiency in accordance with EM 385-1-1." Each hazard must correspond with a specific control that will eliminate or reduce the likelihood of the hazard causing an accident.

APPENDIX T

PROCUREMENT OF SAFETY FOOTWEAR AND SAFETY EYEGLASSES

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APPENDIX T

PROCUREMENT OF SAFETY FOOTWEAR AND SAFETY EYEGLASSES

1. PURPOSE. This appendix prescribes U.S. Army Corps of Engineers (Corps), Walla Walla District (District), policy and procedures for acquiring safety footwear and eyeglasses.

2. APPLICABILITY. This appendix is applicability District-wide.

3. REQUIRED REFERENCES.

a. Engineer Manual 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*, Section 5.

b. U.S. Army Corps of Engineers, Northwestern Division, Regulation (NWDR) 385-1-1, *Safety and Occupational Health Program*.

4. POLICY. The policy of this NWWOM is as follows:

a. The District will provide safety footwear or eyeglasses to each employee who is required to possess these items as part of their daily job requirements. The employee and supervisor shall make the determination of need. The District will purchase or provide reimbursement of up to $300 biennially (every 2 years) for safety footwear depending on need. Up to $350 is authorized for prescription safety eyeglasses on a biennial basis. The cost of visual examinations or obtaining a prescription for safety eyeglasses is not reimbursable. Eyeglasses and footwear may be purchased on a more frequent basis upon approval of the supervisor for unique cases, such as non-repairable damage to footwear, lost or damaged eyeglasses, sudden change in eyesight from injury or disease requiring a new prescription, *etc.* The employee will pay minor repair costs.

b. Note: The purchase of ergonomic devices (insoles) or products used to increase the longevity of the boot such as toe caps and boot oil is allowed. Also, safety shoes are not limited to safety boots with toe protection. There may be other specialized shoes or boots that are required that would not normally be expected to be provided by the employee, such as logging boots, bicycling shoes for rangers doing bike patrols, *etc*. "Custom made boots, orthopedics, or other specialized requests when accompanied by a doctor's recommendation to treat a foot malady or to reduce aggravation to an existing foot condition, defect, or disease may be authorized as a reasonable accommodation. In these instances, the current annual allotment may be increased as required.

c. The District will furnish safety prescription eyeglasses to employees who normally wear eyeglasses or contact lenses. A prescription form may be obtained from

the District's, Contracting Division. Employees also have the option of obtaining safety eyeglasses through their private optician. Eye exams will be paid for by the employee's medical insurance.

d. The government will only reimburse the purchase of sunglasses with prescription lens. Note: Lenses that provide ultra-violet (UV) protection in addition to meeting the safety lens requirements are permissible. The government will not purchase expensive sunglasses when inexpensive tinted safety glasses that provide the same UV protection can be purchased.

5. PROCUREMENT. Safety footwear or eyeglasses may be acquired by one of the following methods:

a. The employee may request the District to provide him/her with the required item of safety wear. A Purchase Request and Commitment requisition (PR&C) and a completed prescription form, if for safety prescription eyeglasses, will be forwarded through the District's Logistics Management Office, to Contracting Division, Supply and Service Branch. (NOTE: This option is not available if the total cost of safety eyeglasses will exceed the $350 limit. An estimate may be obtained by the employee's administrative office by faxing the completed prescription form to the contract vendor in advance of submitting the requisition).

b. If the requirement is emergency essential or immediate (the individual is a new hire without safety wear or someone alerted for disaster relief), the employee may ask the District to provide the item of safety wear. The safety wear will be acquired, expeditiously, through any of the simplified small purchase procedures.

APPENDIX U

RESPIRATORY PROTECTION

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APPENDIX U

RESPIRATORY PROTECTION

1. PURPOSE. This appendix prescribes requirements and policies for the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel on controlling occupational diseases caused by breathing air contaminated with harmful exposures to airborne contaminants such as fumes, dusts, mists, gases, aerosols, and vapors.

2. APPLICABILITY. Respiratory protection program requirements will apply to all Corps employees regardless of how often they wear respirators during the course of a year.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation Part 1910.134, *Occupational Safety and Health Standards, Respiratory Protection*.

b. Army Regulation 11-34, *The Army Respiratory Protection Program*.

c. Engineering Manual 385-1-1, *Corps of Engineers Safety and Health Requirements Manual.*

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follow:

a. Safety and Occupational Health Office. The responsibilities of the Safety and Occupational Health Office are as follow:

(1) Provide latest Occupational Safety and Health Administration, Department of the Army, and Corps guidance to all supervisors of employees in the respiratory protection program.

(2) Provide technical assistance for the implementation of all program requirements as needed.

(3) Assure adequate monitoring of air in areas with potential airborne exposures periodically and when processes or materials change.

(4) Provide educational materials and sources for training.

(5) Evaluate program effectiveness periodically.

b. Supervisor or Project Respirator Program Coordinator. The responsibilities of the District supervisors or project respirator program coordinators are as follow:

(1) Assess his/her work area to determine if there are potential respirable hazards, have exposures evaluated, and establish control methods for each hazard.

(2) Request through chain of command, engineering controls for respirable hazards.

(3) When engineering controls and administrative controls are not feasible, select and provide the respiratory protection for each specific exposure.

(4) Provide training and medical evaluation for each employee who will be required to wear a respirator.

(5) Enforce the correct wearing of the selected respirator.

(6) Inspect respiratory protective equipment routinely used at least quarterly.

(7) Note the date of inspection for respirators used for emergency use only. Expedite replacement or repair of equipment that fails an inspection.

(8) Maintain written records at work sites indicating:

(a) Air monitoring data used to assess respiratory hazards and the selected respirator for each exposure.

(b) Names of authorized users for each respirator.

(c) Dates of respirator wearer/authorized user medical exams, fit testings, and training.

(d) Inspection and maintenance reports.

(e) Annual medical certification that employee is capable of wearing specific respirator under specific work conditions.

(f) Ensure that employees receive respirator training that includes description of respirators, intended use, protection factors, limitations, proper wearing, adjustment, fit testing, cleaning, storage, inspection, and

maintenance. Training can be documented by a signed safety minutes report if the training is conducted in a safety meeting.

(9) Ensure that respirators are used when a negative exposure assessment has not been done. Request an Exposure Assessment through the Safety Office.

(10) Ensure that a respirator cartridge change out schedule has been established based on industry practice protocols.

(11) Request assistance as necessary from the District Safety and Occupational Health Office.

(12) Report problems they are unable to solve through chain of command.

(13) Develop a cartridge change out schedule.

c. Employees. The responsibilities of the District employees are as follow:

(1) Clean, inspect, maintain, store, and wear respirator in accordance with manufacturer's instructions and site specific training.

(2) Review with supervisor, at least annually, any problems or suggestions to minimize respirable hazards and document the signed copy of an up-dated position hazard analysis.

(3) Report any malfunction of engineering controls or respirator to his/her supervisor immediately.

APPENDIX V

AWARDS

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APPENDIX V

AWARDS

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix prescribes policy and procedure for the procurement of materials that are necessary to promote the Corps' Safety Program. The policy also establishes criteria for safety promotion and recognition of District employees for their performance in Accident Prevention and Loss Control.

2. APPLICABILITY. This appendix is applicable District wide to Corps employees. Recognition of safety performance of contractors may only be in the form of a letter written by someone with first hand knowledge of their performance.

3. REQUIRED REFERENCES.

a. Public Law 102-580, *Water Resources Development Act of 1992.*

b. Army Regulation (AR) 672-20, *Incentive Awards*.

c. Office of the Chief of Engineers, Supplement 1 to AR 672-20, *Decoration and Awards - Incentive Awards.*

d. AR 672-74, *Army Accident Prevention Awards Program*.

e. Department of the Army Pamphlet 672-5, *A Supervisor's Guide to the Incentive Awards Program*.

f. Engineer Regulation (ER) 672-1-18, *Decorations Awards and Honors - Incentive Awards*.

g. U.S. Army Corps of Engineers, Walla Walla District, Civilian Personnel Advisory Center, *Human Resources Handbook*.

4. POLICY.

a. Employee Recognition and Incentive. It is the policy of the District to recognize those individuals, work groups, and organizations that contribute to and represent Army Values for safety in the workplace. Individual, work group, or organizational recognition may take the form of certificates, plaques, on-the-spot cash awards, safety coins, performance awards, or the Bonneville Power Administration (BPA) Stewardship Award in which safety is one of the metrics in determining the award.

b. Promotional Items. These are items of nominal value (less than $20, *e.g.*, pens, coffee mugs, flashlights, *etc*.) used to promote the safety program. Employees do

not need to perform any special act or sustain superior performance to receive incentive awards. It is recommended that safety incentive items contain a safety slogan and the Corps insignia. These items are intended to motivate employees and make them aware of the importance of safety in their jobs. These awards are intended to help maintain team spirit and foster employee input and initiative. Verbal recognition or praise on the part of the supervisor to a subordinate usually means more to an employee than receiving small incentive items; do not overlook the power of praise.

c. Performance Awards. Performance awards for safety include certificates, plaques, coins, or cash awards. They can be individual, group, or organizational awards.

5. RESPONSIBILITIES. Each supervisor is responsible for monitoring and evaluating the performance of subordinate employees, ensuring enforcement/compliance with safety rules and regulations, and recognizing them for their successful performance. The Safety Office will assist upper management in determining the safety performance of project managers or team leaders through annual Safety Management Evaluations and routine program reviews and inspections. Employees' annual performance evaluations shall reflect their personal efforts and accomplishments specifically related to their safety and the safety of the work group. Recognizing individual and work group achievements demonstrates a commitment to Army Values for assuring a safe and healthful workplace. All employees, in which safety is a critical part of their job, shall have safety objectives listed in their Total Army Performance Evaluation System (TAPES) as part of their annual performance review.

6. AWARDS. The following guidance is suggested for use by supervisors in determining recognition/incentive awards for employees. Managers are allowed a wide degree of discretionary authority in the means in which they implement the safety awards and promotion program. The development of certificates, plaques, and procurement of incentive awards is the responsibility of each Project or Division/Office. The Safety Office will purchase some incentive items and group or organizational plaques for special recognition, however the burden of providing safety awards and incentives across the District is not the responsibility of the Safety Office.

a. Certificate. Certificates can be given for a number of contributions towards the overall safety program. Certificates can be given to employees or work groups for accomplishments as follows:

(1) Motor Vehicle Safety Awards (*i.e.*, 10 years without a vehicle accident).

(2) Five years without a lost time accident.

(3) Participation on a board of investigation/accident investigation.

(4) Membership on a safety committee.

(5) Engineers or designers who have provided significant contributions to Facility Systems Safety, or other safety design or support work. Design may contribute to substantial reduction in worker risk through operations or maintenance of the machinery or equipment, or reduce the potential risk of property damage (*i.e.*, advance fire protection measures, adding system redundancy, or improved reliability resulting in reduction of risk to property or personnel).

(6) The efforts of Construction Engineers on jobs that pose unique safety challenges or high-risk operations.

(7) Employees who have made significant gain in their own personal fitness (*i.e.*, weight loss or strength conditioning program). These people should be recognized because improvements in their health also benefit the Government through increased productivity and help to encourage others.

b. Plaque. A plaque may be given to employees at the discretion of the supervisor or higher-level command in lieu of a certificate for even greater contributions or durations of accomplishment to safety and loss control. Examples of Plaque Awards or Continuum Plaques are as follows:

(1) Safe Worker of the Year. Work groups are encouraged to select a peer to be recognized as their Safe Worker of the Year. This worker shall be one whose day-to-day actions, performance, or contributions to the workgroup reflect the highest regard for the safety and health of themselves, their co-workers, or contractors under their control.

(2) Commander's Project Safety and Environmental Award. This award is given to those projects successfully meeting a combination of strategic goals established by the District Safety Committee, Division Safety Management Action Plan, and successful scoring on the annual Safety Management Evaluation.

(3) Combination Plaques, Coins, and Corps Castle Awards. For awards of higher significance or repeated awards, plaques may be imbedded with the safety coin, Corps castle, or the District Commander's coin. Employees in hazardous jobs with no lost time accidents for the first 10 years will receive a plaque, 15 years receive a plaque with a safety coin, 20 years receive a plaque with a castle, and 25 years a plaque with the Commander's coin.

(4) Man-Hour Awards. These are accumulative exposure hour awards that may be given at significant milestones, based on the size of the project and the total hours worked. Generally, if each individual at a project goes without a lost time injury for 5 years, that project would qualify for this award. A project with 100 employees, for example, having 5 years without a lost time injury would receive a Million Man-Hour Award. Quality Assurance Representatives or Project Engineers overseeing Contractor

Projects will receive a plaque once they have overseen up to a Million Man-Hours without any lost workday cases.

(5) Good Samaritan Act Awards. Occasionally, the Corps has employees who have contributed to the saving of a life, either to a member of the public or an employee. These individuals should be recognized with a plaque.

c. Cash Awards. These awards are strictly at the project or supervisor's discretion, and the funds will be disbursed from the performance awards account. These awards should not be given for meeting the same criteria under the BPA Award, but should be something above or beyond the BPA metric. Examples of above or beyond the BPA metric are as follows:

(1) Sustained performance and contributions to the safety program.

(2) Safety leadership and participation in safety committees.

(3) Ideas that lead to improved designs, safer operations, processes, or engineering controls. Ideas should have substantial relevance to improved operation, product quality, and performance and safety.

(4) Individual or group performance in which no lost-time accidents were experienced.

d. On-the-Spot Cash Awards. These awards are no longer given by the Safety Office, but are still an effective means for supervisors to reward deserving employees. There are no specific guidelines for earning these awards. It could be something as simple as showing a positive work attitude in regards to behavioral safety, catching something unexpected that could have resulted in an accident, or making an extra effort at improving housekeeping around the project.

e. Chief of Engineers Safety Award. This is a national award for the recognition of an organization for their outstanding efforts in safety for Division, Field Operating Activities, and Laboratories. This award does not apply to Districts, but the Districts may provide input into the award nominations for the above organizations that have been helpful to them over the past year. Nominations are due by March 15 annually. Contact the Corps Headquarters Safety Office for information on nomination packages.

f. Division Safety Awards. The Division Commander can provide Safety Awards to Districts for their Outstanding Safety Achievements. Districts are normally nominated through the Headquarters Forward Safety Manager.

APPENDIX W

OCCUPATIONAL SAFETY AND HEALTH COMMITTEES

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OCCUPATIONAL SAFETY AND HEALTH COMMITTEES

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APPENDIX W

OCCUPATIONAL SAFETY AND HEALTH COMMITTEES

1. PURPOSE. This appendix provides advice and support to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) Operating Project Manager or the District Commander on matters of Safety and Occupational Heath. The District Committee shall help establish District wide strategy in regards to safety to review the effectiveness of programs (ergonomics, workers compensation, *etc*.).

2. APPLICABILITY. This appendix is applicable to all Operating Projects with 20 or more employees, either permanent or temporary, and to the District as a whole.

3. REQUIRED REFERENCE. Army Regulation (AR) 385-10, *The Army Safety Program*.

4. RESPONSIBILITIES, DUTIES, SCOPE, AND OBJECTIVES. The responsibilities, duties, scope, and objectives vary according to position and are listed below.

a. It is the responsibility of The District Commander to appoint members to the safety committee. The size of the committee will be at the discretion of the Commander. Members should be from a cross section of the District including management, union representatives, and workers. It is also the Commander's responsibility to allow time for the committee to meet and/or conduct inspections.

b. It is the responsibility of the Operating Project Managers to appoint members to the project safety committee. The size of the committee will be at the discretion of the manager, but should be at least three members to ensure employees from varied backgrounds are involved. The following structure is recommended: project safety officer, union representative, and an employee (assigned for specified period, *i.e*., 6 to 12 months). It is also the Operating Project Managers responsibility to allow time for the committee to meet and/or conduct inspections.

c. Committee members will perform assigned tasks that may include the following:

(1) Analyze accidents in order to pinpoint problems and recommend corrective actions.

(2) Conduct inspections of the workplace on a periodic basis and document findings, including ergonomic assessments.

(3) Provide follow-up on corrective actions.

(4) Record minutes of monthly safety meetings.

(5) Recommend, schedule, or conduct safety training or safety meeting topics.

(6) Review major topics such as the confined space program, ergonomics, near missed, or lessons learned, *etc*.

5. MEETINGS. The District committee will meet quarterly. Meetings at the project level will meet monthly.

6. MEETING MINUTES. Minutes of the meetings shall be recorded and submitted to the Operating Project Manager, with a copy forwarded to the Safety and Occupational Health Office (SO). The SO will forward District meeting minutes to the Commander.

APPENDIX X

IDENTIFICATION AND CORRECTION OF SAFETY AND OCCUPATIONAL HEALTH DEFICIENCIES

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APPENDIX X

IDENTIFICATION AND CORRECTION OF SAFETY AND OCCUPATIONAL HEALTH DEFICIENCIES

1. PURPOSE. The purpose of this appendix is to educate and inform the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) personnel of the procedures followed to summarize the requirements for periodic safety and occupational health inspections, reports of unsafe or unhealthful working conditions, and procedures for abatement of identified safety and occupational health deficiencies

2. APPLICABILITY. This appendix is applicable District wide.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR), Part 1960, *Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters.*

b. Occupational Safety and Health Act.

4. GENERAL REQUIREMENTS. The requirements of the identification and correction of safety and occupational health deficiencies are as follow:

a. Under the provision of the Occupational Safety and Health Act, any employee of this District has the right to report unsafe or unhealthful conditions under the following procedures. These procedures meet with the requirements set forth in 29 CFR, Part 1960.

b. Each employee is responsible for complying with occupational safety and health standards, rules, and regulations that are applicable to his/her own actions or conduct, and for reporting suspected unsafe or unhealthful working conditions.

c. Supervisors are responsible for enforcing occupational safety and health standards, rules, and regulations, and for identifying and correcting (or causing the correction of) unsafe or unhealthful working conditions. Sound risk management shall be used to assess all risks and prompt actions taken on these analyses. A risk assessment matrix is provided at figure X-1. A table showing responsibility for risk decision-making is at figure X-2.

d. No employee will be subject to restraint, interference, coercion, discrimination, or reprisal by virtue of his/her participation in the reporting of safety and health concerns.

e. When an imminent danger situation is discovered during an inspection, the "inspector" will immediately inform the installation manager or supervisor. The supervisor will immediately correct the condition or withdraw personnel from exposure. If the supervisor finds that the hazards cannot be immediately eliminated, he/she will contact the Safety and Occupational Health Office (SO) for guidance.

f. When an inspection is completed, all violations (categories I, II, and III, see section 10 for definition of categories) that cannot be corrected within 30 days will be entered on DA Form 4754 (Violation Inventory Log) that will be used to monitor compliance. It will show the violations in the order of discovery, prescribed abatement dates, and risk assessment codes. Uncorrected items from previous logs will be carried over onto the new year's log. A District-wide consolidated violation Inventory Log will be maintained in the SO.

g. Supervisors or their representatives will prepare a DA Form 4753 (Notice No__ of Unsafe or Unhealthful Working Conditions) for each hazard in category I or II. The completed DA Forms 4753 will be conspicuously posted at or near the location of the hazard.

h. DA Form 4756 (Installation Hazard Abatement Plan) will be completed by the project manager or supervisor for all hazards recorded on DA Form 4754 which entail a risk assessment of IIIB or higher and which are not correctable within 30 days of date of discovery.

i. Risk Management and Corrective Action.

(1) A risk assessment will be done and a risk assessment code assigned to each hazard that cannot be abated within 30 days or which require substantial funding. These categories will conform to the criteria in paragraph 10. Hazards will also be assessed in terms of correction cost, future intended use of the facility, and availability of desirable alternative methods of control.

(2) Following this risk assessment, a decision will be made on the action required. The hazards will be eliminated normally on a worst first basis. If correction time will exceed 30 days, prepare a DA Form 4756 for each deficiency. Violations in category IIIC or below that cannot be immediately corrected will be shown as deferred on DA Form 4754 until resources for correction become available.

(3) Copies of abatement plans (DA Form 4756) will be placed on each bulletin board of the installation or project where personnel notices are usually posted.

(4) Violations that are the responsibility of another command (*e.g.*, Base Engineer) or agency (*e.g.*, General Services Administration) will be brought to the attention of the responsible official for action. The deficiency will be entered on DA Form 4754, but no abatement plan need be prepared.

(5) Installation/project managers/budget managers will ensure that funds needed for a project to correct Occupational Safety and Health Administration (OSHA) deficiencies are entered into the appropriate program/budget documents using category codes SO3, SO4, SO5, *etc*.

(6) Installation abatement project plans will be reviewed periodically by SO personnel and representatives from higher authority.

j. Installation/project managers will ensure that the SO is provided appropriate completed copies of the following:

(1) Completed Self-inspection checklists.

(2) DA Form 4753 for each category I and II hazard.

(3) DA Form 4754, Inventory Log.

(4) DA Form 4756, Hazard Abatement Log.

5. INSPECTIONS. The necessary safety inspections for the District are as follow:

a. Annual Self-Inspections. All installations are to be inspected at least annually by the applicable supervisor or his representative using the appropriate self-inspection checklist for each type of workplace (industrial, office, public-use area, *etc*.). The SO will provide technical assistance upon request. Persons who have sufficient technical competence to recognize unsafe or unhealthful working conditions and who are familiar with the safety and health standards applicable to the facility or operation will perform inspections. Corrective actions, taken or pending will be documented on the self-inspection checklist.

b. The OSHA Inspections of Government Workplaces Conducted by the Department of Labor.

(1) Federal OSHA officials must be granted access to Department of Defense (DOD) workplaces on DOD installations without delay and at reasonable times in accordance with Section 8(a) of Public Law 91-596.

(2) Federal or State OSHA officials shall present appropriate identifying credentials (security clearance, if required) and state the purpose of the visit to the DOD installation. The Corps representative on site will notify the SO of the inspection within 24 hours. A representative of the Commander shall accompany OSHA officials on their inspections and investigations. An employee representative (non-management) will be permitted to participate in the inspection. A summary of an OSHA visit resulting in a citation must be forwarded to the SO. The SO will then forward a copy to the Headquarters Safety Office.

(3) A closing conference with the Project Manager or his designated representative will be arranged prior to the OSHA Inspectors departure. The Project Manager shall invite an authorized representative of employees to attend the opening and closing conferences.

(4) The OSHA Inspector shall, upon request, be provided access to safety and occupational health information. This information may include data on hazardous materials, copies of recent safety inspection reports, hazard abatement plans, and accident or injury compensation claims data.

(5) Responses to OSHA inspection reports shall originate at the local level. Unresolved conflicts may be elevated to a higher command and DOD echelons for interagency resolution. The SO shall inform the Division SO who will, in turn, report to Headquarters, U.S. Army Corps of Engineers.

c. Periodic Inspections by the SO.

(1) Safety and occupational health inspection reports prepared by the SO will be written as an informal memorandum. This document will be sent to the appropriate supervisor through the chain of command. A copy will be furnished to the supervisor to expedite abatement of identified hazards.

(2) The inspection report will specify a suspense date depending on the number and nature of the deficiencies.

(3) The inspection report will include: date of inspection, name of inspector, and personnel that accompanied the inspector. The inspection report will also include each deficiency identified with a recommended corrective action, and training and/or other safety issues discussed or identified by project personnel.

(4) A written response, when requested, will be provided to the Division SO, and it will address each deficiency identified on the initial report.

(5) Inspections of construction contracts will be documented in an informal memorandum or a memorandum for the record as determined by the SO Chief. All deficiencies will be listed, with applicable citations and will include possible solutions, as discussed with the contractor and contract representative. No written response will be requested. Deficiencies will be discussed with the Construction Representative and Area/Resident Engineer, and these deficiencies will be documented on the Daily Report, ENG Form 2538. Subsequent Daily Reports will document the corrective actions taken.

6. REPORTS OF UNSAFE OR UNHEALTHFUL WORKING CONDITIONS.

a. Reports of unsafe or unhealthful working conditions by District personnel will be handled at the local operating level (Project Office, Area/Resident Office, District, Division, or Separate Office, Section or Branch Office, *etc*.) to ensure prompt, efficient processing so far as is possible. Employees should use the following hierarchy when reporting an unsafe or unhealthful condition.

(1) An oral report directly to the supervisor.

(2) An oral or written report through established supervisory or operational channels.

(3) A written report to the SO, including electronic mail and other informal means of written communication.

b. Procedures for forwarding a written report of a serious safety issue to the SO include the following:

(1) Report will be made in writing on DA Form 4755, *Employee Report of Alleged Unsafe or Unhealthful Working Conditions*. The reports should be signed and submitted directly to the SO only after the above-noted priority procedures have been accomplished.

(2) Employees may request anonymity and these requests shall be honored. Appropriate disciplinary action may be taken for violating this prohibition.

(3) A report that appears to involve an imminent danger situation will be investigated immediately. If an imminent danger situation is discovered, the immediate supervisor and activity head (Area/Resident Engineer, Resource Manager, Section or Branch Chief, *etc*.) will be notified immediately and will correct the condition or withdraw personnel from exposure. If the hazard cannot be immediately eliminated, the SO will be contacted for guidance.

(4) All reports other than those involving an imminent danger will be investigated, and the originator of the report will be notified in writing within 15 days following the completion of the inspection. If this 15-day suspense cannot be met, the originator will be provided with an interim response. If it is determined that a hazard exists, the reply will include a summary of the actions to be taken and the anticipated date that the corrective action will be completed. If it is determined that the hazard does not exist, the reply to the employee will include the basis for that decision. The originator will encourage informal contact if additional explanations are desired. Every effort will be made to resolve the originator's question or dissatisfaction.

c. Safety and Occupational Health deficiencies identified through Reports of Unsafe or Unhealthful Working Conditions will be documented on DA Forms 4753, 4754, and 4756, as appropriate.

7. SAFETY AND OCCUPATIONAL HEALTH DEFICIENCIES. Deficiencies identified by other means such as accident investigations, interviews, job hazard analyses, *etc*., will be entered onto DA Forms 4753, 4754, and 4756, as appropriate.

8. DEFICIENCY CORRECTIONS. The SO will monitor the correction of all identified deficiencies.

9. NECESSARY FORMS. All forms necessary to comply with subject requirements are available from the SO.

10. DEFINITIONS. Definitions for terms used in this appendix are as follow:

a. Abate. To eliminate or permanently reduce a safety or occupational health deficiency by coming into compliance with the applicable standard(s).

b. Accident. An unplanned event or series of events that result in death, injury, occupational illness, or damage to or loss of equipment or property.

c. Controls. Actions taken to eliminate hazards or reduce their risks.

d. Exposure. The frequency and length of time subjected to a hazard.

e. Hazard. Any real or potential condition that can cause injury, illness, or death of personnel or damage to or loss of equipment, property, or mission degradation.

f. Hazard Severity. An assessment of the worst potential consequence, defined by degree of injury, occupational illness, or property damage that could occur. Hazard severity categories will be assigned a Roman numeral according to the following criteria:

(1) Category I -Catastrophic. May cause death, permanent total disability, major property damage, or severe environmental damage.

(2) Category II -Critical. Significant mission degradation, permanent partial disability (exceeding 3 months), extensive damage to equipment, or significant environmental damage.

(3) Category III -Marginal. Minor damage to equipment, property, or environment. Lost day due to injury not exceeding 3 months.

(4) Category IV -Negligible. Little or no adverse impact on mission capability. First aid or minor medical treatment. Little or no environmental or property damage.

g. Imminent Danger. A hazardous situation for which risk assessment code of Category IA or IIA has been assigned or that which poses an immediate threat that is likely to cause death or serious injury (*e.g.*, an employee working on a roof without positive fall protection).

h. Probability. The probability that a hazard will result in an accident, based on an assessment of such factors as location, exposure in terms of cycles or hours of operation, and affected population. Accident probability will be assigned an Arabic letter according to the following criteria:

(1) Level A. Occurs very often in service life or several times over the duration of a specific mission or operation. Always occurs.

(2) Level B. Occurs several times in service life or expected to occur several times during a mission or operation. Likely to occur.

(3) Level C. Occurs some time in the service life or may occur about as often as not during a specific mission or operation. Occurs occasionally.

(4) Level D. Remotely possible, could occur sometime. Occurs sporadically.

(5) Level E. Unlikely to occur. Can assume it will not occur, but not impossible. Occurs very rarely.

i. Risk-Chance of Hazard or Bad Consequences. Exposure to chance of injury or loss. Risk level is expressed in terms of hazard probability and severity.

j. Risk Assessment. An expression of possible loss described in terms of hazard severity, and mishap probability.

k. Risk Assessment Code. An expression of risk that combines the elements of hazard severity and mishap probability.

l. Risk Decision. The decision to accept or not accept the risk(s) associated with an action; made by the Commander, leader, or individual responsible for performing that action.

m. Risk Management. The process of identifying and controlling hazards to protect the work force. It is applicable to any mission and environment. The steps are: (1) identify hazards, (2) assess the hazard, (3) develop controls and make risk decision (must meet minimum standards), (4) implement control, and (5) suspense and evaluate.

n. Severity. The expected consequence of an event in terms of degree of injury, property damage, or other mission-impairing factors (loss of combat power, adverse publicity, *etc*.) that could occur.

RISK ASSESSMENT MATRIX

	E -Extremely High Risk H -High Risk M – Moderate Risk L – Low Risk	**PROBABILITY**				
		FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
SEVERITY	CATASTROPHIC	E	E	H	H	M
	CRITICAL	**E**	H	H	M	L
	MARGINAL	**H**	**M**	**M**	**L**	**L**
	NEGLIGIBLE	**M**	L	L	L	L

Figure X-1

		PROBABILITY				
		FREQUENT A	LIKELY B	OCCASIONAL C	SELDOM D	UNLIKELY E
SEVERITY	CATASTROPHIC I	DISTRICT ENGINEER				
	CRITICAL II		DIVISION CHIEF			
	MARGINAL III		**OPERATIONS MGR OR RESIDENT ENGINEER**			
	NEGLIGIBLE IV		SUPERVISOR			
		RISK LEVEL				

Figure X-2

APPENDIX Y

SAFETY MANAGEMENT EVALUATION

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SAFETY MANAGEMENT EVALUATION

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APPENDIX Y

SAFETY MANAGEMENT EVALUATION

1. PURPOSE. The purpose of this appendix is to provide guidance to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) leaders in how they should implement the District Safety and Occupational Health (SOH) Program, and to evaluate their effort and effectiveness to that end. Each supervisor/manager will be evaluated only on those objectives applicable to their mission and function. All objectives identified herein are based on existing safety policy.

2. APPLICABILITY. This appendix applies to District leaders as identified herein.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation 1960.11, *Evaluation of Occupational Safety and Health Performance*.

b. Engineering Regulation (ER) 385-1-85, *Safety and Occupational Health Program Management Evaluation*.

c. ER 385-1-92, *Safety and Occupational Health Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordinance and Explosive Waste (OEW) Activities*.

d. Northwestern Division, Seattle District, Office Memorandum (NWSOM) 385-1-1, appendix I.

4. RESPONSIBILITIES. The responsibilities vary according to position and are listed below.

a. The Safety and Occupational Health Chief will conduct a safety management evaluation (SME) on each manager/supervisor with employees engaged in activities other than routine administrative or office work, as identified.

(1) The completed SME will be given to the appropriate rating supervisor. A copy will be provided to the Deputy Commander and a copy will be filed in the Safety and Occupational Health Office (SO).

(2) The SO Chief will complete safety management evaluations by 30 June each year.

b. The Chief of Engineering/Construction will be responsible for the following.

(1) Ensure that resident, area, and project engineers support the safety objectives identified below (see paragraph 6 of this document).

(2) Ensure that accidents are promptly investigated and reported in accordance with appendix B.

(3) Ensure that accidents are analyzed and the true causal factors and corrective actions are identified.

(4) Ensure that personnel are targeted for and receive the appropriate design safety training.

c. Construction Office Engineers (area, resident, and project) are responsible for the following.

(1) Ensure that accidents are promptly investigated and reported in accordance with appendix B.

(2) Ensure that accidents are analyzed and the true causal factors and corrective actions are identified.

(3) Ensure that all daily reports contain relevant and meaningful safety comments.

(4) Ensure that equipment inspections are done on all equipment prior to being used.

(5) Ensure that contractor's conduct daily safety inspections.

(6) Ensure that accident prevention plans are reviewed and accepted prior to the commencement of work.

(7) Ensure that activity hazard analyses are reviewed and accepted prior to the commencement of work on each phase.

(8) Post the Commander's written SOH policy in the workplace.

d. The Chief of the Environmental Technology Section is responsible for the following.

(1) Ensure that appropriate personnel are targeted for and receive hazardous/toxic waste activity training.

(2) Ensure that appropriate personnel are in a respiratory protection program, receive medical evaluations prior to wearing respirators and receive respirator training.

(3) Ensure that site-specific safety and health plans for hazardous and toxic waste investigation, design, and construction activities are developed, reviewed, approved, and overseen in accordance with ER 385-1-92.

e. The Chief of the Operations Division is responsible for the following.

(1) Ensure that operating project managers support the safety objectives identified below (see paragraph 6 of this document).

(2) Ensure that accidents are promptly investigated and reported in accordance with appendix B.

(3) Ensure that accidents are analyzed and the true causal factors and corrective actions are identified.

f. Operating Project Managers are responsible for the following.

(1) Post the Commander's written SOH policy throughout the workplace.

(2) Promptly investigate and report accidents in accordance with appendix B.

(3) Analyze accidents and identify the true causal factors and corrective actions.

(4) Develop a written, site-specific program for each applicable program (standard operating procedure or station standing order) including the following: hazard communication program [inventory of chemical hazards, collection of material safety data sheets (MSDS), worker training, and container labeling]; respiratory protection program; hearing conversation program; control of hazardous energy; and a confined space entry procedures program.

(5) Ensure that the following components of the medical surveillance program are implemented: Pre-employment job-related medical examinations, medical surveillance examinations, and termination examinations.

(6) Develop an annual Industrial Hygiene Implementation Plan (IHIP) to identify and prioritize SOH needs to include training and industrial hygiene surveys as a minimum and demonstrate progress towards achieving their IHIP.

(7) Ensure that annual safety inspections are conducted and documented.

g. The Chief of Programs and Project Management Division will ensure that project managers notify the SO of safety related issues and relevant meetings regarding these issues to ensure that safety is adequately addressed throughout the lifecycle of the project, to include participation on the project management team.

5. SAFETY MANAGEMENT EVALUATIONS. Each applicable objective will be evaluated and a narrative written summary will be based on the preponderance of findings. Whenever possible, objective criteria will be rated. This summary will be in memorandum format. This summary will be discussed with the manager at an exit briefing whenever possible. A written copy will be forwarded to the ratee and his/her supervisor within 5 working days.

6. OBJECTIVES.

a. Accident Reporting. The intent of this task is to ensure prompt and complete accident investigations with effective corrective actions. Flash Reports and the Engineering (ENG) Form 3394 will be evaluated. Countermeasures must address the accident cause identified in block 11 of the ENG Form 3394. Block 11 must be completed and at least one causal factor must be marked "yes". The SO will maintain an accident log and a tracking sheet for each accident. Both of these will be reviewed to evaluate this task.

b. Government Facility Safety and Occupational Health Inspections. The intent of this task is to ensure a safe and healthful workplace by conducting a minimum of one safety inspection per year. This task will be evaluated by a review of the self-inspection checklists submitted by each office.

c. Construction Safety Inspections. The intent of this task is to promote safety awareness on construction contracts by documenting SOH observations. Examples of SOH observations may include: deficiencies noted during site visit, comments/instructions given to contractor related to SOH issues, accidents reported/discovered, safety meetings held and topics discussed, follow-up information on previous observations, and comments on positive actions/activities. This task will be evaluated by reviewing 6 months accumulation of ENG Form 2538.

d. Construction Safety and Occupational Health Program Administration. The intent of this task is to ensure that contractors are made aware of their safety responsibilities early on in the contract process. This task will be evaluated by reviewing files at a minimum of three contracts active during the evaluation period to ensure the Accident Prevention Plans were accepted prior to the commencement of work.

e. Public Safety and Health. The intent of this task is to ensure periodic inspection and adequate maintenance of public use areas. This task will be evaluated by reviewing public use area inspection checklists.

f. Design Safety. The intent of this task is to ensure that designers stay abreast of changes in safety-related design issues. Training may include seismic protection, fire suppression, life safety code, or others. This task will be evaluated by a discussion with the Chief of Engineering/Construction.

g. General Safety Awareness. The intent of this task is to ensure employees are aware of the Commander's policy and the persons responsible for safety and occupational health throughout the agency. This task will be evaluated by an inspection of employee bulletin boards that should have the Commander's SOH policy posted, as well as the Department Of Defense SOH poster.

h. Site-Specific Safety Programs. The intent of this task is to ensure that operating project managers develop a written, site-specific program for each applicable program including but not limited to the following: hazard communication program, respiratory protection program, hearing conversation program, control of hazardous energy, and a confined space entry procedures program. This task will be evaluated by a review of written programs on-site.

i. Medical Surveillance. The intent of this program is to ensure that the following components of the medical surveillance program are implemented: pre-employment job-related medical examinations, medical surveillance examinations, and termination examinations. This will be evaluated by discussing new employees and the hiring process with the project manager and/or the administrative officer.

j. Industrial Hygiene (IH) Implementation Plan. The intent of this task is to ensure that operating project managers plan for IH monitoring and related training. This task will be evaluated by a review of training records and IH survey reports.

k. Safety Meetings. The intent of this task is to ensure Government employees keep abreast of safety requirements. This will be evaluated by a review of the safety meeting minutes sent to the SO.

APPENDIX Z

MOTORBOATS (WATERBORNE VESSELS) and FLOATING PLANTS

APPENDIX Z

MOTORBOATS (WATERBORNE VESSELS) and FLOATING PLANTS

1. PURPOSE. This appendix establishes standard procedures to the U.S. Army Corps of Engineers (Corps), Walla Walla District (District) to ensure that operators of motorboats and floating plants take the necessary precautions to prevent serious injury and/or property damage through the application of safe boat operating procedures.

2. APPLICABILITY. This appendix is applicable to all District Divisions/Offices that have employees who operate Corps motorboats (less than 26 feet in length) and/or floating plants (greater than 26 feet in length).

3. REQUIRED REFERENCES.

a. Engineering Regulation (ER) 385-1-91, *Training, Testing, and Licensing of Boat Operators*.

b. ER 750-1-1, *Materiel Maintenance Policies*.

c. Engineer Manual 385-1-1, *Safety and Health Requirements Manual*.

d. EP 1130-2-550, *Recreation Operations and Maintenance Guidance and Procedures*.

e. U.S. Army Corps of Engineers, Huntsville Center Pamphlet (CEHRP) 690-1-1, *The Purple Book and Proponent Sponsored Engineer Corps Training (PROSPECT) Training Needs Survey*.

f. District Form, NWW 385-2, (U:\govforms\npwforms\nww385-2), *Motorboat Safety Checklist.*

4. POLICY. It is the policy of the Corps that all employees who operate Corps motorboats of less than 26 feet in length be trained, tested, and licensed in accordance with this policy and all applicable regulations. Employees who operate motorboats and/or floating plants greater than 26 feet in length will be trained, tested, and licensed in accordance with this policy and will receive additional training in larger vessel operations. Employees will operate Corps motorboats and/or floating plants in a safe and prudent manner and in accordance with recognized Federal, state, and local laws and regulations.

a. Government Employees. Corps employees and other Federal, state, or local agency personnel are allowed to enroll in boat classes.

b. Contractor Employees. Contractors working for the Government are not authorized to attend Corps boat classes. Contractors are required to provide appropriate training and ensure that licenses required by state or Federal law are obtained and kept current during the life of the contract. Licenses and training certifications will be presented to and verified by the Corps before contractor employees are allowed to operate motorboats on Corps property. There is no Corps requirement for contractors to have government boat licenses. The Corps personnel observing unsafe operations by contractor employees will report it to his/her supervisor and/or Corps Construction Division representative for appropriate action.

c. A temporary, short-duration license for motorboats (under 26 feet) may be issued to new or unlicensed personnel under the following conditions:

(1) A written statement from the employee's immediate supervisor defining the need for issuing a short-duration license. This is given to the Corps' Motorboat Director;

(2) A 1-day operational proficiency and abilities demonstration is given by the unlicensed person, with a certified Corps instructor in attendance, to verify all skills are adequate for vessel operation;

(3) The temporarily-licensed person attends the next formal full-length Corps training session; and

(4) The short-term duration of the temporary license does not exceed 6 months.

5. RESPONSIBILITIES.

a. Motorboat Director. This employee, appointed by the Commander (ER 385-1-91), is responsible for managing the District waterborne vessel training and licensing program. He/She ensures that operators of Corps motorboats are adequately trained, properly tested, and licensed before any official operation. He/She leads the District Motorboat Instruction Team to carry out training responsibilities.

b. Motorboat Licensing Instructors. These employees, appointed by the Operations Division Chief (ER 385-1-91), are responsible for providing boat-training activities for small vessel operators (optimum of seven instructors). These individuals must pass the Boat Operator License Exam (PROSPECT course number 33BOL01A) before training other operators (ER 385-1-91). Corps instructors will be members of the District Motorboat Instruction Team assisting with training preparations, instructions, and follow-up activities. Instructors outside the Corps who have successfully passed an approved Federal instructors training course and possess current certification may also be utilized.

c. Motorboat Operators. Operators will inspect vessels for proper equipment and operating conditions in accordance with the Motorboat Equipment and Condition Checklist (see page one of figure) before departure. Operators will not allow a vessel to depart until the required equipment (see page 2 of figure for listing of required and recommended motorboat equipment) is on board and the vessel is in proper operating condition. Inspection sheets explaining deficiencies are to be submitted to the Resource Manager/Supervisor.

6. GENERAL. The requirements and procedures for this appendix are as follows:

a. Licensing Requirements. Operators of motorboats (less than 26 feet in length) must successfully (minimum of 70 percent grade on written test and pass all practical exercises) complete the 24-hour Corps Headquarters-approved Motorboat Operators Training Course and be licensed before official operation of a Corps vessel (ER 385-1-91). Licensed motorboat operators will complete an 8-hour refresher course every 5 years to retain his/her license. Failure to take the refresher course will result in a boat license being revoked – a new license can be obtained after re-taking the 24-hour course.

Note: Personnel who operate large vessels (over 26 feet in length) will receive additional training and certification by a large vessel/floating plant certified instructor.

b. Operator Conditions. Under normal conditions a person should not operate the boat more than 4 continuous hours without an off-the-water break. Heat and sun contribute to less than maximum operating skill if a person operates the boat too long. Operators of motorboats shall not be permitted to exceed 12 hours of duty time in any 24-hour period, including time worked at another occupation. Exceptions to these requirements may include search, rescue, and emergency operations.

c. Personal Floatation Devices (PFDs).

(1) All persons on board Corps vessels must properly wear a Type III, Type V special purpose or better, U.S. Coast Guard approved, International Orange with retro-reflective tape PFD. In cold weather conditions, a Type V float coat or flotation full body suit may be worn. A signal whistle (minimum of 115 decibels when blown) and a water-activated emergency survival light shall be affixed to all PFDs for personnel man-overboard emergencies. Type V inflatable PFDs are prohibited at this time in accordance with ER 750-1-1. In vessels with an enclosed cabin or cockpit, wearing of a PFD is not required while in the enclosed area. When leaving the cabin or cockpit to go forward or aft for work, a PFD is required to be worn.

(2) The number of PFDs on board each vessel will equal the carrying capacity. The PFDs not in use will be protected from the elements to prevent damage and deterioration.

d. Deck Duties. A qualified employee or individual shall be assigned to assist with deck duties in the following circumstances:

(1) When extended trips (over 4 hours), including overnight trips, are made from the work site;

(2) When conditions of navigation make it hazardous for an operator to leave the wheel while underway;

(3) When operations being performed, other than tying-off, require the handling of lines;

(4) When operating at night or during inclement weather;

(5) When towing; or

(6) When performing search or rescue operations.

Note: A qualified person is any individual who has established, to the satisfaction of the operator of the vessel, that they possess the physical and mental capability of adequately performing any potential deck duties.

Individuals performing deck duties (deckhands), including barge riders, will maintain line-of-sight visual contact with the boat/vessel operator. In the event the deck duties involve being out of sight to the operator, the deckhand will carry a radio to maintain voice contact with the boat/vessel operator. Deckhands will wear a Class III PFD, or Type V special purpose PFD (with emergency survival light and whistle) at all times while performing deck duties.

e. Towing Vessels. If an office is notified of a vessel that needs towing, arrangements will be made for a commercial towing service (if available) or (if not available) a Corps vessel may tow the craft to the nearest point of safety, usually to the nearest boat ramp or marina.

f. Boat Trailers. Maintenance on boat trailers needs to be periodically performed to ensure proper working conditions. Due to their constant exposure to water, wheel bearings shall be checked frequently, and lubricated as needed. Annex C includes a Towing Checklist as well as Launching and Retrieval Procedures.

g. Non-skid Decking. Walking and working surfaces on all vessels and boats shall be coated with commercial grade non-slip paint, access way paint meeting U.S. Navy non-slip paint requirements, or non-slip walnut hull paint being used by the Corps, Mississippi Valley/St. Louis District (MVS). Walking and working surfaces include working decks, stair treads, ship ladders, platforms, catwalks, and walkways.

h. Vessels with Perimeter Protection. Floating plant and vessels over 26 feet in length shall have guardrails, taut-wire rope, or chain as perimeter protection. Taut-wire rope or chain shall meet the deflection requirements of EM 385-1-1. Perimeter protection systems shall have horizontal members at 9 inches, a mid-rail at 24 inches, and a top member at 39 inches above the deck. Guardrails shall be provided on all sides of superstructure.

i. Buddy System. Boat/vessel operations require the use of the "Buddy System" to ensure safe operation. Floating plant and vessels over 26 feet in length shall require a minimum of two persons for operations. On vessels less than 26 feet in length where two employees are not available for on-water operations, one employee may operate the vessel if the following conditions are met:

(1) A float plan (see page 6 of figure) is filed with the Supervisor, Facility Operator, or Dispatcher;

(2) Communications [*i.e.,* Citizens' Band (CB) radio, satellite phone, walkie-talkie] are established and maintained throughout the operation, (the person with whom the vessel operator communicates becomes the "buddy"); and

(3) The operator wears a PFD (with emergency survival light and whistle) at all times while on-board.

j. Float Plan. The operator of a launch or motorboat shall prepare float plans when engaged in surveying, patrolling, or inspection activities that are remote and are expected to take longer than 4 hours or when the operator is traveling alone. The float plan shall be filed with the boat operator's supervisor, a facility operator (Dam Operator, Ranger, *etc.*), or dispatcher who can maintain communications with the vessel. The following, as a minimum, are required on the float plan (see page 6 of figure):

(1) Vessel information (make/model or local identifier);

(2) Names of personnel on board;

(3) Activity to be performed;

(4) Expected time of departure, destination, route, and time of return;

(5) The means of communication (adequate mean of communication shall be provided), and

(6) Miscellaneous information, as needed.

If the operator of the vessel does not return at the specified time and does not respond to communication calls from the “buddy” contact, an emergency operation shall proceed to find and rescue the vessel operator.

k. End-of-Day. Operators will ensure the vessel has over a half tank of fuel at the end of each workday. Engine oil should be checked after each day and replenished, as needed. Vessels with automatic bilge pumps shall have them activated when stored on the water. The vessel must be properly tied down in a boat stall or on the trailer.

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MOTORBOAT EQUIPMENT AND CONDITION CHECKLIST

Vessel - _____ , ID Number - _____
Operator - _____ , Date - _____
√ Fuel - Gas or Diesel, Level is _____ : Oil - Level is _____

Equipment Checklist

Item	Yes	No	Item	Yes	No
Anchor and Line			Rescue Line and Bag		
Towline and Bridle			Proper Fire Extinguisher		
Fenders_____each			First Aid Kit		
Mooring Lines			Audible Device		
Boat Hook			Hand Held Light		
Paddle			Took Kit		
Type IV PFD			Depth Finder		
Boarding Ladder			PFDs Worn by All on Board		
Bilge Pump or Bailing Bucket			VHF-Radio		
Spare Proper Propeller (w/nut and pin)			Extra Drain Plug		
Extra Kill Switch Pins					

Condition Checklist

Item	Condition	Comments
Check Drain Plug		
Inspect for External Damage		
Check and Sniff Bilge		
Turn on Batteries and Breakers		
Start Blowers		
Check Oil (engine, transmission, VRO)		
Check Plug Wires for Wear		
Check Fuel/Fuel Lines/Filter		
If all OK, Start Engine		
Check for Discharge of Exhaust Water		
Check for Oil Pressure/Water Pressure		
Recheck for Water/Fuel/Gas Leaks		
Check all Gauges for Normal Readings		
Check for Forward and Reverse Gears		
Test Kill Switches		
Turn Wheel Full Right and Full Left		
Check All Electronics		
Check Navigation/Anchor Lights		
Radio Check on VHF Radio		
Check Trailer (lights, hitch, chain, greased, etc.		
Test Horn		

Comments:

Complete and file this form

- **Ladder** - Required, Engineer Manual (EM) 385-1-1, Paragraph 19.B04 Page-331.
- **Fire Extinguisher** - Required, EM385-1-1, Paragraph 19.C03 Page-333.
- **Rescue Bag** - May be used in addition to life rings or ring buoys.
- **Rescue Throw Ring** - Required, Type IV PFD,EM 385-1-1, Paragraph 05.I.04 Page-50. Life rings (line attachment not required) and ring buoys (rope attachment required) shall conform to the requirements of 46 Code of Federal Regulation 160 [US Coast Guard (USCG) approved].
- **Paddle** - Strongly Recommended.
- **First Aid Kit** - Required only on Ranger and Park Manager boats, Corps Engineering Pamphlet (EP) 1130-2-550, 6-7.d.
- **Navigation Lights** - Required. USCG regulation.
- **Spare Propeller** - Recommended.
- **Tools** - Recommended. Tools to change propeller along with extra nut and cotter pins.
- **Bailer** - Recommended. Portable bilge pump, bucket.
- **Sound Signaling Devises** - Required. A vessel of less than 39 feet 4 inches (12 meters) must be able to provide a means of making an efficient sound signal but is not required to carry a whistle or bell. USCG regulation.
- **Life Jacket or Personal Flotation Devise (PDF)** - Required. Type III, V or better, USCG approved for each person with retro-reflective tape, EM 385-1-1, Paragraph 05.I.01 Page-49.
- **Whistle and Water Activated Rescue Light (with PFDs)** - Conditionally Required. District Safety OM, and Safety and Health Manual, EM 385-1-1, Page 80.
- **Lanyard (Kill Switch with Cable Attached)** - Strongly Recommended.
- **Line** - Strongly Recommended. (1/2 inch Nylon braid, minimum of 90 feet for all vessels).
- **Anchor and Line Length that is 7 times the Depth of the Water** - Strongly
- **Communication System (two-way radio)** - Strongly Recommended.
- **Visual Signaling Device** - Strongly Recommended.
- **Bloodborne Pathogen Handling Kit** - Required only on Ranger and Park Manager Boats, Corps EP 1130-2-550, 6-7.d.
- **Binoculars, Camera, and Flash Light** - Required only on Ranger and Park Manager Boats, Corps EP 1130-2-550, 6-7.d.

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BOAT TRAILERING VEHICLE CHECK

- Coupler hitch and trailer ball are the same size.
- Coupler is properly latched with hitch safety pin.
- Safety chains are crisscrossed under tongue and attached to towing vehicle.
- All trailer lighting is working correctly.
- Boat is secured to trailer front and rear (do not depend on winch line alone, use trailer tie downs).
- Bow safety chain (provided on most models) is attached to boat.
- Boat motor(s) are up in proper position for trailering.
- Tongue jack (if trailer is so equipped) is retracted.
- Wheel lug bolts are properly tightened.
- Tires are inflated to pressure indicated on tire.
- Trailer brakes (if trailer is so equipped) are properly adjusted and break-away device is attached to towing vehicle.
- Load is within trailer capacity and distributed properly to maintain proper tongue.
- Trailer axles and wheel bearings greased regularly (always check after each use).
- Walk around vehicle to check that all straps are tight and secure, lower unit and motor up, no loose lines, wheel chocks clear, safe chains in place, and trailer properly attached to ball.

BOAT LAUNCHING

- Prepare boat for launching at the top of the ramp or parking area.
- Put boat fender out.
- Remove all tie down straps, lines, and transom saver.
- Be sure all equipment is on board: Connect fuel line to outboard, turn on fuel valve.
- Turn on master power breaker if installed.
- Check boat plugs.
- Fasten mooring lines to bow eye and stern.
- Unplug trailer wiring harness from tow vehicle.
- Do not unhook winch line until boat is in the water.
- Have wheel chocks ready.
- Unlock all vehicle doors.
- Unfasten seatbelt (in case vehicle is submerged and fast exit is required.
- Have all passengers get out of vehicle.
- Appoint one to assist in backing and ready for wheel chock placement.
- Set transmission in Park or First Gear (to ensure vehicle is completely secure and set wheel chocks).
- Never leave the vehicle unattended on the ramp.
- Ventilating - For inboards operate blower for 5 minutes.
- Check for gas fumes before turning on any electric switches.

BOAT RETRIEVAL

- Use bowline to aid in getting boat in position.
- Properly position boat onto trailer.
- Secure trailer winch line to bow eye.
- Hook safety chain to bow eye.
- Raise lower unit or motor.
- Pull the trailer up ramp steadily.
- Pull boat plugs to drain water if necessary (replace when draining is completed).

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FLOAT PLAN

Operator:	Identification of Vessel:
Expected Date and Time of Departure:	Expected Date and Time of Return:
Activity To Be Performed:	Means of Communication:
Destination/Expected Route:	Personnel On-board (list all):
Remarks - Contingency Plan (continue on back if needed):	

Per EM 385-1-1, paragraph 19.C.04: Float plans shall be prepared by the operator of a launch or motorboat when engaged in surveying, patrolling, or inspection activities that are remote and expected to take longer than 4 hours or when the operator is traveling alone. The plan shall be filed with the boat operator's Supervisor.

APPENDIX AA

HOOKS

APPENDIX AA

HOOKS

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APPENDIX AA

HOOKS

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix is to supply guidance and inform District personnel of the requirements for making, testing, and maintaining hooks.

2. APPLICABILITY. This appendix is applicable District wide. It is applicable only to single plate and laminated plate hooks designed and made by Corps personnel. This appendix is applicable to all contractor operations.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1910.179(h)(4) and (j)(3), *Occupational Safety and Health Standards, Overhead and Gantry Cranes.*

b. American Society of Mechanical Engineers (ASME) B30.10-2000, *Hooks*.

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follows:

a. Operations Project Managers. The responsibilities of the Operations Project Managers are as follows:

(1) Ensure hooks are designed, tested, and maintained in accordance with this appendix.

(2) Ensure damaged hooks are replaced.

(3) Ensure workers are trained in the limitations of the use of these hooks.

(4) Provide quality control over the production of hooks.

b. Engineering Division-Structural Design. The responsibilities of the Engineering Division-Structural Design are as follows:

(1) Provide quality assurance over the design and testing of in-house fabricated hooks.

(2) Provide necessary design capabilities if required.

c. Safety and Occupational Health Office (SO). The responsibilities of the SO are as follows:

(1) Conduct periodic compliance inspections to ensure testing and record keeping is current.

(2) Inform District staff of changes to hook standards developed by the Corps, Occupational Safety and Health Administration (OSHA), or adopted consensus standards (*e.g.*, ASME, American National Standards Institute, *etc.*).

d. Employees. The responsibilities of all District employees are as follows:

(1) Inform his/her supervisor when a damaged hook is detected.

(2) Follow the work practices established by the project and this appendix.

(3) Stop work in the event of an imminent hazard.

(4) Assist in developing critical lift plans or Activity Hazard Analysis (see appendix S).

5. OBJECTIVES. The objectives are to ensure in-house shop made hooks are safe and reliable; and designed, fabricated, and tested in accordance with the guidance given in this appendix.

6. HOOKS (Design and Construction).

a. In-house fabricated hooks shall not be made if readily accessible manufactured hooks are available.

b. Professional Engineers with a Structural background will be the only personnel qualified to design hooks.

c. Hooks shall be made from material having sufficient ductility to permanently deform before losing the ability to support the load.

d. Low carbon high strength steel rated at 50,000 to 120,000 pounds per square inch (psi) is recommended, or stainless steels in the 200 or 300 series (400 series stainless steel should not be used as it would not possess the desired ductile properties). High strength steel shall be tempered (stainless does not require tempering).

e. A hook latch shall be provided whenever practical.

f. Once the hook has been fabricated and tempered, it shall not be welded on.

g. The hook shall be marked with the rated load, date of manufacture, fabricator, throat opening, and an identifying number. These marks shall be stamped on the steel in a low stress and non-wearing area of the hook (*e.g.*, COE-#3-5T-2.5”-3/04)

h. Hooks shall be radio graphed or ultra-sound tested by a Non Destructive Testing (NDT) Level II Weld Inspector.

i. Hook designs and tests results shall be forwarded to the Chief of Structural Design Section for review and concurrence before placing the hook in service.

j. Hooks shall not be painted.

k. Only minor repairs of nicks, cracks, and gouges are permitted. Grinding on the hook shall not reduce it in any dimension by more than 10 percent.

l. A safety factor of 5 on all lifting components is required.

m. All design documentation shall be forwarded to Structural Design Section with a copy furnished to the District SO.

7. INSPECTION AND TESTING.

a. Proof Testing: Prior to initial use, all hooks shall be proof tested to 2 times the intended load or 200 percent of the rated load. The test weight shall be held in place for at least 15 seconds. Refer to ASME B30.10-2000 for wear tolerances.

b. A competent person shall visually inspect hooks before use. Hooks shall be inspected for wear, distortion (*e.g.,* bending, twisting, or increased throat opening wear), cracks, nicks, or gouges, latch engagement (if applicable), and latch orientation.

c. A qualified person shall conduct and record periodic inspections. In the periodic inspections, the inspector shall look for any deformation or bending greater than 10 percent, throat opening exceeding 15 percent, wear exceeding 10 percent, and/or any damaged latch.

d. Hooks exceeding any distortions or wear cited in 7c shall be removed from service.

APPENDIX BB

INTERIM ARC FLASH HAZARD POLICY

APPENDIX BB

INTERIM ARC FLASH HAZARD POLICY

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APPENDIX BB

ARC FLASH HAZARD POLICY

Interim guidelines for Arc Flash Protection

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix prescribes interim policy and guidance for Arc Flash Hazard protection and personal protective equipment (PPE).

2. APPLICABILITY. All employees and contractors working in areas where there are potential electrical hazards shall use electrical protective equipment that is appropriate for the work to be performed.

3. REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1910.147, *The Control of Hazardous Energy Source (lockout/tagout)*.

b. 29 CFR 1910.269, (l)(6), *Electric Power Generation, Transmission, and Distribution*.

c. 5 United States Code (U.S.C.) Section 7903, *Protective clothing and equipment*.

d. National Fire Protection Association (NFPA) 70E, *Standard for Electrical Safety in the Workplace*.

e. American Society for Testing and Materials (ASTM) F-1506-00 (2003), *Standard Specifications of Protective Apparel.*

4. POLICY. This interim guidance is intended to improve safety while arc flash hazard assessments/analyses are being performed.

5. RESPONSIBILITY.

a. Supervisors shall ensure that employees are trained on this interim policy and that employees wear the proper PPE.

b. Employees will be responsible for understanding the interim policy and determining the level of clothing appropriate to perform a given task on a particular piece of equipment.

6. REQUIREMENTS.

a. Individual personal clothing must be appropriate for the work being performed. For those who have the potential for exposure to arc flash hazard, natural fiber clothing such as 100-percent cotton is appropriate (*i.e.*, no polyester, nylon, rayon, blended, or other synthetic clothing that melts will be allowed, including undergarments). The Position Hazard Analysis (PHA) and the Activity Hazard Analysis (AHA) for the work to be performed will determine the level of protective clothing required. Standard wear clothing for power plant operators and electricians will be provided by the employee and will be as listed under paragraph 8a and 8b, Hazard Risk Category -1 and 0.

b. District policy is generally not to work equipment "hot". Work should not be performed on energized equipment unless it is absolutely necessary, and a safer alternative is not available.

c. Employees performing switching operations, clearing equipment, and placing grounds for safe clearances where a potential for arc flash exists will follow appropriate safety procedures and wear appropriate PPE.

d. Contractor and sub-contractor personnel shall abide by all safety rules as agreed on under the construction contract for the work they are required to perform, shall comply with the Corps' interim arc flash protection policies and procedures, and provide the required PPE.

e. Visitors shall not be taken near arc flash hazards without the proper PPE and training.

7. CORPS PROVIDED SAFETY APPAREL.

a. Each project has the authority to purchase and maintain arc flash PPE.

b. Operations Managers will appoint a Project Point of Contact (POC) for Arc Flash Protection.

c. It is recommended that each operating project purchase the following:

(1) A copy of NFPA 70E, *Standard for Electrical Safety in the Workplace*, 2004.

(2) A minimum of two suits of protective gear rated for 50 calories/cm^2 to provide protection for crews performing work subject to arc flash hazard. These suits include pants, jacket, hood, arc-rated face shield, and gloves.

(3) A minimum of one set per operator of Flame Resistant (FR) equipment consisting of FR clothing rated Category 2 (8 calories/cm^2), arc-rated face shield, and gloves.

(4) A minimum of one set per electrician of FR equipment consisting of FR clothing rated Category 2 (8 calories/cm^2), arc-rated face shield, and gloves.

(5) Arc suppression blankets.

8. ARC FLASH HAZARD CATEGORIES.

a. Hazard Risk Category -1 (Standard Wear Work Clothing).

- Cotton underwear
- Untreated natural fiber short sleeve shirt
- Untreated natural fiber pants
- Safety glasses

b. Hazard Risk Category 0 (Standard Wear Work Clothing).

- Cotton underwear
- Untreated natural fiber long sleeve shirt
- Untreated natural fiber pants
- Safety glasses

c. Hazard Risk Category 1.

- Cotton underwear
- FR long sleeve shirt/coveralls
- FR pants (regular weight, untreated, denim cotton blue jeans are acceptable in lieu of FR pants, but shall have a minimum arc rating of 4 calories/cm^2)/coveralls
- Hard hat
- Safety glasses
- Leather gloves as needed

d. Hazard Risk Category 2.

- Cotton underwear
- Untreated natural fiber short sleeve shirt
- Untreated natural fiber pants
- FR long sleeve shirt/coveralls
- FR pants/coveralls
- Hard hat

- Safety glasses
- Ear plugs
- Arc rated flash shield or flash suit hood
- Leather gloves
- Leather safety work shoes

e. Hazard Risk Categories 3 and 4.

- Cotton underwear
- Untreated natural fiber short sleeve shirt
- Untreated natural fiber pants
- Pair FR long sleeve shirt/coveralls
- Pair FR pants/coveralls
- Hard hat
- Safety glasses
- Ear plugs
- Flash suit hood
- Leather gloves
- Leather safety work shoes
- Protective suit for 50 calories/cm^2

9. ARC FLASH HAZARD SURVEY.

a. A survey will be conducted and the results used to determine the arc flash hazard potential and specific PPE requirements. These requirements will be addressed when developing AHA for each specific job where the potential for arc flash hazards may exist.

b. Use NFPA 70E table 130.7(C)(9)(a) and table 130.7(C)(10) for guidance on the minimum level of arc flash protection and flash protection boundaries needed for various operations. These tables are appropriate up to 50,000 Amp short circuit currents. For situations where the short circuit current is anticipated to exceed 50,000 Amps, use a combination of arc flash protection and remote grounding stick to establish lock-out/tag-out grounding.

c. Where feasible, design changes, engineering controls, or administrative controls shall be utilized. These may include the installation of blast cabinets for new construction or renovation, use of remote switching, blast curtains or other barriers, electrically rated sticks to increase the working distance, *etc.*

10. SAMPLE TASKS AND PROTECTIVE EQUIPMENT REQUIREMENTS.

Based on the Arc Flash Survey, each project will develop a description of work and the level of PPE required for tasks where there is a potential for arc flash hazard. The following example is provided.

Description of Work	Category
Entering Control Switchboards (S) boards or operating circuit breakers in S Boards	0
Testing for voltage inside “S” Boards	1
Entering Battery Switch Boards (SB)	1
Testing for voltage inside SB Boards	2
Panel Board less than 240 Volt	
Circuit breaker or fused switch operation with cover on or off, or removing dead front panel	0
Testing for voltage	1
Panel Boards 480 Volt	
Circuit breaker or fused switch operation with cover on	0
Circuit breaker or fused switch operation with cover off or removing dead front panel	1
Installing Grounds or testing for voltage	2
Operating SQO board breakers locally, door closed	0
Operating SQO board breakers locally, door open	1
Installing grounds, testing for voltage, or removing bolted covers	2
Racking in and out 480 Volt Breakers SQO	3
Panel Boards 4160 Volt	
Operating 4160 Volt breakers locally doors closed	0
Operating 4160 Volt breakers, doors open or racking in and out 4160 Volt breakers, doors closed	2
Installing grounds, testing for voltage, or racking in or out 4160 Volt breakers, doors open	3
Unit Circuit Breakers 13.8 KV	
Operating XJ Disconnects opening or closing, line de-energized, or locally disconnects open	0
Operating XJ Disconnects opening or closing, line de-energized or with disconnects closed	2
Installing grounds or testing for voltage in XJ breaker	4
Operating transformer reactor disconnects	2
Transmission Line Disconnects 115 kilovolts (KV), 230 KV, 500 KV	
Operating Transmission line (roof top) disconnects, installing grounds, or testing for voltage	4

11. TRAINING.

Personnel conducting work subject to arc flash hazard shall be trained to be familiar with the arc flash hazard potential, special precautionary techniques, and the proper use of PPE. Awareness training will be provided for all project members on the potential for arc flash hazards. Operators, electricians, supervisors, and Arc Flash Hazard POCs shall receive training on task hazards and protective clothing requirements. Supervisors and Arc Flash Hazard POCs shall receive training for Arc Flash Hazard Surveys.

12. HAZARD COMMUNICATIONS.

Work areas will be posted to warn personnel of potential arc flash hazards.

APPENDIX CC

ROPE GUIDED MANBASKETS AND SUSPENDED PERSONNEL WORK PLATFORMS
(Does Not Include Non-Guided Rope Manbaskets such as Boatswains Chairs or Rail Guided Transport Systems)

APPENDIX CC

ROPE GUIDED MANBASKETS AND
SUSPENDED PERSONNEL WORK PLATFORMS
(Does Not Include Non-Guided Rope Manbaskets
such as Boatswains Chairs
or Rail Guided Transport Systems)

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ANNEX

APPENDIX CC

ROPE GUIDED MANBASKETS AND
SUSPENDED PERSONNEL WORK PLATFORMS
(Does not include Non-Guided Rope Manbaskets such as Boatswains Chairs or Rail Guided Transport Systems)

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix prescribes policy and procedures to establish safe work practices for the use of manbaskets and work platforms in addition to inspection requirements, rigging, testing, and design criteria.

2. APPLICABILITY.

a. These procedures apply to all District employees. Contractors will be required to comply with these standards as a minimum set of standards. Where Corps, American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), and Occupational Safety and Health Administration (OSHA) guidelines differ the more stringent standard shall apply.

b. Mandatory rules will use the word shall. Provisions advisory in nature, will use the word should and is only a recommendation to be considered.

3. REQUIRED REFERENCES.

a. 29 Code of Federal Regulation (CFR) 1926.550, *Occupational Safety and Health Regulations for Construction, Cranes, Derricks, Hoists, Elevators, and Conveyors*.

b. ANSI, A10.22-1990 (R1998), *Safety Requirements for Rope-Guided and Nonguided Workers' Hoists*.

c. ASME, B30.23-1998, *Personnel Lifting System*.

d. ASME, B30.7-2001, *Base Mounted Drum Hoists*.

e. Engineer Manual (EM) 385-1-1, *Safety and Health Requirements*, Section 22E and F, *Work Platforms*.

f. OSHA Publication 3100, *Crane or Derrick Suspended Personnel Platforms*.

4. RESPONSIBILITIES. The responsibilities vary according to position and are as follows:

a. The Safety and Occupational Health Office (SO). The SO will ensure that project personnel have access to up-to-date information regarding manbasket/work platform requirements and provide periodic oversight and evaluation of personnel lifting.

b. Operations Manager/Project Manager. The Operations Manager/Project Manager will select in writing, a competent person as a personnel lift authorizer/supervisor that will be capable of inspecting lifting equipment, rigging, and manbaskets.

c. Personnel lift authorizer/supervisor. The Personnel lift authorizer/supervisor will be responsible for the following.

(1) Verifying the need for and if warranted, authorizing a personnel lift operation.

(2) Ensuring that pre-lift meetings and all pre-lift tests are conducted.

(3) Ensuring that all operational and performance tests are conducted prior to a lift (see the annex, Figure 1 for a sample pre-lift inspection form). Review and approve the critical lift plan for crane operation.

(4) The Personnel Platform Lift and Authorization Plan (see annex, figure 2 for a sample plan and authorization form.

(5) Ensuring that written records of all testing and inspections are maintained.

(6) Ensuring that all manbaskets and lifting work platforms have been designed and approved by a Registered Engineer with a structural background, or a qualified person competent in Structural Design.

(7) Ensuring that all personnel receive training on lifting equipment and practices and are qualified to perform the duties assigned. See training requirements specified in North Pacific Region Crane Operator and Rigger Certification Program, dated 2 December 2004.

(8) Ensuring that qualified operators will not operate a crane or hoist for more than 12 hours within a 24 hour period.

(9) Job site competent persons must be consulted if a personnel basket is to be used for transportation of materials.

d. Employees. Employees will be responsible for following lifting procedures and work practices. Employees shall report any unsafe lifting conditions to his/her

immediate work leader or supervisor and shall stop work if the condition presents an imminent hazard.

5. PERSONNEL MANBASKETS AND WORK PLATFORMS.

a. Manbaskets are typically used to transport personnel, are fully enclosed, and may have overhead protection. A work platform is typically a structure without overhead protection and is designed to work out of as opposed to limited use for transportation.

b. Authorization. Use manbaskets only when no less hazardous means of access to work locations exist (*e.g.*, ladders, aerial lifts, scaffolds, *etc*.). Use of crane suspended work manbaskets/work platforms is only authorized when there is no other reasonable means of reaching the worksite, *i.e.*, use of a personnel hoist. This assessment should be documented in the Personnel Platform Lift Planning and Authorization Form (see the annex, Figure 2).

c. Manbasket/Work Platform Design. See ANSI A10.22-1990, 29 CFR 1926.550, ASME B30.23-1998, and EM 385-1-1 for manbasket design.

d. Manbasket/Work Platform Occupancy Limitations. Manbaskets should not exceed two persons, and work platforms should not exceed four persons.

e. Work Platform Use Limitations. Use work platforms only for employees, their tools, and the materials necessary to do the work.

f. Emergency Escape. A means of emergency escape or retrieval shall be established.

6. REQUIREMENTS. Any new installations after 1999 shall comply with the provisions of this document. Existing installations will not need to be retrofitted.

7. PRE-LIFT MEETING, INSPECTION, AND TESTING.

a. Pre-lift Meeting. Conduct and document a pre-lift meeting to review the operation. Complete the following where applicable:

(1) Critical lift plan for hoisting personnel or equipment or Personnel Platform Lift Planning and Authorization Form (see annex, figure 2)

(2) Personnel Lift Platform Pre-Lift Inspection Form (see annex, figure 1).

(3) Manbasket Checklist (see annex, figure 3).

(4) Activity Hazard Analysis (see appendix S, *POSITION HAZARD ANALYSIS/ACTIVITY HAZARD ANALYSIS*).

b. Trial Lift. A trial lift, just prior to lifting personnel, shall be made under the supervision of the competent person using the unoccupied personnel work platform loaded to at least the anticipated weight and shall be made from ground level to each position that the personnel lift platform is to be lifted and positioned. This test is good for all lifts to be made within reach of this setup position. A new trial lift is required whenever the crane is moved and set up in a new location or returned to the previously used location.

c. Proof Test. A least once at each job site and after any repairs or modifications, a proof test is required in which a load of 125 percent of the work platform's rated capacity is lifted and held in a suspended position for 5 minutes. The proof test may be done concurrently with the trial lift and shall be documented in writing.

d. System Controls and Safety Devices. A competent person shall determine that all system controls and safety devices are activated and functioning properly. When lifting personnel with a crane, the lift shall never exceed 50 percent of the crane's lift capacity.

e. Records. Written records of the inspections shall be maintained. For infrequently used manbaskets and work platforms, document the proof test, inspection, and trial lift for each new job if the basket has been out of service for longer than 1 week. Document pre-work meetings.

f. Crane and Derrick Requirements and Operation.

(1) All cranes shall be inspected in accordance with EM 385-1-1.

(2) Hoist the personnel work platform in a slow, controlled manner with no sudden movements.

(3) Load lines shall have a safety factor of 8 times the intended load; anti-spin rope shall have a safety factor of 10. Shackles, rings, master links, and other rigging hardware shall be capable of withstanding 5 times the greatest load.

(4) The crane shall be level, within 1-percent grade with outriggers fully deployed to load chart criteria. If outriggers are not fully extended, a load chart shall be referenced to determine the load capacity with the given outrigger extension.

(5) Cranes must have a power up and power down boom hoist. The load and auxiliary line of the hoist drum shall have a power down that regulates t he rate of speed. Loads must be lowered by power down, not by the brake.

(6) Cranes shall have an anti-two block device, such as an A2B device.

(7) Maintain proper clearances when around live electrical wires.

(8) Hydraulic cranes shall have a failsafe mechanism which stops free fall if a hydraulic line should rupture.

(9) Engage all load and boom hoist drum brakes, swing brakes, and locking devises (*i.e.,* pauls or dogs) when the occupied work platform is in stationary position. Note: Crane operators shall not leave the cab while workers are suspended on a work platform or anytime the crane is running.

(10) Rental cranes shall meet all of the required specifications and certifications. Crane operators for hire accompanying rental cranes shall be state certified crane operators (Oregon or Washington) or shall show proof of current crane training.

(11) Manbaskets are not normally intended for the use in transporting materials; however, if used for this purpose in specific situations, personnel shall not ride in the basket while transporting materials. The weight of the materials shall not exceed the design load of the manbasket.

g. Rigging Requirements.

(1) Crane Hooks. Crane hooks shall be the type that can be closed and locked, eliminating the throat opening, or an anchor type shackle with a bolt, nut, and retaining pin may be used. Each bridle or leg shall be connected to a master link to ensure even distribution of weight. A safety cable shall be attached as illustrated in figure 4 of the annex.

(2) Rope Sling Eyes. Wire rope slings used for hoisting personnel shall be fabricated with thimbles and eyes, and marked “For Personnel Lifting Use Only.”

h. Hoist Design Criteria/Operation. Personnel hoists shall be of the type designed for transportation of personnel. They shall have all the safety features required in ANSI A10.22-1990. This includes a secondary, hand-operated brake and an adjustable over travel limit switch. The drive system shall be continuously interconnected hydraulically through a torque converter or a mechanical coupling. The transmission shall automatically lock the brake when put in the neutral position. The hoist shall be protected by a deadman switch so that, when the control is released, the unit will stop. Hoist speed shall not exceed 250 feet per minute. Hoist speed for non-rope guided manbaskets shall not exceed 100 feet per minute.

(1) Hoisting Ropes. Hoisting ropes shall be attached to the personnel cage by a positive connection *i.e.,* a screw pin shackle. The pin shall be moused or drilled to accept a cotter key or bolt.

(2) Guide Ropes. Guided rope manbaskets shall have two guide ropes.

(3) Fall Restraint System. When working over land, personnel shall be protected by a secondary fall restraint system. When the work platform is suspended from a crane, personnel will use fall protection secured to the work platform or another point which will provide fall protection. When working over water, personnel shall wear an approved Personal Flotation Device and a manned work skiff will be in the water and on station. Other life saving equipment shall be available as appropriate. A secondary fall restraint system may be used at the employees request on any work scenario

(4) Hoist Operator Qualifications. The hoist operator shall:

(a) Be qualified to operate the specific type of hoisting equipment.

(b) Have medical clearance to operate a hoist or crane and meet all the physical qualifications.

(c) May serve as a confined space attendant.

(d) Not engage in any practice or have other duties that will reduce the safety of the lift operation occupants.

i. Safe Work Practices.

(1) Make sure manbasket is secure and in position before entering.

(2) Use tag lines if needed for work platforms; guide ropes should be sufficient to prevent swinging of manbaskets.

(3) Secure work platforms that are not landed to the structure before allowing employees to enter or exit.

(4) Discontinue hoisting operations during inclement weather, high winds, lightening, or other impending danger.

(5) Employees who are not in sight of the crane operator must be directed by a signalman, or be in direct radio contact with the operator.

(6) Do not attempt to make lifts with the crane hoist auxiliary line while personnel are being lifted with the main line.

(7) Do not hoist while the crane is traveling, or try to travel when employees are suspended. Note: Traveling is allowed in some circumstances; see EM 385-1-1, section 22F.13.

(8) All personnel shall know the emergency stop signal; and have a radio, air horn, or flashing beacon to signal the hoist operator.

(9) If voice communication is lost, all operations shall stop until communication is re-established.

(10) All personnel shall keep hands and feet inside the basket during raising and lowering.

(11) All personnel shall keep his/her fall protection devices fastened at all times, unless special circumstances dictate otherwise.

(12) All loads shall be centered in the basket to keep it from swinging.

(13) Personnel shall be limited in number commensurate with the work being performed.

8. TRAINING. Employees and supervisors will be adequately trained in the equipment they are using and the procedures to be followed. Work platforms suspended from a crane will require a certified Crane Operator with Corps, State, or equivalent certification. Air or electric operated hoists require a competent trained person but do not require a certified Crane Operator. Personnel inspecting hoists, rigging, fall protection, and manbaskets/work platforms will be knowledgeable of the manufacturer's recommendations and the applicable standards and regulations. All personnel shall be able to interpret regulations accordingly, use judgment in determining their application, and apply manufacturer's requirements in addition to the general guidance listed as follows.

APPENDIX CC

ROPE GUIDED MANBASKETS AND SUSPENDED PERSONNEL WORK PLATFORMS
(Does Not Include Non-Guided Rope Manbaskets such as Boatswains Chairs or Rail Guided Transport Systems)

ANNEX

FIGURES

PERSONNEL LIFT PLATFORM PRE-LIFT INSPECTION

Inspector: _____ Date: _____
Platform ID: _____

		SAT	UNSAT
1.	Markings		
	Platform (All Information Legible)	_____	_____
	Suspension System	_____	_____
2.	Structure		
	Load Supporting Welds/Bolts	_____	_____
	Load Supporting Members	_____	_____
	Barrier Toe Board to Intermediate Rail	_____	_____
	Hand Rail	_____	_____
	Fall Protection Device Anchorage Points	_____	_____
	Gate Locking Mechanisms	_____	_____
	Platform Flooring	_____	_____
	Suspension Attachment Points	_____	_____
3.	Attachment Mechanisms		
	Pins/Ears/Bolt-Ups/Eyes (Circle)	_____	_____
	Wire Rope/Chain/Rigid Leg (Circle)	_____	_____
	Master Links	_____	_____
4.	Special Purpose Items		
	(Overhead Protection, Flotation, Platform Controls)		
	List: (1) _____	_____	_____
	(2) _____	_____	_____
	(3) _____	_____	_____

5. General Comments: _____
_____
_____

_____
Personnel Lift Supervisor Signature

Figure 1 – Personnel Lift Platform Pre-Lift Inspection.

PERSONNEL PLATFORM LIFT PLANNING AND AUTHORIZATION FORM

1. Location: _____ Date: _____
2. Purpose of Lift: _____
3. Hoisting Equipment Mfg: _____ Model #: _____ Serial #: _____
4. Expected Radius: _____ (maximum) _____ (at work location)
5. (A) Rated Load at Radius: _____ (B) Maximum Lift Load: _____ [50% of 5(A)]
6. Platform ID: _____ Platform Rating: _____
7. Platform Weight: _____ Type: (Pin On) _____ (Suspended) _____
8. (A) Number of Platform Occupants: _____ (B) Approx. Wt. (With Equip): _____
9. Total Lift Weight: _____ [7 + 8(B)] [No more than 5(B) above]
10. Personnel Lift Supervisor: _____
11. What Are The Alternatives To This Personnel Lift? _____
    _____
    _____
12. Why Are They Not Being Used? _____
    _____
13. Pre-Lift Briefing Held: _____ AM/PM
    Attendees: _____
    _____
    _____
14. Anticipated Hazards (wind, weather, visibility, power lines): _____
    _____
15. Lift Accomplished Date: _____ Time: _____
16. Remarks: _____
    _____
    _____

_____
Personnel Lift Authorizer Signature Date

Figure 2 – Personnel Platform Lift Planning and Authorization Form.

Contract Name and Number:					
Facility/Location:					
Lift Supervisor/Competent Person:					
Government Inspector:					
Date:					
Operator: Is the operator trained and qualified to operate a hoist/crane. Has he/she had medical clearance?	YES	NO	OK	NA	Remarks
Lift Plan: If a crane is used, has a critical lift plan been developed? Has a pre-work meeting been conducted?	YES	NO	OK	NA	Remarks
Trial Lift: Has the basket been load tested to the anticipated weight? Lift the basket with the test weight. Crane: extend crane radius and boom angle to work location. If a hoist is used, hoist the load to the lowest point of travel-see manufacturer's recommendations. After any repairs, load test to 125 percent of intended load, and hold suspended for 5 minutes.	YES	NO	OK	NA	Remarks
If manbasket is equipped with safety grabs on the guide ropes, a drop test is required. Drop test only required on initial setup.	YES	NO	OK	NA	Remarks
Load tests are or will be done after each new setup by the crane.	YES	NO	OK	NA	Remarks
Inspections: Are inspections conducted daily, weekly, and quarterly. Daily and weekly tests are only visual, quarterly require a new drop test if using dogging safety devices. Keep records.	YES	NO	OK	NA	Remarks
Guided Rope: are there two guide ropes? Not required, but if in use, must have two.	YES	NO	OK	NA	Remarks
Hoist requirements: Must be a power up, power down system, operator control must have a deadman control switch; brakes must be able to stop 150 percent of intended load. Basket should be primarily for transporting personnel, when used for materials, materials and personnel should not be transported concurrently.	YES	NO	OK	NA	Remarks
Hoist Rope: Minimal rope diameter is 1/2 inch, Safety Factor of 8. Rope ends use mechanically made spliced eyes, swaged fittings, poured sockets,	YES	NO	OK	NA	Remarks

protected by thimbles Ropes are attached to cage by a shackle; the pin shall be drilled to accept a cotter key. Rotation Resistant ropes, or 6x19 or 6x37 ropes are ok. Do not use a non-rotating rope such as an 18x7 or 19x7-they wear from the inside out. Do not use a swivel with a rotation resistant rope. Hoist rope shall be new, unused rope. Other ropes can be reused if the entire rope length is inspected. Sheaves shall be at least 24X the rope diameter, and 4X safety factor intended load. Guide ropes capable of withstanding 2X the stress applied at braking.					
Cage Design: The design capacity (number of personnel) and rated load shall be posted on the cage. The cage shall have a safety factor of 8. If work is being done overhead the cage it shall have a roof, and if passing through a hole in the floor the roof should be sloped to prevent tipping of the basket. Cage doors shall swing inwardly, unless size restrictions prevent an inward swing, in which case, the door must be positively locked during lifting operations. Gates should guard the full width and height of the opening. A 14 gauge expanded metal mesh shall cover the full length of the outside of the manbasket. Personnel riding in open cages shall tie off to a separate safety line. **Other:** Only certified crane operators can operate cranes. Hoists are not cranes and require only a responsible person. Manbaskets built prior to 1999 may be grandfathered Personnel shall be protected by a secondary line as much as practical, such as a secondary equipment fall restraint line, or a safety braking system on the guide ropes. If an open basket is used, an independent personnel safety line may be attached to the rider. Crane operators shall remain in the cab at all times when a man is suspended in the basket	YES	NO	OK	NA	Remarks
**Shall or will means mandatory					

**Should means advisory					
Is there a means for emergency escape and rescue?	YES	NO	OK	NA	Remarks
Check all pins, bolts, welds, and all attachment points.	YES	NO	OK	NA	Remarks
Check lifting frame on hoists, or hoist mounting system and platform.	YES	NO	OK	NA	Remarks
The hoist operator's manual shall be kept with the hoist.	YES	NO	OK	NA	Remarks
Secondary Fall Protection: Guided rope manbaskets using a hoist system should have brakes on the guide ropes, or use an equipment fall restraint system. On non-guided manbaskets with no roof, use personal life line with body harness. On crane suspended manbaskets using fully enclosed manbaskets, no secondary fall protection is possible, if using an open basket, tie-off to a life line may be possible if the basket is being lowered from a ground position.	YES	NO	OK	NA	Remarks
Signature of Lift Supervisor/Competent Person:					
Signature of Corps Inspector:					

Figure 3 – Manbasket Checklist.

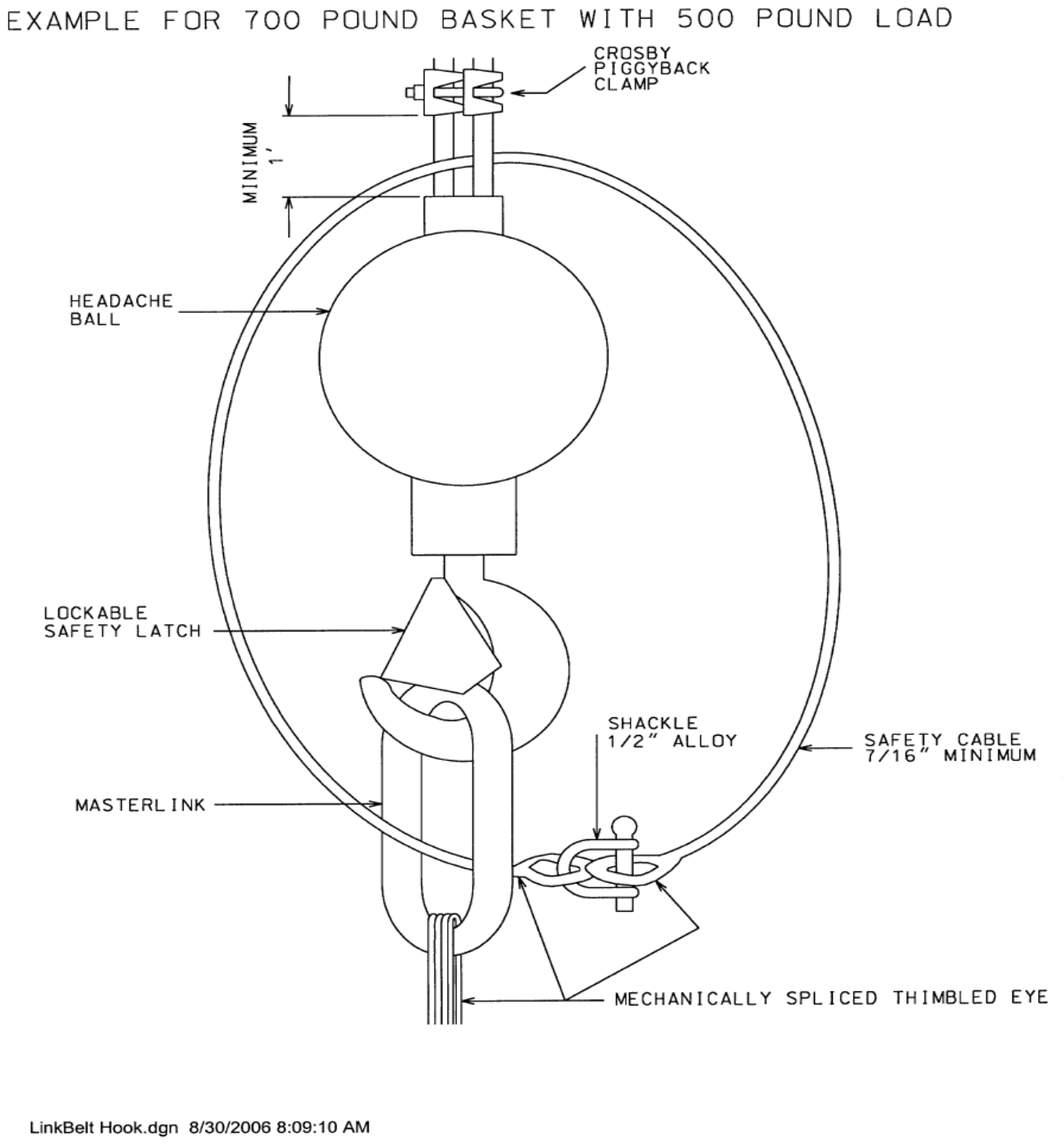

Figure 4 – Safety Cable Set-up. (New Drawing)

APPENDIX DD

RADIOLOGICAL SAFETY

APPENDIX DD

RADIOLOGICAL SAFETY

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APPENDIX DD

RADIOLOGICAL SAFETY

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix prescribes policy and guidance to control the use of radioactive and/or radiation-producing equipment.

2. APPLICABILITY. This appendix is applicable District wide.

3. REQUIRED REFERENCES.

a. Title 10 Code of Federal Regulations (CFR) 19, *Notices, Instruction, and Reports to Workers: Inspections and Investigations.*

b. 10 CFR 20, *Standards for Protection Against Radiation.*

c. 49 CFR 100-185, *Research and Special Programs Administration, Department of Transportation.*

c. Army Regulation (AR) 40-14, *Control and Recording Procedure for Exposure to Ionizing Radiation and Radioactive Materials.*

d. Engineer Regulation (ER) 385-1-80, *Radiological Safety.*

4. GENERAL.

a. The Commander will appoint, in writing, a Radiation Protection Officer (RPO) and an Alternate Radiation Protection Officer (ARPO) who will be responsible for safety supervision over the use and handling of radiation machines, exposure to radioactive materials, and compliance with applicable Department of the Army, Corps, and Nuclear Regulatory Commission (NRC) regulations.

b. The use of radioactive material and/or radiation-producing equipment will be strictly controlled. No person will purchase, handle, store, or transport such items without the written authorization of the District's RPO.

c. All work or activities carried out within the District involving exposure to radiation-producing materials or devices will be performed in strict compliance with Title 10 CFR 19 and 20, AR 40-14, and ER 385-1-80. These regulations will be kept on file at all locations using or storing radiological sources.

d. Prior to the initial use of radioactive materials by either Government or contractor forces, the Government representative in charge of the activity shall notify the

Commander, ATTN: Radiation Protection Officer, of the intended action by informal memorandum. The memo must clearly state the following information:

(1) Name of person responsible for the care, custody, and control.

(2) The estimated period of use and estimated date of receipt.

(3) The intensity of radiation (nameplate data or quantity of radioactive material involved).

(4) A copy of the contract must be enclosed indicating whether the proposed user is licensed by the NRC or a state agency.

(5) The names of any Government personnel subject to exposure.

(6) Equipment available for detection, measuring, and recording of radiation.

(7) Operational procedures, including details of storage, transportation, and other safeguards. This procedure must be followed to ensure that the exposure, shipping, storage, handling, and use of all radioactive materials comply with all state and Federal regulations.

e. Radioactive material will be transported only in Corps vehicles and only in their locked storage container(s). In addition, the container(s) will be placed in a portion of the vehicle that can be locked. In no case will the container(s) be placed less than 30 centimeters from the driver and passengers.

f. Likely radiation sources used by Government or contractor employees include density gauges, lead paint analyzes, and x-ray units for weld inspections.

5. RESPONSIBILITIES.

a. The District Commander will designate, in writing, a person responsible for preparing and maintaining Department of Defense (DD) Form 1141 (Record of Occupational Exposure to Ionizing Radiation). The RPO will review, date, and initial the form on a quarterly basis.

b. The Chief, Safety and Occupational Health Office (SO), will provide oversight to the Radiological Protection Program.

c. The District RPO will:

(1) Coordinate the safe use of all radiological materials.

(2) Issue written authorization for the use and possession of materials.

(3) Ensure compliance with the requirements of Title 10, CFR Parts 19 and 20, and all applicable U.S. Department of Transportation (DOT) regulations (Title 49, CFR Parts 100-185).

(4) Ensure byproduct materials possessed under NRC license are used in compliance with the license.

(5) Ensure use of devices is only by persons named as users under the license or persons who have completed acceptable training and are otherwise authorized by this appendix.

(6) Ensure all employees wear dosimeters or other specified personnel monitoring devices while using moisture-density gauges.

(7) Ensure materials are properly secured against unauthorized removal and/or use at all times.

(8) Serve as point of contact in accident or emergency situations and give assistance to ensure proper authorities are notified.

(9) Ensure terms and conditions of the license are met.

(10) Ensure periodic leak tests are performed.

(11) Ensure required records are kept and reviewed periodically for compliance with regulations. These include leak-test reports, personnel exposure reports, dosimeter records, and records of transfer of radioactive materials.

d. The immediate supervisor of personnel who use radioactive material or equipment will complete a Radiation Work Permit (RWP). The RWP will be in memo format and contain the following information:

(1) Employee's name, social security number, and date of birth.

(2) Permission statement for use of specific equipment with limits, if any.

(3) List of employee's experience.

(4) List of employee's radiation training.

(5) Copy of badge request.

(6) Description of potential hazards.

(7) List of control and/or protective measures required.

(8) The RWP expiration date; not over 1 year.

(9) The employee supervisor's signature and the RPO's signature.

6. TRAINING. The element assigning a person to handle, use, or be exposed to radioactive materials shall be responsible for required training.

a. The RPO will attend a minimum of 24 hours of radiological training once every 3 years.

b. All personnel who use gauges will be trained as recommended by the manufacturer in the requirements of this appendix (EM 385-1-1, Section 06.e) and as may be prescribed in the NRC licensing conditions. Personnel will be designated in writing by the RPO as qualified to use, handle, or be exposed to radioactive material only after they have completed all required training and have been interviewed by the RPO.

7. MONITORING.

a. Dosimetry is required and shall be maintained for each employee who meets one of the following criteria:

(1) Employee works in a restricted area and has the potential for receiving a dosage in excess of 1/4 the permissible limits identified in paragraph 8 below.

(2) Employee enters a high-radiation area.

(3) Employee is under 18 years of age, enters a restricted area, and has the potential to receive in any calendar quarter a dose in excess of 5 percent of the permissible limits specified in paragraph 8 below.

b. Gauges shall be worn below the shoulders, above the hips, on the outside of clothing, and with the window face outward from the body. They shall be used only during the period marked on the badge (*i.e.*, 15 April to 20 May, *etc*.).

c. When dosimeters are not being worn, they shall be stored in a location approved in writing by the RPO. A control dosimeter shall be stored in the same location at all times.

d. Each dosimeter holder shall be marked with the wearer's last name on embossing tape. No other marking is permitted.

e. Dosimeters shall be stored at the end of each day in their approved storage location. A completed DD Form 1952 (Dosimeter Application and Record of Occupational Radiation Exposure) shall be completed each time a dosimeter is used.

f. A properly calibrated beta/gamma survey meter shall be available and used to assess radiation levels when transporting, using, or storing licensed radiological devices or radioactive sources.

8. EXPOSURE LIMITS. Every effort will be made to keep exposure to radiation far below the following maximum standards:

a. Except as specified in paragraph 8.b. below, individuals in restricted areas shall not receive in any period of 1 calendar quarter a dose in excess of the following limits:

(1) Whole body; head to trunk; active blood-forming organs; lens of eye; and gonads: 1-1/4 Roentgen Equivalent in Man/Mammal (rems).

(2) Hands and forearms; feet and ankles: 8-3/4 rems.

(3) Skin of whole body: 1/2 rem.

b. The preceding doses may be exceeded if **all** of the following conditions are met:

(1) During any one-calendar quarter, the dose to the whole body (including head or trunk, active blood-forming organs, lens of eyes, and gonads) does not exceed 3 rems.

(2) The dose to the whole body (including head or trunk, active blood-forming organs, lens of eyes, and gonads) when added to the accumulated occupational dose to the whole body does not exceed 5(n-18) where n equals the individual's age in years.

(3) The employer maintains past and current exposure records that show the addition of such a dose will not cause the individual to exceed the amount authorized in both (1) and (2) above.

c. No employee under 18 years of age shall receive in any one-calendar quarter a dose in excess of 10 percent of the limits specified in paragraph 8.a., above.

d. The dose to a declared pregnant worker shall not exceed 0.5 rem (0.0005 Sv) during the entire gestation period and efforts shall be made to avoid variations in a

uniform monthly exposure rate. If the dose to the embryo/fetus exceeds or is within 0.05 rem of 0.5 rem at the time of declaration, then dose to the embryo/fetus is limited to 0.05 rem for the remainder of gestation.

9. MOISTURE DENSITY GAUGES. The following guidance shall be followed when using moisture density gauges and similar equipment:

a. No one shall operate or transport the instrument unless they have an RWP.

b. The source shall be kept in a "safe" or stored and locked position when not in use.

c. Personnel shall wear a dosimeter when using or transporting the instrument.

d. Personnel shall not expose themselves to an exposed source without sufficient reason for the additional dose.

e. All unauthorized persons shall be kept out of the operating area a distance of 5 meters or 15 feet. The general public or casual employees will not be unnecessarily exposed to radiation.

f. The gauge shall be secured against unauthorized removal or use at all times.

g. Gauges and/or radioactive sources shall be stored in a fire-resistive building or within a fire-resistant enclosure (box) or room.

h. The following actions are to be taken in event of fire, theft, or damage:

(1) When physical damage occurs to a gauge, an exclusion area with a radius of 15 feet around the gauge shall be maintained until the extent of source damage (if any) is determined. If a vehicle is involved, it must be stopped and remain stopped until the extent of contamination hazard (if any) is determined. If visual examination of the instrument and source indicates damage to the source, including fracture of the weld, the RPO must be notified. The instrument may be removed from the site using a shovel or other long-handled instrument and placed in a suitable container, such as a metal drum.

(2) In the event of source leakage or separation (real or suspected) of a source from its normal containment, the 15-foot exclusion area shall be maintained until the arrival of the appropriate authorities.

(3) If the rod containing the source becomes separated from the gauge, the rod shall be picked up using pliers or tongs and inserted into the top of the instrument,

thus providing shielding. The rod shall then be secured in place using tape to prevent accidental unshielding of the source.

(4) Unless in use, moisture density gauges shall be locked and kept in their storage cases in their designated storage area. GAUGES WILL NEVER BE LEFT UNATTENDED.

(5) District personnel shall not perform maintenance or calibrations that involve access to the sealed sources or source holders. Only the manufacturer will perform these services.

i. In case of any incident, immediately notify the Safety and Occupational Health Office by telephone.

(1) RPO: Mr. Michael B. Remington, (509) 527-7361.

(2) ARPO: Mrs. Mary J. Odem, (509) 527-7360.

(3) Current Safety Specialist, (509) 527-7363.

(4) The RPO will notify appropriate higher authority and other parties (*i.e.*, NRC, manufacturer, police, and highway patrol), as necessary. If the RPO cannot be contacted, local authorities shall be notified directly.

APPENDIX EE

SAFETY AND OCCUPATIONAL HEALTH PLAN

APPENDIX EE

SAFETY AND OCCUPATIONAL HEALTH PLAN

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APPENDIX EE

PROJECT MANAGEMENT BUSINESS PROCESS
SAFETY AND OCCUPATIONAL HEALTH PLAN

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix specifies the safety and health hazard management procedures applicable to projects throughout the in-life cycle. The Safety and Occupational Health Plan (SOHP) is a supporting plan that facilitates the implementation of the Project Management Plan (PMP), along with Risk Management – REF8007G, Quality Management – REF8008G, Communications – REF8006G, Change Management – REF8009G, and Value Management – REF8023G. Plans are developed concurrently in the iterative Program/Project Planning Phase. The goal of System Safety is to optimize safety and manage the residual risks.

2. APPLICABILITY. This appendix is applicable to all Corps projects with a hazard potential.

3. REQUIRED REFERENCES.

a. Army Regulation (AR) 385-10, *The Army Safety Program.*

b. Engineer Manual (EM) 385-1-1, *U.S. Army Corps of Engineers Safety and Health Requirements Manual.*

c. Corps Headquarters Risk Management Technical Letter.

4. SCOPE. The SOHP shall address how safety and health measures will be integrated into the process to ensure a safe product is provided (building; airfield; water control structure; hazardous, toxic, and radioactive waste clean-up project; *etc*.]. It shall include specifying by project phase (planning, execution and control, and closeout) the following:

a. Safety and health responsibilities.

b. Safety and health standards, requirements and criteria, and hazard analysis requirements [Safety Risk Management (SRM), see annex A for figure A-1].

c. How safety and health shall be accomplished.

d. Independent safety and occupational health (SOH) technical reviews (at concept design and biddability, constructability, operability, and environmental reviews).

e. All safety and health testing/assessment requirements.

The SOHP shall consider the hazards associated with all customers throughout the life cycle of the project. Control measures shall provide the appropriate level of protection based on the project goals and established level of risk acceptance authority (see

annex A). Deviations from Corps publications require waiver approval from the applicable U.S. Army Corps of Engineers, Headquarters (HQUSACE) proponent and shall hinge on the determination of the basis for the deviation and the resulting inherent risk.

5. RESPONSIBILITIES.

a. Northwestern Division (Division) Commander. The Division Commander is responsible for providing final SOHP approval in the event of an overall project risk rating of extremely high.

b. District Commander. The District Commander is responsible for providing final SOHP approval in the event of an overall project risk rating of high.

c. Safety and Occupational Health Office (SO). The SO is responsible for the following:

Providing training to the Project Delivery Team (PDT) on the SOHP development methodology.

Serving as an advisor to the PDT.

Participating in Project/Program Review Board and Line Item Reviews.

Providing safety and health assistance to the PDT throughout the project life cycle.

Providing SOH program oversight by monitoring, assessment, and evaluation.

d. Project Manager (PM). The PM is responsible for the following:

- Initiating the development of the SOHP and ensuring it is current. The SOHP should be accessible in project files under P2.
- Coordinating with the customer to identify and manage safety and health related hazards inherent to the project.
- Ensuring hazard controls are successfully implemented.
- Coordinating with the local SO and notifying the District Commander of all high-risk issues.
- Coordinating with the SO for necessary SOH training of the PDT.

e. Project Delivery Team. The PDT is responsible for the following:

Developing the SOHP, and identifying and defining potential risks and appropriate responses to risks for the project.

Attending SOH training necessary to develop and implement a sufficient SOHP.

Raising issues to the PDT for resolution when a hazard control cannot be lowered to an acceptable level (may compromise a project threshold).

6. THE SOHP METHODOLOGY. The SRM and hazard management processes shall be used in accordance with AR 385-10. A hazard analysis will be performed for Corps-managed projects and programs. The level of detail of the risk analysis and SOHP is based on the magnitude of potential hazards and complexity of the project. When a project is determined to be other than low-risk, as defined in the SOHP, the risk must be identified, and associated control procedures defined in the PMP. Only the responsible District or Division Commander may provide final SOHP approval in the event of an overall project risk rating of high, or extremely high, respectively.

7. DEVELOPMENT OF THE SOHP.

a. Program/Project Planning Phase.

(1) The District SO will train the PDT on the SOHP development methodology [SRM process, hazard management process, and tools to help guide the PDT through the process (see annex B for examples)].

(2) The Preliminary Hazard List (PHL) Development includes the following:

- The PM shall coordinate with the customer and generate a list of potential hazards. For example, the customer for a project on an Army installation may include the facility user, facility engineer, fire department, environmental department, safety department, *etc.* An example of how to format the input data is shown in annex C.

- The PDT shall review the available preliminary hazard information in order to develop the SOHP (sources of which can include project background information); Customer PHL (Project Scope and Customer Requirements Definition – PROC2010); Subject Matter Experts, historical records, Lessons Learned Data (Design/Construction/User/Industry, Lessons Learned – PROC3020); Program/Project Schedule or Sequencing and cost implications (Activity/Schedule Development – PROC2030, Resource Estimate Development – PROC2040); and Standards and Regulations.

(3) Perform a Preliminary Hazard Analysis (PHA).

- The PDT, at this early stage of the project, will look at the overall project with emphasis on operations, facilities, structures, and specific hazards identified as having a high or extremely high hazard (see annex B for examples). They may consider managing the hazard through an intervention strategy (see paragraph c. below) that goes beyond the typical project methodology. This could be accomplished by using a prescribed sub-process (*i.e.*, Engineer Regulation 385-1-92 for Environmental projects, Corps of Engineers Guide Specifications, *etc*.); safety design analysis; formal systems safety effort (AR 385-16); Federal Acquisition Regulation clause to the specifications; special clause to the specifications; review by a Subject Matter Expert; specific construction scheduling or sequencing; or other intervention strategies.

- The PDT shall document the identified hazards and the results of the PHA in a Hazard Tracking List (HTL) which can be displayed as shown in the table below (see Risk Management Plan – REF8007G)

Risk	Hazard	Cause	WBS Item Affected	Impact on Project Objectives	Risk Manager	Agreed Response to Risk	Expected Result of Response
H	Harm from chemicals	Exposure to Chemicals	Investigative, Construction	Cost, schedule slippage	Designer, Construction Manager, Constructor	Add HTRW CEGS to Design Specification	L

- The PDT shall document the risk decision-making process as shown in annex D prior to PMP approval (PMP/PM Approval – PROC2070). The results of the PHA shall be provided to the Risk Management Plan REF8015G to reflect the safety and health risk of the project.

b. Program/Project Execution and Control Phase. The Design Manager, Construction Manager, Study Manager, and Contractor shall review the HTL and perform a hazard analysis (design/activity/operational hazard plans). The hazard analysis will be based on up-to-date hazard information. Sources of use in performing a hazard analysis can include the following (Quality Management Plan – REF8008G):

- Design Safety Criteria
- Standards and Regulations
- Industry Safety Standards
- Corps Library of Computer Aided Design and Drafting Designs
- Guide Specifications for Construction
- Subject Matter Expert
- EM 385-1-1, Safety and Health Requirements Manual
- Construction Safety Standards and Regulations

- Construction Quality Assurance/Quality Control Process (incorporated into the Resident Management System)
- Contractor Accident Prevention Plan and Activity Hazard Analysis
- Project Change Request Form
- Lessons Learned Database

c. Using the SRM Process.

The responsible Risk Manager shall make additions and changes to the HTL as necessary and forward to the PDT to update the SOHP changes and updates shall be tracked in P2.

The District Safety and Occupational Health Office shall make quality assurance assistance visits from time to time to verify the effectiveness of the SOHP.

The responsible Risk Manager shall submit lessons learned into the design and construction lessons learned systems (Lessons Learned – PROC3020).

d. Program/Project Closeout Phase.

The PDT shall ensure the transfer of hazard information to the user in accordance with Activity/Project/Program Closeout – PROC4000 through use of documentation or verbal communications (*e.g.,* Owner's Manual, Maintenance Manual, Standard Operating Procedures, As-built Drawings, Warning Signs, or Labels, Training, *etc*.).

The PDT shall finalize and closeout the HTL.

The PDT shall ensure all SOH lessons learned are submitted to the lessons learned system *Lessons Learned – PROC3020 [PROC3020].*

APPENDIX EE

SAFETY AND OCCUPATIONAL HEALTH PLAN

ANNEX A

Annex A

RISK LEVELS

Extremely High (E)	Loss of ability to accomplish mission. Risk must be signed and accepted by the Division Commander.
High (H)	Significantly degrades mission capabilities in terms of required mission standards. Risk level to be accepted by the District Commander
Medium (M)	Degrades mission capabilities in terms of required mission standards. Risk level to be accepted by the Project Manager
Low (L)	Little or no impact on accomplishment of mission. Risk Level to be accepted by the Project Manager.

SEVERITY CRITERIA AND DESCRIPTIONS

I. Catastrophic	Death or permanent total disability, system destruction, major property damage. Lost ability to accomplish mission.
II. Critical	Permanent partial disability, temporary total disability, major system damage, or significant property damage. Cannot accomplish mission to standards or cannot execute portions of mission.
III. Marginal	Temporary disabling injury, lost workday case, minor system damage, or minor property damage. Degrades ability to accomplish mission capabilities to standards.
IV. Negligible	First aid or minor supportive medical treatment, minor system impairment. Little or no impact on mission.

PROBABILITY CRITERIA AND DESCRIPTIONS

	A. Frequent	B. Likely	C. Occasional	D. Remote	E. Unlikely
Individual item	Occurs often in life of item or system	Expect several times during item life	Expect sometime during item life	Possible to occur in item life	Assume will not happen in item life
Fleet or inventory of items	Continuously experienced	Numerous cases, but intermittent	Several times in fleet/ inventory life	Isolated incidents	Rare but not impossible
Individual worker	Occurs often in career	Several times in career	Expect sometime in career	Possible sometime in a career	Assume will not happen in a career
All workers exposed	Continuously experienced	Numerous, but intermittent	Sporadic occurrence	Isolated occurrences	Rare but not impossible

RISK DECISION MATRIX

			PROBABILITY				
			Frequent	Likely	Occasional	Remote	Unlikely
			A	B	C	D	E
	Catastrophic	I	DIV CDR[1/]	E	H	H	M
SEVERITY	Critical	II	E	DIST CDR[2/]	H	M	L
	Moderate	III	H	PM[3/]	M	L	L

[1/] Division Commander
[2/] District Commander
[3/] Project Manager

APPENDIX EE

SAFETY AND OCCUPATIONAL HEALTH PLAN

ANNEX B

Annex B

HIGH HAZARD PROGRAMS/PROJECTS (Overall):

Programs:

Environmental
Ordinance and Explosive Waste
Dredging
Formerly Used Remedial Action Program
Emergency Management
Dam Safety
Diving

Projects:

Tunnels
Dams
Munitions Bunkers
Power/Fuel Distribution
Chemical Demilitarization Facilities
Aircraft Hangers
Distribution Centers
Dredging
Hospitals

HIGH HAZARD CONSTRUCTION WORK EXAMPLES:

Work is performed 25 feet or more above surface
Work is performed more than 5 feet below ground
Complex interaction of heavy equipment
Complex interaction of workers with equipment
Confined space (when exposure is greater than 10 percent total project man-hours)
Testing of high voltage systems (over 600 Volts)
Testing of high pressure systems (over 100 pounds per square inch)
Critical diving
Critical crane lift
Tunneling

HAZARD IDENTIFICATION TOOLS:

Preliminary Hazard Analysis
Fault Tree Analysis
Failure Mode and Effects Analysis
Operating Hazard Analysis
Event Tree Analysis
Activity/Job Hazard Analysis
Flow Diagram
Multi-linear Event Sequence
Energy Analysis
Mission Risk Analysis
Fault Hazard Analysis
Interface Analysis
Statistical or “Data Mining” Analysis
Cause and Effect Diagrams
Tree Diagrams
Change Analysis
Brainstorming
“What if” Analysis

APPENDIX EE

SAFETY AND OCCUPATIONAL HEALTH PLAN

ANNEX C

Annex C

Preliminary Hazard List Sample Format

a. Narrative:

(1) Facility Description to include a description of the operations and activities to be conducted within the facility, estimated value of the facility and equipment it will house, the personnel level and type of occupancy, and the military significance of the facility.

(2) A map of the installation illustrating the proposed facility site and the location of any nearby hazardous operations.

(3) Specialized or state of the art equipment.

(4) Details regarding special or unusual operations.

b. Data Elements:

(1) Column 1. (HAZARDOUS EVENT) A description of the hazards and/or undesired or unacceptable occurrences.

(2) Column 2. (CAUSAL FACTORS) A description of why or how the hazard may result in an accident.

(3) Column 3. (SYSTEM EFFECTS) A description of each significant event resulting from a hazard above, which addresses as applicable:

- How many people would be affected in a “worst case” probable accident.
- How much is known/unknown concerning the control of the hazard and the need for any follow-on analyses?
- The degree to which an accident could affect the local community.
- The effects the hazard may have on the facility or facility subsystems.

(4) Column 4. (RISK ASSESSMENT) The initial risk assessment assigned to each uncontrolled hazard or undesired or unacceptable occurrence.

(5) Column 5. (COMMENTS) Provision for comments by the reviewers. May include preparation date, preparer’s signatures, and instructions for future contact.

APPENDIX EE

SAFETY AND OCCUPATIONAL HEALTH PLAN

ANNEX D

Annex D

Residual Risk Acceptance Sample Format

PART I - Description of Residual Risk

1. Facility/Item Identification:

   Military Construction Project Number: _____ Facility Identification: _____.

2. For each proposed acceptance of a moderate or greater risk associated with an identified hazard, provide the following:

   a. Hazard description and potential consequences.

   b. Final Risk Assessment Code.

   c. Identify source document(s) and/or reference(s).

   d. Document any alternative actions to reduce the risk.

   e. Proposed by: _____ Organization: _____.

   f. Date proposed.

3. Technical Review by appropriate level based on Risk Assessment Code:

   a. Reviewed by: _____ Date: _____.

   b. Reviewer's recommendations.

PART II - Approval

Signature: _____ Date: _____.

APPENDIX EE

SAFETY AND OCCUPATIONAL HEALTH PLAN

ANNEX E

Annex E

Acronyms

AR	Army Regulation
Corps	U.S. Army Corps of Engineers
DIST CDR	District Commander
District	Walla Walla District
DIV CDR	Division Commander
Division	Northwestern Division
EM	Engineer Manual
HQUSACE	U.S. Army Corps of Engineers, Headquarters
HTL	Hazard Tracking List
PDT	Project Delivery Team
PHA	Preliminary Hazard Analysis
PHL	Preliminary Hazard List
PM	Project Manager
PMP	Project Management Plan
SO	Safety and Occupational Health Office
SOH	Safety and Occupational health
SOHP	Safety and Occupational Health Plan
SRM	Safety Risk Management

APPENDIX FF

HEAT AND COLD HAZARD CONTROL PLAN

APPENDIX FF

HEAT AND COLD HAZARD CONTROL PLAN

TABLE OF CONTENTS

APPENDIX FF

HEAT AND COLD HAZARD CONTROL PLAN

1. PURPOSE. This U.S. Army Corps of Engineers (Corps), Walla Walla District (District) appendix prescribes the policy and procedures for protecting employees from inclement weather conditions. The monitoring guidance and charts meet the intent of the inclement weather monitoring plan as required in Engineer Manual (EM) 385-1-1.

2. APPLICABILITY. This appendix is applicable to all District elements.

3. REQUIRED REFERENCES.

a. Title 29 Code of Federal Regulations (CFR) 1910.132, *Occupational Safety and Health Administration Standards, Personal Protective Equipment*.

b. U.S. Department of Health and Human Services (DHHS) National Institute for Occupational Safety and Health (NIOSH) Publication No. 85-115, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*.

c. American Conference of Governmental Industrial Hygienists (ACGIH), *Threshold Limit Values*.

d. Engineer Manual (EM) 385-1-1, *Corps of Engineer Safety and Health Requirements Manual.*

e. Northwestern Division Memorandum, dated 31 Mar 03, Purchase of Insulated Coveralls.

4. SCOPE. This plan applies to all employees working for extended periods in inclement weather.

5. GENERAL. Prolonged worker exposure to the elements can lead to serious injury, permanent disability, and even death. Due to the sudden onset and severity of such injuries, it is imperative that this heat/cold hazard control plan and stress monitoring be implemented as required in section 06.J of EM 385-1-1. The plan is broken down into three parts; heat stress/ultraviolet (UV) exposure and use of impermeable clothing, cold stress and protective wear, and wind and lightening.

a. Heat Stress. During summer months, use of personal protective equipment (PPE) can put personnel at considerable risk of heat stress and heat-related illness if proper precautions are not implemented. Heat-related illnesses can come on suddenly, and range from heat stress or fatigue to heat stroke or death. Heat related illnesses are caused by a number of interacting factors, including environmental conditions, clothing, workload, and individual worker characteristics. Individuals vary in their susceptibility to

heat stress. Factors that influence an individual's tolerance for heat include physical fitness, diet, alcohol/drug use, sleeping habits, acclimation, genetics, sex, age, and weight. Acclimation normally takes 10-14 days. Poor fitness, overweight, minor illnesses, medication, use of alcohol, prior history of heat injuries, skin disorders (*i.e.,* heat rash, sun burn, *etc.*) prevent effective sweating, and being over 40 years of age all increase individual risk for heat casualties. Personnel who have had previous heat stress injuries may be more susceptible to future injuries. Workers who experience heat stress on two separate occasions, shall be prohibited from doing work on hot days, unless given clearance by an occupational health physician. Symptoms of heat stress are as follows.

- Heat Cramps. Heat cramps are caused by heavy sweating and inadequate electrolyte replacement. Signs and symptoms include muscle spasms and pain in the hand, feet, and abdomen.

- Heat Exhaustion. Heat exhaustion occurs from increased stress on various body organs. Signs and symptoms include, pale cool moist skin, heavy sweating, dizziness, nausea, and fainting.

- Heat Stroke. This is the most serious type of heat injury and requires immediate medical attention. During a heat stroke, the body's temperature regulation system fails, and the body temperature rapidly rises to critical levels. Immediate action must be taken to cool the body temperature before serious injury or death occurs. Consult your first aid book for treatment. Signs and symptoms include: red, hot, unusually dry skin, reduced perspiration, nausea, dizziness and confusion, strong-rapid pulse, and coma.

- Sunburn/UV Exposure. Sunburn is caused by overexposure to UV light (*i.e.*, sunshine, welding arc, other high intensity lights emitting UV radiation, *etc*.). The symptoms are usually not apparent for 2-4 hours following exposure. Erythema, (redness of the skin) followed by blistering or even deeper burns is possible. Sunscreen products with a sun protection factor (SPF) of 15 or higher are recommended. Areas of primary concern are the nose, ears, cheeks, back of the neck, and possibly top of the head or other areas of the body not protected by clothing. The UV light can also cause temporary blindness, and long-term exposure can even cause cataracts. Eye protection is recommended for long term exposures to the sun. Check the weather reports for solar indexes and heat indexes (http://www.weather.com/maps/activity/health/skin/index_large.html).

- Depletion of body fluid and possibly salt. Symptoms include dizziness, weakness, fatigue, and rapid pulse. Dehydration is the major cause of heat stress.

- Over Hydration. A danger also exists for over hydration since it can lead to an electrolyte inbalance. Symptoms include confusion, weakness, nausea, and vomiting

(1) Heat Stress Monitoring Program. Daily maximum and minimum temperatures on fixed operational sites will be recorded. When the ambient temperature exceeds 85 degrees Fahrenheit (F), the heat category will be assessed by taking the Wet Bulb Globe Temperature Index (WBGT). Cooled drinking water will be made available for employees. In remote locations, bottled water may be purchased. The purchase of electrolyte replacement products is not normally authorized.

(2) Permeable Clothing. For workers wearing permeable clothing, (*i.e.*, standard cotton or synthetic work clothes) monitoring shall begin when the temperature exceeds 85 degrees F and WBGT shall be updated hourly. Table 1 of the ACGIH manual shall be used (see figure FF-1 below) for assessing the recommended work/rest regimen. Note: for unacclimated workers performing moderate level work, the heat exposure threshold limit value (TLV) should be reduced by 2.5 degrees Celsius. The WBGT measurements will be taken by an assigned government designated authority at the Project. This measurement takes into consideration the amount of humidity and the amount of solar gain depending if the work is indoors or outdoors.

The TLVs for heat exposure are given in degrees Celsius and (degrees F) WBGT.

PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUES	---------- Work Load* ----------		
Work/rest regimen	**Light**	**Moderate**	**Heavy**
Continuous work	30.0°C (86°F)	26.7°C (80°F)	25.0°C (77°F)
75% Work, 25% rest, each hour	30.6°C (87°F)	28.0°C (82°F)	25.9°C (78°F)
50% Work, 50% rest, each hour	31.4°C (89°F)	29.4°C (85°F)	27.9°C (82°F)
25% Work, 75% rest, each hour	32.2°C (90°F)	31.1°C (88°F)	30.0°C (86°F)

*Values are in °C and °F, WBGT.

These TLVs are based on the assumption that nearly all acclimatized, fully clothed workers with adequate water and salt intake should be able to function effectively under the given working conditions without exceeding a deep body temperature of 38°C (100.4° F). They are also based on the assumption that the WBGT of the resting place is the same or very close to that of the workplace. Where the WBGT of the work area is different from that of the rest area, a time-weighted average should be used (consult the ACGIH *1992-1993 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices* (1992).

These TLVs apply to physically fit and acclimatized individuals wearing light summer clothing. If heavier clothing that impedes sweat or has a higher insulation value is required, the permissible heat exposure TLVs in Table 1 must be reduced by the corrections shown in Table 2 (see figure FF-2 below). Table 2 is the WBGT Correction Factors in degrees C for Table 1.

Figure FF-1. WBGT-TLV Criteria.

WBGT CORRECTION FACTORS IN °C Clothing type Clo* value WBGT correction	
Summer lightweight working clothing	0.60
Cotton coveralls	1.0 – 2.0
Winter work clothing	1.4 – 4.0
Water barrier, permeable	1.2 - 6.0
*Clo: Insulation value of clothing. One clo = 5.55 kcal/m^2/hr of heat exchange by radiation and convection for each degree °C difference in temperature between the skin and the adjusted dry bulb temperature. Note: Deleted from the previous version are trade names and "fully encapsulating suit, gloves, boots and hood" including its clo value of 1.2 and WBGT correction of -10. (Source: ACGIH 1992)	

Figure FF-2. The WBGT Correction Factors in degrees C.

(3) Semi-impermeable Clothing or Impermeable Clothing. For workers wearing semi-impermeable clothing such as Tyvek Coveralls, or impermeable clothing, (*i.e.,* chemical suits) air monitoring shall begin at 70 degrees F. The ACGIH charts cannot be used in these instances since they only apply to permeable clothing. The best means of monitoring includes the following.

(a) The heart rate should not exceed 110 beats per minute, if so, shorten the work cycle by one third.

(b) The oral temperature should not exceed 99.6 degrees F., if so, shorten the work cycle by one third. Do not permit workers to wear such clothing if the oral temperature exceeds 100.6 degrees.

(c) The employee should not lose more than 1.5 percent of their total body weight per day. Follow fluid replacement schedules in the ACGIH Manual.

(d) Blood pressure should not fall more than 40 torr (mm of mercury Hg) in approximately 3.5 minutes, or there are complaints of sudden and severe fatigue, nausea, dizziness, lightheadedness, or fainting.

(e) When using WBGT tables, add 10 degree to the WBGT when wearing semi-impermeable clothing, and 20 degrees when performing moderate or heavy work

(4) Means of Controlling Heat Stress.

(a) Reduce heavy work on hot days, plan work accordingly.

(b) Provide plenty of cool drinking water, and shaded or air conditioned break rooms.

(c) Alternate workers.

(d) Modify work/rest schedules as needed based on physiological monitoring and air monitoring.

(e) Provide cooling devices such as cooling vests.

(f) Provide personnel monitoring

(g) Train workers on signs and symptoms of heat injuries.

(h) Use acclimated workers and workers meeting required medical screening.

(i) Remember, it may take a week or longer for some workers to become acclimated.

b. Cold Stress. Cold stress can be encountered at our projects especially in the winter months when much of the repair and maintenance work on fish screens, and fish passage systems is accomplished. Most of the District construction occurs during the winter work window (November through March). Most cold-related worker fatalities have resulted from failure to escape low environmental temperatures, such as falling into cold water. The single most dangerous aspect of life-threatening hypothermia is a fall in the deep core temperature of the body. Falling into cold water is certainly a possibility considering our work locations, however, the most likely cold weather injuries will be minor hypothermia and frostbite from exposed body parts during occasional cold periods. Figures FF-3, Wind Chill Temperature Table, FF-4, Threshold Limit Values - Work/Warm-up Regimen, and Cold Weather Hazard Analysis (see annex B) shall be used to determine the necessary precautions for cold stress.

(1) Signs and Symptoms. The signs and symptoms of hypothermia are as follows:

(a) Pain in the extremities may be the first early warning sign.

(b) Shivering occurs when the internal body temperature drops, with maximum severe shivering occurring when the core body temperature drops to 95 degrees F. Useful physical and mental work is limited when severe shivering occurs.

(c) Cold injury other than to the hands, feet, and head are not likely to occur without developing the initial signs of hypothermia.

(d) Pay special attention to older workers, workers with circulatory problems, or workers who have had previous frost bite injuries.

(2) Cold Weather Monitoring Guidance.

(a) Take daily air temperature (dry bulb only) and wind speed measurements to determine chill rates and monitor once the ambient temperature drops to 40 degrees F or below. Temperatures below 30 degrees F will require measurements at least every 4 hours. Wind speed shall be monitored every 4 hours once the wind speed exceeds 5 miles per hour.

(b) Equivalent chill temperature and frost bite precautions shall be determined using the tables in figure FF-3 (taken from page 130 of EM 385-1-1) below.

Wind Speed (mph) / Air Temperature (ºF)

	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
0	**40**	**35**	**30**	**25**	**20**	**15**	**10**	**5**	**0**	**-5**	**-10**	**-15**	**-20**	**-25**	**-30**	**-35**	**-40**	**-45**
5	**36**	**31**	**25**	**19**	**13**	**7**	**1**	**-5**	**-11**	**-16**	**-22**	**-28**	**-34**	**-40**	**-46**	**-52**	**-57**	**-63**
10	**34**	**27**	**21**	**15**	**9**	**3**	**-4**	**-10**	**-16**	**-22**	**-28**	**-35**	**-41**	**-47**	**-53**	**-59**	**-66**	**-72**
15	**32**	**25**	**19**	**13**	**6**	**0**	**-7**	**-13**	**-19**	**-26**	**-32**	**-39**	**-45**	**-51**	**-58**	**-64**	**-71**	**-77**
20	**30**	**24**	**17**	**11**	**4**	**-2**	**-9**	**-15**	**-22**	**-29**	**-35**	**-42**	**-48**	**-55**	**-61**	**-68**	**-74**	**-81**
25	**29**	**23**	**16**	**9**	**3**	**-4**	**-11**	**-17**	**-24**	**-31**	**-37**	**-44**	**-51**	**-58**	**-64**	**-71**	**-78**	**-84**
30	**28**	**22**	**15**	**8**	**1**	**-5**	**-12**	**-19**	**-26**	**-33**	**-39**	**-46**	**-53**	**-60**	**-67**	**-73**	**-80**	**-87**
35	**28**	**21**	**14**	**7**	**0**	**-7**	**-14**	**-21**	**-27**	**-34**	**-41**	**-48**	**-55**	**-62**	**-69**	**-76**	**-82**	**-89**
40	**27**	**20**	**13**	**6**	**-1**	**-8**	**-15**	**-22**	**-29**	**-36**	**-43**	**-50**	**-57**	**-64**	**-71**	**-78**	**-84**	**-91**
45	**26**	**19**	**12**	**5**	**-2**	**-9**	**-16**	**-23**	**-30**	**-37**	**-44**	**-51**	**-58**	**-65**	**-72**	**-79**	**-86**	**-93**
50	**26**	**19**	**12**	**4**	**-3**	**-10**	**-17**	**-24**	**-31**	**-38**	**-45**	**-52**	**-60**	**-67**	**-74**	**-81**	**-88**	**-95**

RISK OF FROSTBITE (see times on chart below)

GREEN LITTLE DANGER (frostbite occurs in > 2 hours in dry, exposed)
YELLOW INCREASED DANGER (frostbite could occur in 45 minutes or less in dry, exposed skin)
RED GREAT DANGER (frostbite could occur in 5 minutes or less in dry, exposed skin)

Time to occurrence of frostbite in minutes or hours
(In the most susceptible 5% of personnel)

Wind Speed (mph) / Air Temperature (ºF)

	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
0	***<2h***	***<2h***	***<2h***	***<2h***	***<2h***	***<2h***	***40***	***22***	***20***	***13***	***11***	***9***
5	**<2h**	**<2h**	**<2h**	**<2h**	**31**	**22**	**17**	**14**	**12**	**11**	**9**	**8**
10	**<2h**	**<2h**	**<2h**	**28**	**19**	**15**	**12**	**10**	**9**	**7**	**7**	**6**
15	**<2h**	**<2h**	**33**	**20**	**15**	**12**	**9**	**8**	**7**	**6**	**5**	**4**
20	**<2h**	**<2h**	**23**	**16**	**12**	**9**	**8**	**8**	**6**	**5**	**4**	**4**
25	**<2h**	**42**	**19**	**13**	**10**	**8**	**7**	**6**	**5**	**4**	**4**	**3**
30	**<2h**	**28**	**16**	**12**	**9**	**7**	**6**	**5**	**4**	**4**	**3**	**3**
35	**<2h**	**23**	**14**	**10**	**8**	**6**	**5**	**4**	**4**	**3**	**3**	**2**
40	**<2h**	**20**	**13**	**9**	**7**	**6**	**5**	**4**	**3**	**3**	**2**	**2**
45	**<2h**	**18**	**12**	**8**	**7**	**5**	**4**	**4**	**3**	**3**	**2**	**2**
50	**<2h**	**16**	**11**	**8**	**6**	**5**	**4**	**3**	**3**	**2**	**2**	**2**

WET SKIN COULD SIGNIFICANTLY DECREASE THE TIME FOR FROSTBITE TO OCCUR.

Figure FF-3. Wind Chill Temperature Table.

(c) When the air temperature or equivalent temperature falls below 40 degrees F, workers will start to need some sort of warm clothing, such as heavy socks, protective gloves, and normal work clothes.

(d) Employees working in air temperatures of –15 degrees F or less shall use the work/warm-up regimen specified in the ACGIH Manual, or see Figure FF-4 below.

TABLE 3. Threshold Limit Values Work/Warm-up Schedule for Four-Hour Shift☆

Air Temperature—Sunny Sky		No NoticeableWind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F (approx.)	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
–26° to –28°	–15° to –19°	(Norm. Breaks)	1	(Norm. Breaks)	1	75 min	2	55 min	3	40 min	4
–29° to –31°	–20° to –24°	(Norm. Breaks)	1	75min	2	55 min	3	40 min	4	30 min	5
–32° to –34°	–25° to –29°	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
–35° to –37°	–30° to –34°	55 min	3	40 min	4	30 min	5	Non-emergency work should cease			
–38° to –39°	–35° to –39°	40 min	4	30 min	5	Non-emergency work should cease					
–40° to –42°	–40° to –44°	30 min	5	Non-emergency work should cease							
–43° & below	–45° & below	Non-emergency work should cease									

Notes for Table 3 :

1. Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at –35°C (–30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).
2. The following is suggested as a guide for estimating wind velocity if accurate information is not available:
   5 mph: light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow.
3. If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be: 1) special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 W/m^2; 2) all non-emergency work should have ceased at or before a wind chill of 2250 W /m^2. In general, the warmup schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly over-compensates for the actual temperatures in the colder ranges because windy conditions rarely prevail at extremely low temperatures.
4. TLVs apply only for workers in dry clothing.

☆Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labour.

Figure FF-4. Threshold Limit Values - Work/Warm-up Regimen.

(e) When air temperatures are 36 degrees F or less, workers who become immersed in water or whose clothing becomes wet shall immediately be provided a change of clothing and treated for hypothermia.

(f) For work not requiring manual dexterity, gloves shall be used when the temperature drops below 40 degrees F, for light work, and for moderate or heavy work when the temperature drops below 20 degree F.

(g) When fine work requiring manual dexterity is needed, bare hand work for more than 10 -20 minutes in weather below 50 degrees F will require provisions for keeping workers hand warm (*i.e.,* space heaters, enclosures, *etc*.).

(3) Cold Stress Protective Measures.

(a) If wind chill is a factor, the cooling effect from the wind can be reduced by providing temporary shelters/wind blocks, or by providing employees with wind break clothing.

(b) Break rooms shall be kept at least 65 degrees F whenever possible.

(c) Encourage employees to drink hot liquids (*i.e.*, soup, cocoa, *etc*). Excessive intake of coffee and teas is not recommended due to their circulatory and diuretic effects.

(d) Discourage people from smoking, nicotine also causes a constriction of the capillaries which reduces blood flow and the body's ability to warm itself, especially in the extremities.

(e) Workers should layer clothing, donning and doffing clothing as needed to prevent chilling, but also avoid excessive sweating. Dress with the thinner lighter layers next to the body.

(f) The Corps will provide insulated coveralls, gloves, and helmet ear protectors in cold weather when controls are not feasible or adequate. Special care should be taken in extreme cold to protect the ears, nose, toes, and fingers. The Project Manager shall make cold weather clothing accessible to designated personnel as required by this document and as permitted by the District Commander's cold weather clothing/equipment purchase policy letter. Cold weather clothing will be the Property of the Government, shall be marked with the letters USACE, and will not be worn by employees except when doing official duties. Clothing will be issued on a temporary basis, and will be returned upon termination of employment. The project shall maintain a record of issued equipment on an Engineer (ENG) Form 4900 (see annex b).

c. High Wind and Lightening.

(1) Certain work activities should be delayed during weather conditions associated with high winds and lightening.

(2) If workers are working on the water or in a boat when lighting occurs, they should seek shelter. Use of cranes, or working from manlifts should also be avoided during high wind or lightening conditions.

(3) When lightening occurs, seek shelter in a substantial building.

(4) When working in an open field, assume the lightening position (squatting, feet together, and holding hands over ears). Avoid using trees as shelter.

(5) When in equipment, cars, *etc.*, stay inside your vehicle, with your hands off the steering wheel or any metal structure within the car.

(6) Do not work on metal ladders during lightening storms, remove any metal objects from your body or clothing.

APPENDIX FF

HEAT AND COLD HAZARD CONTROL PLAN

ANNEX A

PURCHASE OF COLD WEATHER CLOTHING

APPENDIX FF, ANNEX A

HEAT AND COLD HAZARD CONTROL PLAN

Purchase of Cold Weather Clothing

A-1. In accordance with the Corps of Engineers Safety and Health Manual, section 6.J.10, employees exposed to extreme cold should prepare and follow a site-specific cold-stress monitoring plan, including an activity hazard analysis (AHA). This AHA must identify specific means of controlling the hazards.

A-2. Insulated coveralls will be needed to provide for worker safety in these extreme conditions. Protective gear for cold weather will be identified in the AHA, job hazard analysis (JHA), and this hazard control plan and decision tree (see annex C).

A-3. Insulated coveralls shall be purchased as Government Property and assigned to employees on a temporary basis, to be returned when the employee transfers, retires, or otherwise leaves the project.

A-4. The coveralls shall have USACE letters stenciled on the outside of the clothing.

A-5. Employees shall be responsible for keeping the coveralls clean and in good condition.

A-6. Engineer (ENG) Form 4900 (see annex b) will be used to maintain a record of employees assigned cold weather coveralls. Employees shall sign for the coveralls before receiving them. When the employee transfers, retires, or otherwise leaves the project, they will return the cold weather coveralls to the Project Material Handler during the Out Processing Form check off.

APPENDIX FF

HEAT AND COLD HAZARD CONTROL PLAN

ANNEX B

FORMS

DISTRICT COLD WEATHER HAZARD ANALYSIS		
1. Contract No.	2. Project	3. Facility
4. Date	5. Location	6. Estimated Start Date
HAZARD/ISSUES/CONDITIONS	JOB REQUIREMENTS	CONTROLS
Air Temperature at 40° F.	Begin Monitoring air temperature when it drops to 40° F. Measure temperature at least every 4 hours.	NA
Wind Speed	Begin Monitoring wind speed once it exceeds 5 mph. Use Tables 6-5 and 6-6 in EM 385-1-1 to determine access equivalent chill temperature and frostbite time.	Controls vary with wind speed and air temperature, protect core body temperature by layer clothing, and protect exposed extremities from frostbite. Note: wet skin can significantly decrease the time for frostbite to occur
Temperature Drops below 40° F.	Temperature at which workers will need to start using additional clothing and protective gloves.	Layer Clothing, Use shelters, or portable heaters if possible. Where engineered controls are not feasible or adequate, don Government provided cold weather gear.
Air Temperature drops below -15° F.	Use work/warm-up regimen in ACGIH Manual.	Start increasing break time according to chart. Break areas should exceed 65° F.
Water Immersion below 36° F.	Provide an immediate change of clothing for workers who get wet at this temperature.	
Frostbite to Fingers and Hands	When manual dexterity is not an issue, use gloves for work below 40°, for moderate or heavy work, gloves may not be needed until 20° F. When manual dexterity is required, limit work periods to 10-20 minutes, and for detailed manual dexterity work, warm shelters/enclosures should be provided for work below 50° F.	Don gloves as needed, or use space heater, shelters, or other means to keep the hands warm to provide manual dexterity. Limit bare hand work in cold weather. If hands start to become numb or hurt, increase warming time, or obtain more insulated gloves. Changes gloves when they become wet.
10. EQUIPMENT TO BE USED	11. INSPECTION REQUIREMENTS	12. TRAINING REQUIREMENTS
Use appropriate assessment tables and charts. Use appropriate personal protective equipment, insulated coveralls, layering of clothing, micro-fiber wind break materials, gloves or mittens, ear and face protection, rain suits in wet weather, *etc*. Access to weather reports, or weather station to include dry bulb temperature/wind speed	See monitoring frequency schedule above.	Employees should be trained in the recognition, signs and symptoms of cold stress and know first aid to treat cold injuries. Employees should know how to use wind chill charts in EM 385-1-1, and the work/warm-up charts in ACGIH.
13. (Signature) Michael B. Remington, District Safety Manager		(Date)
14. Project Manager/Project Engineer: (Signature)		(Date)

PROPERTY CONTROL RECEIPT (ER 700-1-1) Sheet of(
FOR HQUSACE USE ONLY)

LOSING HAND RECEIPT HOLDER (HRH)	GAINING HAND RECEIPT HOLDER (HRH)	FIPS EXCESS/TRANSFER
Name: Off Sym: HRH Number: Room No: Phone: Signature:	Name: Off Sym: HRH Number: Room No: Phone: Signature:	Date: Reviewed By: (Name) Signature:

REQUESTED ACTION	RETURN DATE	TRANSFER (To Another UIC)
TRANSFER (Internal Only)		Gaining Command: Gaining UIC: Gaining PBO:
EXCESS		Ship to Address: Received By: Date:

ITEM NO.	BAR TAG NUMBER	NOMENCLATURE	COND. CODE	SERIAL NUMBER	ACQUI. DATE	ACQUISITION PRICE	DOCUMENT NUMBER

PRINT/TYPE: NAME/OFFICE SYMBOL/VENDOR REMOVING OR RECEIVING PROPERTY:	SIGNATURE AND DATE:

LOSING PBO: DATE:	ENG 4900-2R Received In Logistics For Processing: Date: Received By:
Action Posted By:	

ENG Form 4900-2-R, May 2000 **(Proponent: CELD-MS-S)**

PROPERTY CONTROL RECEIPT (ER 700-1-1) Continuation Sheet					Sheet	of	
ITEM NO.	BAR TAG NUMBER	NOMENCLATURE	COND. CODE	SERIAL NUMBER	ACQUI. DATE	ACQUISITION PRICE	DOCUMENT NUMBER

ENG Form 4900-1-R, Dec 92 **(Proponent: CELD-MS-S)**

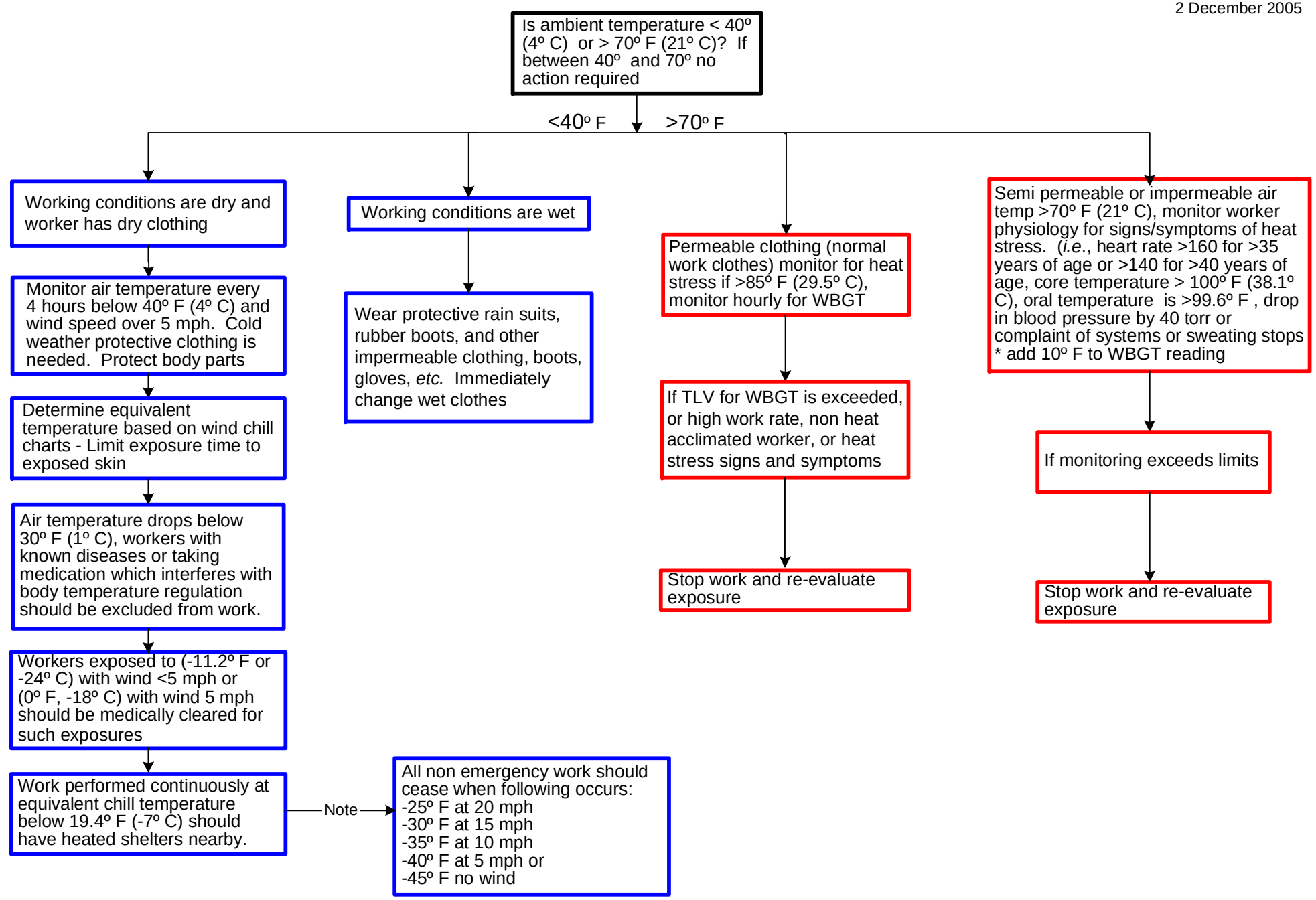
APPENDIX FF

HEAT AND COLD HAZARD CONTROL PLAN

ANNEX C

DECISION TREE

Heat/Cold Stress Decision Tree



Note: Core body temperature should be prevented from dropping below 98.6º F (36º C) - severe shivering occurs when body temperature drops to 95º F (35º C).

APPENDIX GG

DEFENSIVE DRIVING AND MOTOR VEHICLE OPERATION

APPENDIX GG

DEFENSIVE DRIVING AND MOTOR VEHICLE OPERATION

TABLE OF CONTENTS

APPENDIX GG

DEFENSIVE DRIVING AND MOTOR VEHICLE OPERATION

1. PURPOSE. This appendix defines defensive driving and its application in the operation of Government owned/leased motor vehicles and construction equipment within the U.S. Army Corps of Engineers (Corps), Walla Walla District (District).

2. APPLICABILITY. This appendix is applicable District wide.

3. REQUIRED REFERENCES.

a. Army Regulation (AR) 385-55, *Prevention of Motor Vehicle Accidents*.

b. AR 600-55, *Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing)*.

c. Engineer Manual (EM) 385-1-1, *Corps of Engineers Safety and Health Requirements Manual*.

4. RESPONSIBILITIES. The responsibilities of each person in the District are as follows:

a. Participate in a defensive driver training course one every 4 years.

b. To practice defensive driving techniques every time they operate a vehicle.

c. Inspect each vehicle prior to operation. Check tire pressure and fluid levels. Ensure lights and blinkers are operational. Check for vehicle damage.

d. Only operate a vehicle class for which they have the appropriate state license [*i.e.,* commercial driver's license (CDL), HazMat endorsement, passenger van endorsement (16 or more persons), *etc.*]. For more information on CDLs go to www.DOL.wa.gov.

5. GENERAL POLICY. The general policy of this appendix is as follows:

a. Operators of Corps or Government owned/leased motor vehicles/equipment, and Contractor owned motor vehicles/equipment used on Corps projects, shall maintain a defensive driving posture at all times.

b. Defensive driving is defined as the operation of a motor vehicle or piece of equipment in a safe manner while being prepared for and anticipating unexpected or unforeseen actions that may adversely affect the vehicle, the driving conditions, or other vehicle operators.

c. Vehicle operators shall be trained and tested on defensive driving techniques prior to operating Corps or Government owned/leased vehicles or equipment. Training may be computer-based or classroom style and will include basic principles of defensive driving, hazard recognition, and accident avoidance techniques. Training, retraining, and certification are required every 4 years.

d. Vehicle operators involved in an accident and determined to be at fault shall be disqualified from operating Corps or government owned/leased vehicles or equipment until such time as they are retrained and recertified in defensive driving techniques and policies.

e. Operators of Corps or Government owned/leased vehicles below 26,000 pounds (lbs) gross vehicle weight rating (GVWR) shall be required possess a valid state motor vehicle operator's license.

f. Operators of Corps or Government owned/leased vehicles, (1) above 26,000 lbs GVWR, (2) designed to carry 16 or more persons, or (3) carrying placarded hazardous materials, shall be required to possess a valid state CDL.

g. Operators of Corps or Government owned/leased motorized equipment to be operated solely on Corps or Government owned property shall be trained and certified specifically for that piece of equipment. A certified trainer or Supervisor shall verify the training, testing, and recording of all equipment certifications and licenses.

h. Operators of Corps or Government owned/leased motorized equipment involved in an accident or incident wherein the equipment is damaged shall be disqualified from operating that piece of equipment until such time as a certified trainer or Supervisor recertifies them.

i. Operators of Government owned/leased ATV's (all-terrain vehicles) shall have completed a nationally accredited ATV training course prior to operation of the vehicle. The operator must pass an operating skills test prior to operating an ATV. Proof of completion of this training shall be maintained by the facility employing the operator.