

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
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CENPP-CO
Regulation
No. 385-1-93

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Safety
DIVING OPERATION BY CONTRACT

History. This issue publishes a revision of this publication.

Summary. This regulation establishing policy and procedures for underwater diving performed by contractors is revised to condense the material which was contained in the previous edition.

1. **PURPOSE.** This regulation defines policies and responsibilities for underwater diving operations performed by contract personnel for the U.S. Army Corps of Engineers, Portland District.

2. **APPLICABILITY.** This regulation is applicable to all activities under the control of the Portland District.

3. **REFERENCES.**

a. EM 385-1-1, U.S. Army Corps of Engineers *Safety and Health Requirements Manual*, Section 30, CONTRACT DIVING OPERATIONS.

b. NAVSEA 0994-LP001-0910 and NAVSEA 0994-LPOOI-0920, *U.S. Navy Diving Manuals*.

c. Occupational Safety and Health Standards, 29, CFR 1910, Subpart T.

d. ER 385-1-86, Government Diving Operations.

e. NPDR 385-1-2, Safe Diving Policy and Procedures.

4. **POLICY.** It is the policy of the Portland District that all contract diving operations be conducted in a prudent manner which will provide for maximum efficiency of operation and minimum potential hazard to personnel, property and equipment. Further, it is the policy of Portland District that diving operations be conducted only when the task to be performed cannot effectively be accomplished by alternatives to manned diving.

*This regulation supersedes NPPR 385-1-93, 10 January 1989.

5. GENERAL.

a. Diving operations in the Portland District will be conducted in accordance with the provisions of this regulation and the referenced documents listed above. Contracts issued for work or services within the District will reference this regulation whenever diving services may be required as part of the contracted work. Where conflicting requirements exist, the more conservative measure will be invoked. Diving is an inherently hazardous activity. Each dive will be carefully planned and executed according to the plan. Each dive will be properly supported with adequate contractor and Corps of Engineers personnel. Requirements of interfacing schedules and budget, while a consideration in planning a dive, are not justification to waive dive safety measures. Requirements of these regulations may be waived only in immediate life threatening situations or by the specific authority of the Commander.

b. Self contained underwater breathing apparatus (SCUBA) equipment will be employed only in instances where such equipment is significantly more effective than surface supplied systems without increased liability to diver's safety. SCUBA diving operations shall not be conducted without the specific, prior approval of the District Diving Coordinator.

c. Mixed-Gas Diving Operations will be performed in accordance with EM 385-1-1, OSHA requirements as detailed in 29 CFR 1910.426, Subpart T and the *U.S. Navy Diving Manual*, Volume 2.

d. In no instance will free diving (breath hold) techniques be employed.

e. Commercial diving companies must be pre-qualified prior to commencing any diving operations for the 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 perform such work on a regular basis, according to the standards established by the District Diving Coordinator.

f. Verification of dive team qualifications, experience, and medical records to include divers, dive supervisors, and tenders, will be provided to the District Diving Coordinator for review and approval prior to commencement of operations. A lack of experience or qualifications to perform the tasks at hand will be cause for rejection or cessation of operations. Divers, dive supervisors, tenders and chamber operators-timekeepers will be pre-qualified according to the standards established by the District Diving Coordinator.

g. The District Diving Coordinator may elect to implement and enforce more conservative diving requirements, but under no circumstances will the operational requirements be less than specified in this regulation without the specific authorization of the Commander.

6. RESPONSIBILITIES.

a. **Corps of Engineers.** The Corps of Engineers is responsible to determine the need for and scope of contract diving operations. The Corps is also responsible to define 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. This task is accomplished by the personnel described below utilizing the activity sequence defined in Appendix A.

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

(2) Diving Safety Officer (DSO). The District Commander will appoint a sufficient number of DSOs to ensure that a DSO is present at each contract dive conducted by the District. The DSO is the District's representative at the dive site. The DSO's responsibility is to ensure that the dive operation is adequately planned, equipped and staffed and that the dive is conducted according to the dive plan. The DSO is also responsible to ensure that dive conditions specified in the dive plan have been established by the Corps of Engineers and the contractor. The DSO has the authority to delay or stop a dive at any time. The DSO's sole responsibility is the safe conduct of the diving operation and he will not assume other duties concurrent to the diving operation. The specific duties of DSOs are listed in Appendix B.

(3) Others. In addition to the personnel described above, Resident Engineers, Project Managers, Chiefs of Operations and Chiefs 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.

(1) Contractor Safe Practices Manual. Each contractor will develop and maintain a safe practices manual. This manual will encompass the contractor's entire diving program and be available at all times at the dive location to each dive team member and the DSO. This manual will be submitted to the District Diving Coordinator for review and approval annually or upon any significant changes in company procedures, organizational structure, or staffing.

(2) Dive Plan. The contractor will prepare and submit for approval to the Corps of Engineers, a dive plan and emergency management plan which conforms to the requirements of Appendix C. These documents will be available for review at the pre-dive conference.

(3) Activity Hazards Analysis. The contractor will prepare and submit for approval to the Corps of Engineers, an activity hazards analysis for each operation which conforms to the requirements of Appendix C. This document will be available for review at the pre-dive conference.

(4) Diving Activity Coordination. The contractor shall participate in the following meetings for each dive as described in Appendix A.

- (a) Joint Review (When deemed necessary by the Corps DSO)
- (b) Pre-dive Conference
- (c) Post-dive debriefing

(5) Diving Personnel. The contractor will provide sufficient qualified personnel for each dive as defined in the Dive Operation Specifications and the Corps Safety Manual, EM 385-1-1.

(6) Diving Equipment. Equipment furnished by the contractor will comply with the requirements of the Corps Safety Manual, EM 385-1-1, Section 30.E.

(7) Diving Operations. Contractor Diving operations will conform to the Corps Safety Manual, EM 385-1-1, Section 30.B for SCUBA and Section 30.C for Surface Supplied Air.

(8) Insurance Requirements. The contractor will, at its own expense, provide and maintain during the entire performance of the contract, a minimum of the following kinds and amounts of insurance:

(a) Workmen's Compensation and Employer's Liability Insurance including Federal Longshoreman and Harbor Workers' and/or Jones Act Insurance, if they apply, in the amounts specified by the applicable Federal and/or State authorities.

(b) Comprehensive, bodily injury, and property damage liability; minimum limits of \$1,000,000 for injury to or death of any person, and \$1,000,000 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 liabilities; minimum limits of \$1,000,000 for injury or death of any one person and \$1,000,000 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 liability 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 and automobile liability coverage to determine if minimum insurance limits are met.

FOR THE COMMANDER:

3 Appendices

App A - Conduct of a Diving Operation

App B - Description of Duties, District Diving
Coordinator and Diving Safety Officers

App C - Dive Plan Package



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Major, EN

Deputy Commander

DISTRIBUTION:

All Supervisors

Safety Office

District Diving Coordinator

Diving Safety Officers

Pre-qualified Dive Contractors

APPENDIX A

CONDUCT OF A DIVING OPERATION

The following is a brief description of the events which constitute the planning and execution of a typical dive. It may be modified, with the concurrence of the District Diving Coordinator, to suit the particular requirements of a specific dive. Each aspect of the sequence should, however, be considered.

Dive planning and execution sequence.

- a. A condition is identified by project personnel for which dive may be required.
- b. The need for a dive is determined by the Project Manager or Resident Engineer in conjunction with the District Diving Coordinator using the guidelines of this regulation.
- c. A DSO is assigned to work on the dive by the District Diving Coordinator.
- d. A joint review is held with the members of the project staff 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.
- e. Once the dive is defined, a specification is written by the DSO specifying the dive objective, as well as equipment and personnel requirements. The service of a pre-qualified commercial diving organization is obtained through the appropriate contract solicitation process.
- f. Appropriate project personnel determine the configuration of operating equipment and any clearances which will be required. They are reviewed and submitted to the contractor for inclusion in the preparation of the dive plan.
- g. The contractor then prepares a dive plan package consisting of a dive plan, an emergency management plan and an activity hazards analysis and submits them to the District safety office and the District Diving Coordinator for review and approval.
- h. Concurrently the contractor submits certification of his personnel and equipment, including compressed air quality certification to the DSO. If this information is on file with the District Diving Coordinator no action is necessary.
- i. Immediately before diving operations commence, a pre-dive conference is conducted by the Corps DSO and the contractor's dive supervisor. The pre-dive conference will be attended by all individuals who will be involved in the diving operation. The pre-dive conference will cover, as a minimum:
 - (1) Objective and scope of dive operation.

- (2) Conditions in the operating area.
 - (3) Techniques and equipment to be used.
 - (4) Government personnel assignments and dive team assignments.
 - (5) Anticipated hazards.
 - (6) Reinforce normal safety precautions.
 - (7) Discussion of special considerations.
 - (8) Detailed review of dive plan, emergency management plan and the activity hazards analysis.
 - (9) Group discussion and questions.
 - (10) Final acceptance of dive plan and associated documents by dive inspector and dive supervisor.
- j. 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.
- k. The divers and tenders perform a final dive and support equipment check.
- l. The dive operation is performed.
- m. Upon completion of each dive, a post-dive debriefing is conducted by the Corps DSO and the contractor's dive supervisor. Changes to future parts of the operations will be coordinated with the Corps DSO. Divers are advised of the location of nearest decompression chambers and cautioned on the limitations of their post-dive activities (e.g. repetitive dives and flying).

APPENDIX B

DESCRIPTION OF DUTIES

DISTRICT DIVING COORDINATOR

1. Manages District Diving Safety Program, serves as the center of expertise for all underwater activities that involve diving or diving alternatives.
2. Coordinates diving related training program.
3. Maintains District diving regulations.
4. Reviews and approves the necessity for all dives within the District.
5. Consults with Operations Division Chief 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'

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14. Qualifications:

- a. Successful completion of a HQUSACE approved Diving Supervisor Training Course.
- b. Must have specialized hyperbaric chamber training and mixed-gas training.
- c. Minimum of three years of experience on a wide variety of Corps diving operations.
- d. Conducts minimum of 3 diving operations annually to maintain diving proficiency.
- e. Diver qualifications preferable.

DIVING SAFETY OFFICER (DSO)

1. Serves as District's representative at the dive site to ensure the safety of the diving operation. Shall not assume other duties concurrent to the diving operation.
2. Acts as principle 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.
7. Attends and assists the contractor's dive supervisor in the conduct of the pre-dive conference.
8. Stops dive if a safety violation or unsafe condition occurs or operational conditions change which 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 District Diving Coordinator.
13. Qualifications:
 - a. Successful completion of a HQUSACE approved Diving Supervisor or DSO Course.
 - b. Observes at least 3 diving operations conducted by a senior DSO after initial Corps Diving Training.
 - c. Conducts minimum of 3 diving operations annually to maintain diving proficiency.
 - d. Diver qualifications preferable.

APPENDIX C

DIVE PLAN PACKAGE

1. Dive Plans. A diving operation plan shall be developed by the contractor for each diving operation. Project specific information needed to write the dive plan will be obtained from the DSO. This plan must be approved by the District Diving Coordinator prior to commencement of operations, be at the diving location at all times and be available to the 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 plan will contain the following:

- a. Purpose of dive.
- b. Names of dive team members and their assignments clearly defined.
- c. Date, time, and location of dive.
- d. Diving mode utilized, i.e., surface-supplied air, mixed gas, SCUBA.
- e. Nature of work to be performed.
- f. Expected surface and underwater conditions, to include visibility, temperature, currents, equipment operating or shut down, etc.
- g. Maximum depth and bottom time to include planned or possible decompression times.
- h. Planned rotation of divers to maximize diver utilization and minimizing barotrauma probabilities.
- i. Dive logs will be provided after the completion of the dive and shall note any operational problems encountered.

2. Emergency Management Plan. An Emergency Management Plan shall be prepared by the contractor for each dive and approved by the District Diving Coordinator and attached to the dive plan. The minimum content of the plan will be as follows:

- a. Emergency Information. The contractor will ensure the following emergency information is available at the dive site.

- (1) Location and phone number of nearest operational decompression chamber if not located at dive site.

- (2) Location and phone number(s) of nearest hospital(s).
- (3) Location and phone number of nearest U.S. Coast Guard Rescue Coordination Center.
- (4) Description of an emergency victim transport plan including phone numbers of appropriate ambulance services.
- (5) Procedures and phone numbers or other lines of communications to activate emergency services at the facility where the work is being performed.
 - b. Procedure to deal with entrapped or fouled diver.
 - c. Actions upon loss of vital support equipment.
 - d. Actions upon loss of gas supply.
 - e. Action upon loss of communication.
 - f. Lost diver plan.
 - g. Injured diver plan.
 - h. Actions upon discovery of fire.

3. Activity Hazard Analysis. An activity hazards analysis represents the dive team's best effort to anticipate and mitigate or prevent the adverse effects of equipment failure, weather, or other unexpected situations. Each activity hazards analysis will be job specific. Some dives may be sufficiently complex to warrant several separate analyses. The activity hazards analysis will be covered in detail at the pre-dive conference. A copy of any clearances to be issued to deal with identified hazards will be attached to the activity hazards analysis. The activity hazard analysis shall be prepared in accordance with the Corps of Engineers *Safety & Health Requirements Manual*, EM 385-1-1, paragraph 01.A.09.