

Stop Guessing About Underwater Inspection and Repair Projects

When a water utility project calls for underwater work, it's up to the utility to secure a competent dive contractor. It's important to understand what's expected of a qualified contractor and know how to find one.

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TO KEEP water moving smoothly, a utility manager is involved in a variety of projects, each with its own challenges. Sometimes those challenges are submerged, requiring the assistance of a commercial diving contractor to complete the task. Common projects include ground-level and elevated tank inspection and cleaning, inspection of intake and discharge structures or internal pipelines, inspection and repair of water control structures, or work in water treatment facilities and settling ponds.

DEMYSTIFY DIVING OPERATIONS

Let's take the guesswork out of dive contractor evaluation and selection with these questions:

- How do I find a qualified contractor?
- How do I evaluate potential contractors?
- How do I solicit bids for my project?
- How do I create a request for proposal (RFP) that will ensure bid responses lead to selecting the most qualified contractor?
- What role do a contractor's safety metrics and insurance play in minimizing risks to my organization?
- Once contracted, how should the crew conduct themselves from the moment they arrive on-site to the time they leave after completing the job?

First, let's address some industry terminology. A commercial diver is a trained professional who engages in underwater work for industrial, construction, engineering, maintenance, repair, or other commercial purposes that are similar to construction activities completed out of the water. The diving aspects of this work are secondary to the tasks themselves.

A *commercial diver* and a recreational scuba diver are vastly different in terms of training and experience. Major recreational certification organizations provide training for recreational diving only; these programs don't meet Occupational Safety and Health Administration (OSHA) regulations or Association of Diving Contractors International (ADCI) standards for commercial diver training. It's also worth noting that commercial divers occasionally use scuba equipment, but this is rare because such equipment is often considered unsafe and inefficient for most commercial diving activities.

The *dive spread* is the topside equipment that directly supports the diving operation (Figure 1). This term covers many components, ranging from the air source to the diver's helmet. The "spread" might arrive in a self-contained trailer or be assembled at the jobsite. The condition of the equipment and the coordination of the team during setup give initial clues to the contractor's professionalism.

A qualified contractor is one who, at a minimum, does the following:

- Adheres to established commercial diving regulations and industry standards
- Employs only properly trained crews
- Fields designed-for-purpose equipment, including underwater tools
- Carries the proper types of insurance at the appropriate coverage levels
- Has the capability to review a scope of work, plan and conduct the operation, and provide contractually required deliverables to the client
- Understands how to recognize operational risks and mitigate or eliminate those hazards during the planning and operational phases

The ADCI is the primary industrial governing body for commercial divers in the United States and many parts of the Americas. This organization works with the American National Standards Institute to establish minimum training requirements and certifications for various roles involved in commercial diving.

OSHA provides and enforces federal workers' safety standards. Commercial diving operations are governed by 29 CFR 1910 Subpart T and 46 CFR Chapter I Subchapter V Part 197. (The latter reference primarily governs diving in deepwater ports and coastal areas of the outer continental shelf.)

Common projects that may require an underwater dive contractor include ground-level and elevated tank inspection and cleaning, inspection of intake and discharge structures or internal pipelines, inspection and repair of water control structures, or work in water treatment facilities and settling ponds.



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FINDING A QUALIFIED CONTRACTOR

Now that it's clear that your local dive shop or friend who might be a scuba diver is insufficiently trained and equipped to undertake commercial work for your organization, begin by contacting the primary industry association for a list of local dive contractors. In the United States, that industry body would be the [ADCI](#). In certain areas of the country, local unions represent commercial divers; they might also be able to recommend a reputable company.

When you approach a qualified contractor, the project team will expect the following from the utility:

- Solid scope of work
- Facility drawings, especially those components that control water, pneumatic, or hydraulic pressures (critical for isolating any form of injurious energy sources)
- Any requirements or specifications required to successfully complete the project on time
- A list of submittals to be provided before the project and the deliverables required at the end of the work

EVALUATING A POTENTIAL CONTRACTOR

Once potential contractors have been identified, it's time to move to the evaluation stage. Consider the following suggestions to help ensure project success:

Price. Price is important, but when weighing the merits of different contractors, the comparisons are rarely equitable. What appears to be a lower price may in fact be the most expensive and also expose the utility to undue liability.

Proposal. A lot of information can be gleaned from careful review of a potential contractor's proposal. The most important aspect of the review is determining how well and coherently the potential contractor responds to the specifications in the RFP. Do they understand and respond to the scope of work needed by the utility?

Safety. Commercial diving has inherent risks, which should be evaluated by the contractor and mitigated or eliminated. Don't subject your employer to unnecessary liability by hiring unqualified or unsafe contractors. Ask for their most recent OSHA safety documentation (OSHA 300 and 300a

forms) and seek to understand where their Experience Modification Rate (EMR) stands. This is a metric used by insurance carriers to evaluate worker's compensation claims. An EMR lower than 1.0 indicates a better than average safety record.

A potential contractor should provide a comprehensive dive operations plan and job hazard analysis in the submittal package. A good example of a fairly standard dive plan is contained within the [US Army's Engineering Manual EM 385 1-1 Section 30.A.16](#).

INSURANCE

Insurance requirements for commercial diving operations are unique and can seem complex. Keep in mind that your organization sets the minimum insurance requirements. Also ensure that the certificate of insurance is provided directly from the insurance carrier; don't accept a certificate from the contractor.

General Liability. Anytime a contractor is hired to accomplish a task, a general liability policy will be required. Most

Treatment

often, the utility, city, or county will establish the required coverages.

Worker's Compensation. State requirements vary, but worker's compensation insurance is necessary. Many times, if a contractor is hired and doesn't carry a worker's compensation policy, an injured employee may become the utility's responsibility.

Longshore and Harbor Worker's Compensation Act. In short, this act provides coverage for workers who load, unload, repair, or build vessels on or over navigable waters in the United States.

ON THE JOBSITE

Evaluating a contractor begins with your initial phone calls, emails, and in-person interactions. When the crew arrives at your facility, consider the condition of their vehicles and equipment. Are the crew members alert and seemingly motivated? Was a thorough prejob safety meeting conducted before they started working? Is the dive supervisor taking charge of arrival and setup? Is the dive supervisor available to the utility's managers? This is the time to discuss the particular nature of the project and, if required, complete the lockout/tagout procedure, which should be clearly established in the dive plan. It should also be compliant with both the contractor's and the utility's procedures.

The prejob safety meeting should discuss the plan for the day and any potential hazards associated with the work steps. The roles and responsibilities of each crew member, as well as any supporting personnel who will be directly engaged in the work, should be clearly explained. The supervisor should emphasize that all stakeholders have "stop work authority." This means that anyone can stop any job without fear of reprisal whenever a potential hazard is recognized. No one should end up saying, "If I had simply said something, this never would have happened."

As work begins, the dive supervisor should adhere to the work plan. Shortcuts or unplanned work steps often lead to unproductive work activities or injuries.

Figure 1. Common Components

The dive spread directly supports the diving operation and covers many components, ranging from the air source to the diver's helmet.



REPORTING

In your bidding document or purchase order, clearly identify what documentation is required from your contractor before the job starts and once work is complete. Specify when these documents or submittals are due and make sure the contractor understands the importance of the project's record of events, actions, and findings.

The dive supervisor should provide continual updates as directed by the utility's representative. If the project spans weeks or months, the contractor should provide written reports supported by an updated schedule. Ensure that these documents are provided on a routine basis so any delays or change orders can be anticipated and your chain of command can be properly briefed.

At the end of the project, verify that the contractor has completed all deliverables and specify when any required reports are due.

Reports should contain the following:

- Clear, well-written descriptions of all dive crew activities while on your jobsite
- The contractor's interpretation of the scope of work and general approach to the job
- The dive mode and equipment used, especially if contractor has requested daily equipment charges
- Any photographs or videos of the project, especially if anomalies are found
- Neat, clearly understandable hand sketches or computer-aided drawings

If the final report doesn't meet your expectations, send it back and provide your critical input. This historical record will document the job and be a direct reflection of the dive contractor and the utility's management.

BE INFORMED AND PREPARED

Don't let lack of knowledge or preparation hinder your search for a qualified dive contractor or compromise work quality. Consider four main points:

- Get several proposals for your work. Bid multiple companies and let each contractor know that the bid is competitive.
- Research your short-listed contractors and contact the ADCI if you have questions.
- Verify insurance and safety records, making sure that potential contractors are properly insured and adhere to all state and federal requirements.
- Provide site oversight. Ensure that the project has an on-scene representative from your organization. It's proper for the client to listen to the diver's radio and watch the video monitor located in the dive shack.

Remember that most divers killed or injured during utility operations are those who are untrained, unqualified, or inadequately equipped. Do your research and hire a qualified contractor so you can enjoy working on a project that allows you to experience new challenges with professional crews.