



Tampa Electric Safety Management System
DIVING SAFETY PROGRAM

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1. Purpose

The purpose of the Diving Safety Program is to prevent injuries and illnesses that could arise from diving, a high-risk activity. The intent is to reduce or eliminate the hazards that are associated with this type of work.

2. Introduction

This procedure outlines general and minimum requirements diving contractors are expected to follow and is meant to complement the requirements outlined in the applicable federal, state, and/or local standards.

3. Regulatory References

29 CFR 1910 Subpart T

4. Responsibility

- 4.1 Station Director is responsible for the implementation of this program at their power station.
- 4.2 Affected employees shall comply with this program and applicable OSHA regulations and standards regarding Commercial Diving Operations. A Job Risk Briefing shall be conducted and document each diving operations are conducted.
- 4.3 Tampa Electric Contract Supervisor or designee shall participate in a Job Risk Briefing prior to diving activities and be present onsite during dive operations. They will review the dive contractor's dive plan/hazard assessment.
- 4.4 Tampa Electric Safety Department will be responsible for maintaining and updating this program.
- 4.5 Contracted dive company shall ensure competent personnel are provided to perform each dive in accordance with all applicable regulations, the Safety Inspection Checklist for Diving Operations (Appendix 1), and 29 CFR 1910 Subpart T.
- 4.6 Dive supervisor (Contractor management competent person) and each diver shall maintain signed logbooks for the diving operations and update them after every dive.

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5. Employee Training

Contract Supervisors supervising dive operations shall review and sign off on this procedure on an annual basis.

6. Program Requirements

6.1 General Requirements and Pre-Planning

- 6.1.1 When work involving diving is proposed at a Tampa Electric location, efforts should be made to assess this need and propose alternatives, such as the use of a remotely operated underwater vehicle (ROV).
- 6.1.2 If it is deemed that the dive is necessary, it is the responsibility of the Maintenance/ Project Manager to identify a Contract Supervisor to manage diving requirements. Please note: The identified Contract Supervisor shall have completed their annual review and sign off on this procedure.
- 6.1.3 Any third-party site-specific dive hazard assessments and the most recent revision of the Safety Inspection Checklist for Diving Operations (Appendix 1) shall be supplied to the dive company prior to dive operations.
- 6.1.4 The Contract Supervisor shall consider any isolation or permitting requirements via consultation with plant operations. This information will be communicated to the dive company for consideration during the development of their dive plan.
- 6.1.5 The dive contractor's site-specific dive plan and the dive safety checklist (Appendix 1) will be reviewed by the Contract Supervisor to ensure compliance with company diving requirements.
- 6.1.6 If the dive plan is not acceptable to the Contract Supervisor and the problems are not rectified, another dive company shall be considered.
- 6.1.7 It is the Contract Supervisor's responsibility to submit any applicable permit requests required for the dive.
- 6.1.8 Dives shall not be conducted where there are hazardous conditions or activities in the area that could cause a safety risk to the divers that cannot be adequately controlled.

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6.1.9 All personnel contracted to perform dives will have the training in accordance with guidelines identified in the Safety Inspection Checklist for Diving Operations found in **Appendix 1**.

6.1.10 Planning of the diving operation shall include an overall project safety plan assessment prior to commencement of the planned dive which includes but is not limited to:

- Evaluate the surface and underwater (current, visibility, temperature) conditions.
- Verify adequate surface breathing air supply is available.
- Determine if thermal protection for the diver(s) is needed.
- Complete a pre-dive inspection of all diving equipment.
- Inspect the redundant emergency air supply device (bail out bottle) before each dive.
- When completing multiple dives over multiple days, residual inert gas status must be monitored and documented in accordance with applicable dive tables.
- NO dives are to be planned to exceed 30 feet in depth. If a dive greater than 30 feet is required, complete a Deviation Form found in TEC-SMS-GUIDE-2.02.
- In the event of a power failure there must be a secondary source of backup power for the diving system equipment.

6.2 Dive Team Briefing

6.2.1 Diving operations shall be coordinated to include other activities in the vicinity which are likely to interfere or create hazards for the dive team. The dive team will participate in a pre-job briefing with TEC management (or designee) to include the task at hand, safety procedures, unusual hazard(s) or environmental conditions, and any modifications to operations procedures necessitated to accomplish the work.

6.2.2 Dives shall not be conducted where there are hazardous conditions or activities in the area that could create a safety risk to the divers and that cannot be adequately controlled.

6.2.3 Prior to making the dive, the selected dive supervisor shall inquire of the team members their current physical fitness and the procedure for reporting adverse physiological effects during and after the dive. The selected contractor will cover the emergency procedures which are dependent on the nature and hazards of the work.

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6.3 Dive Plan

6.3.1 A dive plan shall be submitted in writing before any work begins. It is the responsibility of the dive company to develop and supply a quality dive plan for the proposed dive. A copy of the plan is to be kept at the dive site. Before any diving operation has started, the dive site must undergo a safety inspection by the dive supervisor. Dives shall not be conducted where there are hazardous conditions or activities in the area that could cause a safety risk to the divers that cannot be adequately controlled.

6.3.2 The dive plan must include, but is not limited to, the following components:

- The scope of the work.
- Detailed descriptions of tasks and the associated procedures to complete them.
- A risk assessment and analysis identifying exposure limits.
- Emergency plans and procedures for rescue, including evacuations and recompression, and situations that can lead to the dive being aborted (fire, deteriorating environmental conditions, injury, equipment malfunction, etc.).
- A list of hazards.
- Controls to mitigate identified risks.
- Dates and duration of the work.
- List of the members on the dive team with their duties and responsibilities.
- Two-way communication plans.
- Qualifications and experience of divers and supervisors. They must have knowledge of how to operate the equipment, tools, and the techniques involved with operations and emergency procedures.
- Current and appropriate certifications of all divers and supervisors.
- Maximum dive time and minimum rest policies.
- Locations, directions, and contact information for physicians, hospitals, and sites with hyperbaric chambers.
- Thermal Protection needed for the dive.

6.4 Communication, Tools, and Equipment

- Communication between work crews (dive contractors and Tampa Electric) shall be maintained throughout all dives.
- There shall be an oxygen therapy unit with sufficient capacity at the dive site.

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- There shall be a vehicle on site ready to transport a diver to an emergency facility if necessary.
- The tools and equipment required for the dive will meet or exceed all applicable legislative and company standards. Proper equipment and safety devices shall be used and inspected before each dive.
- Operational two-way communication shall be used between the diver(s) and a surface dive team member at the location. Additionally, two-way communication will be available at the dive location to obtain emergency assistance.

6.5 Dive Team

- Regardless of regulations that may not require a four (4) person dive team, TEC reserves the right to require a minimum four (4) person team.
- A Dive Supervisor must always be on the dive site while a dive is being performed. The supervisor must not dive unless it is a health and safety emergency or has delegated the diving supervisor's duties in writing to another person on the dive site competent to perform them.
- A Diver, who is an employee, assigned to work in the water using an underwater breathing apparatus which supplies compressed breathing gas at ambient pressure.
- A Standby Diver who is always prepared and immediately able to dive as determined during the Job Risk Assessment. There must be no more than two (2) Divers for every Standby Diver.
- A designated Divers' Tender must be actively tending the diver's umbilical during a dive.
- The divers and those on standby must be medically fit for diving every time that they report to work. They shall report if there is any reason that they are not fit to dive at any time.
- The divers must be aware of the hazards associated with differential pressure and how to protect themselves against its adverse effects.

6.6 Water Entry and Exit

- Divers shall have a device that will allow them to safely enter and exit the water.
- The access device shall extend below the water surface, enough to provide ease of entry or exit.
- The access device must also be sufficient to assist an injured driver, or in rescue of an unconscious diver.

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6.7 Confined Space Dive

Examples of confined space in diving operations are pipelines, tanks, gate chambers, pump chambers, and/or other underwater structures. Most of the dives at TEC Energy Supply sites will be considered confined space dives.

- The diver will be tended to continuously while in the water and/or while in a confined space dive. When making a penetration dive, safety planning may require an in-water diver tender positioned just outside of the entrance to the confined space.
- Special considerations shall be implemented to ensure there is adequate reserve air supply.
- Special diver rescue procedures and communication plan shall be included in the dive planning.
- An operational two-way communication shall be used between the diver(s) and a surface dive team member at the location. Additionally, two-way communication will be available at the dive location to obtain emergency assistance.
- Continuous monitoring of current, temperature, and turbidity is required.

6.8 Personal Protective Equipment, Tools, and Equipment

All handheld electric tools, welding equipment, and required PPE will be used in accordance with applicable industry commercial diving safe work practices. Refer to OSHA 29 CFR 1910.422 (f), (g) and (h).

6.9 Emergency Aid

The diving contractor shall ensure that a list of emergency contact numbers, accessible hospitals, and medical care, means of transportation, and the nearest Coast Guard Rescue Coordination center information are available on site.

- A first aid kit with supplies compliant with OSHA 29 CFR 1910.421(c) shall be available at the dive site.
- The work shall stop when:
 - Requested by the diver.
 - Diver fails to respond to communication or signals from a dive team member.
 - Diver fails to respond correctly to a dive team member.
 - Loss of surface supplied air.
 - Diver begins to use reserve air either from surface or diver carried.
 - If the work scope changes that alters the original dive plan.

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- Emergency surface situations such as station alarm, fire, notification from operations of changing operating conditions.
- Diver is injured.
- If a diver is entrapped or fouled, the status of the diver air supply shall be evaluated, and the standby diver alerted to be prepared to enter. Provide information to the diver to assist with freeing themselves from the source of the entanglement. Standby diver should enter as a last resort with the appropriate tools to assist the diver.
- If a diver is nonresponsive to the diver tender, deploy the standby diver, and contact the station control room, and
- If a diver is deemed to require treatment for an injury or a diving malady, the contractor will contact the station control room. If recompression is required, the responding EMS unit will contact the nearest recompression chamber to determine availability and transport the diver.

6.10 After the Dive

Dive profiles for all dives will be maintained on site after each dive and for the duration of the dive operation. The dive profile shall include:

- Names of dive team members.
- Date, time, and location of the dive.
- General nature of the work.
- Approximate underwater and surface conditions.
- Maximum depth of the dive.
- Bottom time for each diver.

7. Program Review

This program will be reviewed at least every three (3) years.

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8. Record of Revisions

Summary of Revisions	Authorized By	Date of Authorization
Initial implementation	VP Safety	December 20, 2019
Revisions to align with current practices and document formatting: <u>Program Requirements (6)</u> added: <ul style="list-style-type: none">• General Requirements and Pre-Planning (6.1)• Dive Briefing Section (6.2)• Modified Dive Team requirements (6.5)• Emergency Aid (6.9) – Added additional reasons to stop work. <u>Appendix 1: Safety Inspection Checklist for Diving Operations</u> added to this document.	VP Safety Dept, Chip Whitworth	January 2022
Revisions to Section 6.5 Dive Requirements: <ul style="list-style-type: none">• Clarify Rescue-to-Active diver ratio as no more than 1:2	VP Safety and Security, Heidi Whidden	May 3, 2024

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Appendix A

<u>Date:</u>	<u>Contractor:</u>
<u>Verified by:</u>	<u>Location:</u>
<u>Work Description:</u>	
<u>Required Documents</u>	
	✓ Yes
Copy of the Contractors Dive Plan	
Verification that the members of the dive team meet the requirements of the category unrestricted surface-supplied supervisor, diver and tender as set out in 29 CFR 1910 Subpart T, or applicable federal, state or regional legislation.	
Copy current of Standard First Aid/CPR and oxygen therapy certificate for each member of the dive team.	
Copy of divers' medical certificate of fitness (Required every 2 years until age 39, then requires annual recertification)	
Copy of the contractors safe diving procedures including emergency procedures	
SDSs for potentially hazardous substances to be used	
A copy of the accident and emergency evacuation procedures has been posted which includes the location and telephone numbers of: <ul style="list-style-type: none"> • Ambulance • Hospital • Physician • Recompression Chamber • Air Transport (for remote areas) • Police • Occupational Health and Safety • Location of dive site (civic address or latitude/longitude) • Notice to Shipping Authority or Port Authority if applicable 	

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A copy of the emergency line signals that will be used between the diver and tender in the event the 2-way voice communications malfunction is to be posted	
Logbooks: the supervisor's daily record and the divers' logbooks must be on site	
A copy of the letter, signed by the employer, that delegates a competent person to be the dive supervisor, is to be on site	
When the maximum depth of the dive exceeds 30 feet, decompression tables shall be at the dive location (OSHA 1910.422 (d)). (Sport diving tables are not acceptable.) Note: The use of dive computers is not to be considered as a replacement for commercial air diving tables	
A copy of the Certificate of Analysis for the breathing air compressor	
Maintenance/service records written materials necessary for maintaining and operating the diving equipment to be used in the diving operation will be made available at the dive site	
A copy of the OSHA 1910 Subpart T or equivalent consensus standard.	
A copy of a valid Pleasure Craft Operators Card, (if applicable to the jurisdiction) for each member of the dive team will be on site (if they are in the boat)	
Required Equipment, Conditions and Actions	
Only surface supplied air diving is allowed at Tampa Electric (No SCUBA unless sufficient documentation with justification has been provided and approved)	
Safe means to enter and exit the water	
Safe means to recover an injured or unconscious diver	
First aid kit appropriate for the size of the dive team including an oxygen therapy kit with sufficient capacity to reach medical services	
A stretcher	
Fire extinguishers and absorbent material	
Buoys, flags, placards etc. are to be placed to define the boundaries of the dive site to be avoided by any equipment or watercraft not connected with the diving operation	
A daily dive brief has been conducted with the dive team and has been documented	
Rescue boat when diving from a floating barge or platform or where a boat is necessary for rescue of an injured or unconscious diver or evacuation	

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The watercraft is operated by or under the direct supervision of a competent person, who USCG approved boating safety course (if applicable) and has received additional instruction in the safe operation of the watercraft approved by the employer

Surface-Supplied Diving Crew Requirements

Minimum crew:

- Supervisor
- Diver
- Standby diver
- Divers' tender

The supervisor must always be on the dive site while a dive is being conducted. The supervisor must not dive unless it is a health and safety emergency or has delegated the duties of the diving supervisor, in writing, to another person on the dive site that is competent to perform the duties of the diving supervisor.

Standby diver must be fully equipped to dive. All life support and communications equipment will be tested prior to the dive, for the purpose of rendering assistance to a submerged diver in the event of an emergency.

- Must not dive unless it is an emergency

The Dive Tender must always tend the diver's umbilical during a dive.

Divers to wear a full-face mask (i.e., band mask) or a helmet with hard wired 2-way voice communications (a helmet will be worn by the diver if the dive exposes the diver to a potential head injury)

Personal dive equipment:

- diving suit
- full body diving recovery harness with lifting ring(s)
- enough weight for safe buoyancy control
- an appropriate knife
- fins (unless deemed unnecessary by risk assessment)
- gloves

Surface-Supplied Diving Equipment

An umbilical bundle that incorporates, as a minimum, an air supply line, a lifeline, a communications wire and other cables, hoses and ropes as required

- The standby diver's umbilical will be at least 3 meters or 10 feet longer than any diver's umbilical

Primary breathing air supply

- For surface-supplied diving there must be enough breathing air to complete the dive as planned

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Secondary breathing air supply (for use in emergency)

- For a surface-supplied dive there must be enough breathing air to enable the diver to safely return to the surface in accordance with any decompression commitments and procedures for the dive.

One of the following 3:

- LP Compressor and Volume tank
- HP Compressor
- HP Storage bottles

A diver-carried supply of air or mixed gas (as appropriate) sufficient under standard operating conditions to allow the diver to reach the surface, or another source of breathing gas, or to be reached by a standby diver. (OSHA 29 CFR 1910.402)

Communications:

Must allow for 2-way voice communications between a diver and the diving supervisor (the standby diver will have 2-way voice communications as well)

Alternative energy systems:

In the event of a power failure there must be a secondary source or backup power source for the diving system equipment

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