Empire Wind 1

Case 21-T-0366

Appendix J.3

Safety Procedures During Construction -

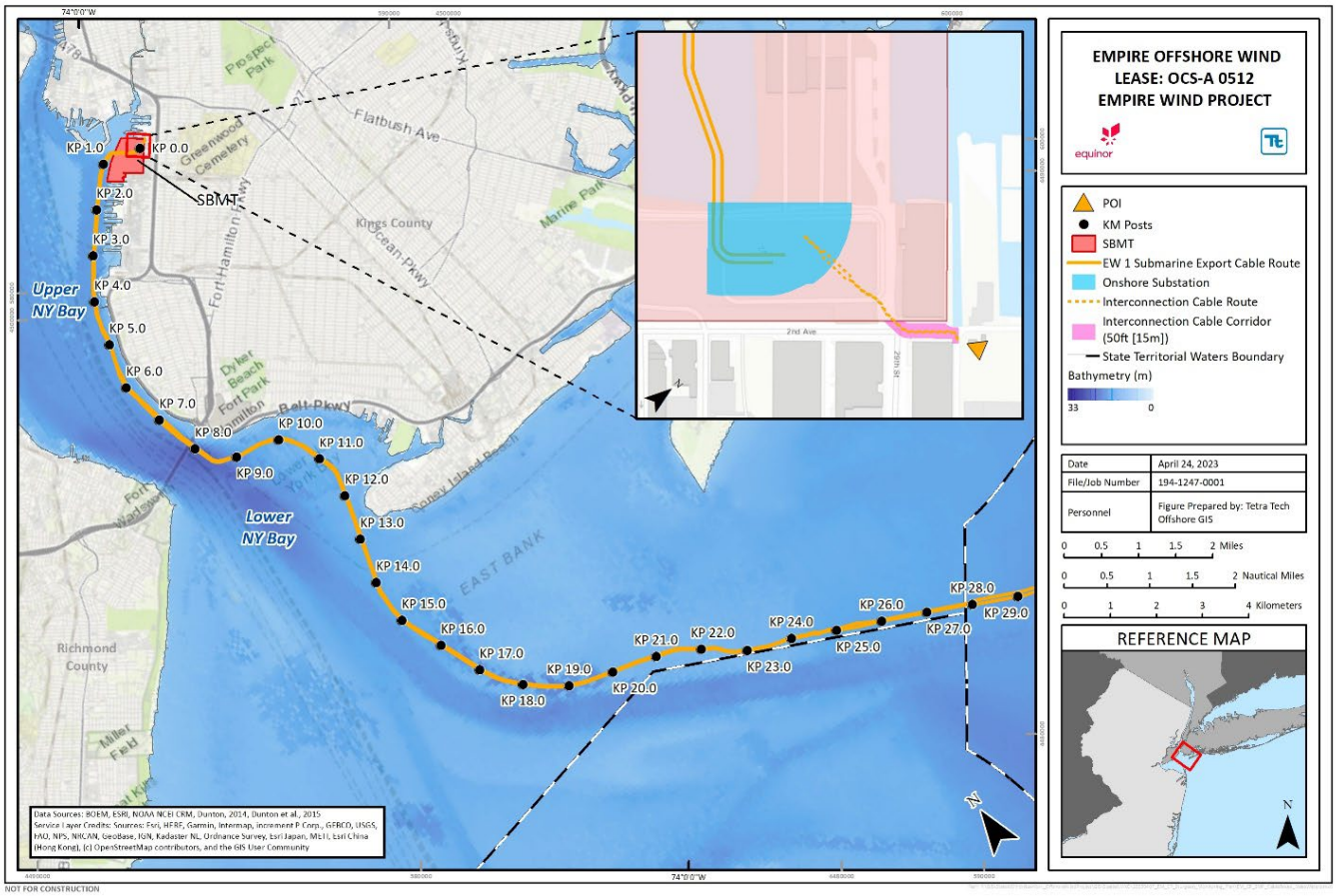
Offshore Construction Health and Safety Plan

Note that this Appendix has multiple volumes due to different scopes of work being performed within the Part 2 EM&CP by two different contractors. Please reference the figure below (from the EM&CP narrative).

J.1 – Work performed by Nexans onshore for export cable landfall

J.2 – Work performed by Nexans within state waters

J.3 – Work performed by Skanska between the 29th and 35th Street piers at SBMT up to KP 0.6



Empire Wind 1 Project

Case #21-T-0366

Offshore Construction

Health and Safety Plan

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1. INTRODUCTION

Empire Offshore Wind LLC (Empire) proposes to construct and operate the Empire Wind 1 (EW1) Project as one of two separate offshore wind projects, both to be located within the Bureau of Ocean Energy Management (BOEM) designated Renewable Energy Lease Area OCS-A 0512 (Lease Area). The proposed transmission system for the EW1 Project will connect the offshore wind farm to the point of interconnection (POI) and will include 230-kilovolt (kV) export and 345 kV interconnection lines traversing a total of approximately 17.5 miles (mi) (15.2 nautical miles [nm] or 28.2 kilometers [km]) within the State of New York. An electric transmission line with a design capacity of 125 kV or more, extending a distance of 1 mile or more, is subject to review and approval by the New York State Public Service Commission (Commission or NYSPSC) as a major electric transmission facility. This Environmental Management and Construction Plan (EM&CP) is being submitted to the Commission pursuant to Article VII of the New York Public Service Law (PSL) for the portions of the EW1 Project transmission system that are located within the State of New York (collectively, the Project). The Project will interconnect to the New York State Transmission System operated by the New York Independent System Operator, Inc. (NYISO) at the Gowanus 345 kV Substation (the point of interconnection, or POI). The Gowanus 345-kV Substation is owned by the Consolidated Edison Company of New York, Inc. (ConEdison). The Project's onshore facilities, including the onshore cable route, onshore substation, and the POI, are located entirely within Brooklyn, Kings County, New York.

The Article VII components of the EW 1 Project include:

- Two three-core 230 kV high-voltage alternating-current (HVAC) submarine export cables located within an approximately 15.1 nm (27.9 km)-long submarine export cable corridor from the boundary of New York State waters 3 nm (5.6 km) offshore to the cable landfall in Brooklyn, New York
- A 0.2 mi (0.3 km)-long onshore cable route and substation including:
  - Two three-core 230 kV HVAC EW 1 onshore export cables buried underground from the cable landfall transition joint bays to the onshore substation
  - An onshore substation located at the South Brooklyn Marine Terminal (SBMT), which will increase the voltage to 345 kV for the onshore interconnection cables
  - Two 345 kV cable circuits, each with three single-core HVAC onshore interconnection cables, buried underground from the onshore substation to the POI.

2. PURPOSE

The purpose of this Offshore Construction Health and Safety Plan is to describe the safety related procedures and requirements for offshore construction work associated with the cable landfall approach, inclusive of the dredging and bulkhead improvement scopes of work performed by Skanska, Empire's contractor. The procedures outlined below were developed in consultation with Skanska and are required for the protection of all workers when working in or around water. These procedures must be implemented and enforced on site in conjunction with federal, state, and local regulations as well as other applicable regulations such as permit specifications, site specific emergency rescue protocols, site specific inclement weather and lightning plans, and client site-specific requirements.

3. LEGAL AND OTHER REQUIREMENTS

Relevant health and safety regulations include:

- OSHA Regulations (as applicable to the work being conducted)
    - OSHA 29 Code of Federal Regulations (CFR) 1926
    - OSHA 29 CFR 1910
    - OSHA 29 CFR 1915
- Diving Operations require compliance with the NORSOK U-103 standard and compliance matrix
- United States Coast Guard Diving Policies and Procedures Manual, June 2009

4. PROCEDURE

4.1 General Requirements

1. A United States Coast Guard (USCG) approved 30-inch life ring with 90-foot line attached and at least one portable or permanent ladder, which will reach the top of the apron to the surface of the water, is required on each work or support vessel. The distance between rescue equipment will not exceed 200 feet.
2. All employees will wear USCG-approved life vests with a USCG-approved whistle and water activated emergency light when they are on boats, barges, or within 6 inches of a leading edge over water.
3. Employees will work in pairs, particularly in isolated areas.
4. Projects must consider float coats and pants that meet ANSI Class II reflective standards in high hazard and cold weather conditions.
5. Vessels will be equipped with readily available retrieval hooks.
6. Skanska's fall prevention policy applies to all marine operations.
7. The Captain will conduct a headcount, communicate this via electronic text to the Skanska superintendent prior to leaving the Jersey City boat launch. The Daily Hazard Assessment (DHA) shall also be completed prior to launching and this document, completed electronically in PlanIt software application, will have the names of each person on the crew. Skanska personnel will have access to PlanIt documents at all times.
8. Diving Operations require compliance with the NORSOK U-103 standard and compliance matrix. A hyperbaric chamber will be required on site during diving operations.

4.2 Lifesaving Boats

1. When offshore construction operations are taking place, a lifesaving boat that meets regulatory requirements will be ready and immediately available for emergency rescue. The boat must be in the water or capable of being quickly launched by one designated person.
2. There must be at least one person present and specifically designated to respond to water emergencies and operate the boat at all times when there are employees over water. The designated operator must remain in the immediate area to be able to quickly reach the boat and get underway.
3. When the operator is on break, another operator must be designated to provide coverage. The boat operator may be assigned other tasks provided they do not interfere with the operator's ability to quickly reach the boat.
4. Use a communication system, such as a walkie-talkie or radios, to inform the operator of the emergency and its location. Marine operations will communicate on marine channel 78. Boat operators will subscribe to USCG vessel traffic channels 13 and 14.
5. Equip the boat with both a motor and oars.
6. Do not overload boats.
7. Secure boats to prevent theft or vandalism (secure the oar(s) to prevent use by unauthorized individuals) during non-working hours.
8. Employees must stay seated when traveling in small boats to keep them stable.
9. USCG Requirements for boats include the following:

a. Anchor or mooring lines
b. Horn or whistle
c. 20-pound ABC-type dry chemical fire extinguishers
d. Lights for night operation
e. USCG-approved 30-inch life ring with 90-foot line attached
f. First aid kit
g. Diving operations require compliance with the NORSOK U-103 standard and compliance matrix.

4.3 Water Rescue

1. The following factors must be evaluated to determine the number of skiffs required and the appropriate maximum response time:
    a. The number of work locations where there is a danger of falling into water
    b. The distance to each of those locations
    c. Water temperature
    d. Currents and high seas
    e. Other hazards, such as other vessels, rapids, dams, and water intakes
    f. Inclement weather and lightning conditions.
2. A project specific emergency rescue plan will be developed for offshore operations.
3. Diving Operations require compliance with the NORSOK U-103 standard and compliance matrix.

4.4 Barges

4.4.1 General Requirements

1. Equip each barge with:
    a. USCG approved 30-inch life rings with 90-foot line attached and secured either to a stationary anchor or stanchion
    b. Guardrails, where practicable
    c. Two 20-pound ABC-type dry chemical fire extinguishers
    d. A first aid kit to handle severe injuries and to stop bleeding from large wounds, and a floating stokes basket (stretcher) with removable back board and neck brace/stabilizer
    e. A gangplank with standard guardrails (height of approximately 42 inches) along the full length on both sides
    f. Mooring lines
    g. Spill kits containing absorbent pads (typically 15 × 19 inches), sorbent socks (typically 3-inch diameter × 4 or 12 feet long), absorbent pillow (typically 18 ×18 inches), nitrile gloves, goggles, and disposal bags
    h. Flashlights
    i. Additional life vests
    j. A two-way radio
2. Ladders for access and rescue must be of sufficient length to be able to reach the water.

3. The foreman on each barge is responsible for keeping a supply of personal protective equipment on hand.
4. All superintendents, engineers and foremen will have up-to-date First Aid/CPR/AED training.
5. Signs should be posted on the barge with the company name and emergency contact phone number so the company can be contacted should the barge break free.
6. Post "NO WAKE" signs. Signs will be posted at the north and south side of the port 200 feet away from dredging operations. A tug tending to the site during dredging operations will enforce the USCG 200-foot safety zone rule for working dredges and immediately radio over to any vessel approaching the safety zone.
7. Maintain tires on the sides of barges near ladders to prevent damage to ladders and provide a safe zone if someone falls into the water.
8. Barges that have fuel storage compartments must have a Shipboard Oil Pollution Emergency Plan.
9. Barges must have the capability to accommodate crane tie-downs.
10. Local Notice to Mariners will be sent 14 days in advance advising of the dredge operation dates.
11. A check-in with Vessel Traffic Service (VTS) will be conducted every 2 hours.

4.4.2 Access to Barges

1. Vehicular ramps will be of adequate strength, provided with sideboards, well maintained, and properly secured. These should be treated as temporary works and should be tagged, inspected, and display signage with weight capacity and number of people allowed on the ramps.
2. Personnel ramps or gangways shall be sturdy, equipped with standard guardrails on both sides and a minimum of 20 inches wide.
3. Ramps or gangways are required at all times for access from barge to barge and barge to shore.
4. Ramps or gangways should be secured at one end only to allow for movement and tidal fluctuations.
5. Adequately illuminate ramps or gangways for their full length.
6. Non-slip paint or tape should be used to improve traction. Cleats are required on steep walkways.
7. Keep walkways clean and clear of mud, ice, snow, trash, oil spills, ropes, hoses, electric cords and other obstructions.
8. Do not climb over materials such as timber piling or debris unless they are stable, and a reasonable walkway has been provided.

4.4.3 Working Surface of Barges

1. Provide a 3-foot clear walkway grab rail or taut hand line around the perimeter of barges.
2. Marine superintendents will have an access and lay-down area to assist in housekeeping.
3. Keep rigging materials on racks.
4. Fuel and oil tanks must not be filled beyond the manufacturer's capacity.
5. Keep spill kits readily available to contain and clean up spills.
6. Before storing large quantities of fuel or oil on a barge, contact an environmental clean- up service, who can respond immediately if a large spill occurs that the project team cannot handle.

7. In the event of a spill, contact local environmental authorities, the USCG and construction manager.
8. All machinery on barges will have drip pans or containment areas to catch spills. All drip pans or containment areas will be inspected daily.

4.4.4 Securing Barges

1. Each barge, tug, crew boat or other sizeable vessel should be secured with at least two spuds, anchors or mooring lines. Inspect all lines daily, and replace rotted, worn or undersized ropes. Do not leave a vessel until it has been properly secured.
2. Superintendents must monitor the rise and fall of the tide and make sure that mooring lines have enough slack so they will not be stretched to the breaking point.
3. Paint areas where anchor lines cross barge decks with bright colored striping.
4. Do not sit or stand on anchor lines or use them as a handhold.
5. Post signs stating, "Do Not Stand Here," in areas where cables can potentially strike employees if they break (i.e., anchor lines, snatch blocks, fairleads).
6. Lights are required to warn boaters of barges, anchor lines and other marine obstructions. When lights are not possible, use buoys, flags, signs, Styrofoam® (or equivalent) blocks, balls, or other visual warnings.
7. Give written notice to the USCG requesting that they publish the location of barges and other marine obstructions in the "Notice to Mariners." Post the names and phone numbers of the USCG representatives in case of an emergency.
8. On docks, roads, ramps, flexi-floats, barges, etc., where vehicles or equipment are being driven or operated, use berms or sideboards of adequate strength and height to keep equipment from driving off into the water.
9. Secure all rubber-tired equipment and unstable objects that can roll or be thrown overboard by wind, waves, or vandals.
10. Remove stub ups and tie downs that are no longer in use from the decks of the barges to prevent tripping. Mark protrusions that cannot be removed with a bright colored paint, cone, or other obvious marking.
11. Equip cranes and other heavy equipment with swing radius protection.
12. Tie down cranes and other heavy equipment to the barge.
13. De-rate crane load charts while operating on marine barges in accordance with manufacturer requirements.
14. Post a marine rated load chart in every crane that is set up on a barge or other marine vessel. Make operators aware of the reduced lifting capacity and other different handling characteristics of a barge-mounted crane.
15. Cranes and other aerial equipment such as man lifts must stop immediately (except to correct the list) on any barge that is listing out of the ordinary.
16. Load and unload boats, barges, and Flexifloats® (or equivalent) carefully to keep them stable and balanced.
17. The competent person on each shift will visually check floating equipment for listing or instability due to leaks or unbalanced loads.
18. Keep pumps readily available for leaking boats and barges.

19. Only enter barge voids under the supervision and direction of a trained and designated Shipyard Competent Person acting under the guidance of a Certified Marine Chemist. Follow Skanska's Confined Space Procedures.
20. Install guardrails or temporary barricades around all open hatches.
21. Include a severe weather plan in the project's emergency action plan.
22. Project team shall determine what conditions, such as strong currents or large waves, will halt the use of small boats.

4.5 Diving

4.5.1 General Requirements

1. Divers will not be used if work can be accomplished by other means. Otherwise, coordinate all diving operations with the regional EHS Director. Superintendents must monitor the rise and fall of the tide and make sure that mooring lines have enough slack so they will not be stretched to the breaking point.
2. Diving contractor will develop and maintain a safe practice manual that encompasses the entire diving program.
3. A site-specific emergency plan will be generated and include the location of the hyperbaric chamber on site, contact details for the duty diving doctor, notification routines, emergency, and treatment procedures, including the transportation of injured divers.
4. Emergency drills are required prior to the start of diving operations.
5. Use surface supplied air whenever possible in accordance with the practical constraints of diving operations.
6. Provide breathing air Grade D or higher in accordance with the type of work being performed. Make arrangements with the local facility associated with the Diver's Alert Network.
7. Dive operations that require surface decompression shall have a hyperbaric chamber on site and a trained and designated competent person whose sole purpose is to attend to the decompression chamber operation. The competent person shall be able to communicate with a diving physician. Hyperbaric chambers must comply with the DNVGL OS-E402 standard.
8. See US Army Corps of Engineers EM 385-1-1 Safety and Health Requirements Manual, Contract Diving Operations (section 30) for additional information.
9. Divers must wait a minimum of 12 hours before flying after every dive and 24 hours after multiple days of repetitive diving.
10. Maintain diving logs and submit them to Skanska daily.
11. All tools must be equipped with a dead man switch.
12. Diving operations must be conducted in compliance with the NORSOK U-103 standard and the associated compliance matrix.

4.5.2 Gas Supply

1. Primary and secondary gas supplies must be provided. Secondary gas supply must be immediately available to supply the diver and the standby diver. Secondary gas storage may be replaced by 2 compressors, each with separate power sources.
2. Standby diver shall have a primary gas storage of at least 30 minutes at the maximum planned diving depth.

3. Breathing gas shall be routed through dive spread dive control panel. Routing and gas pressure require inspection.
4. An oxygen analyzer with audio and visual hi/lo alarm is required on the diver's downstream gas supply if not air.
5. Auxiliary supply of breathing gas for diver shall comply with EN 15333-1 standard.

5.0 DIVERS/DIVE TEAM

The dive team must have a qualified diving supervisor and an assistant diving supervisor, diver, a stand-by diver, and one diver assistant (tender). A duty diving doctor must also be present at the site. All divers must have a diving certificate and medical certificate. The medical certificate must be from a doctor approved by the relevant national authority.

Subcontractors will demonstrate that:

1. Each diver is medically fit as attested by a licensed physician.
2. Each diver has documented training.
3. Each diver will have a nationally recognized certification in first aid and CPR that covers the use of oxygen systems.

6.0 TRAINING

Qualified diving supervisor must be present at the surface and must hold the following qualifications:

1. Comply with the NORSOK-103 Standard requirements for an assistant diving supervisor.
2. Have at least one work year of practical experience as an assistant diving supervisor. At least 200 hours of this practical experience shall have been served at a diving control panel.
3. Have carried out at least 200 commercial dives.
4. Have completed advanced first aid training and have received management training.
5. Have passed the examination for diving supervisors.
6. Have thorough knowledge of the work tasks to be carried out.
7. Assistant diving supervisor must have the following qualifications:
    a. Be a qualified surface-oriented diver (renewal of a certificate of medical fitness for divers, is not required).
    b. Be at least 24 years of age.
    c. Have at least two years of practical experience as a commercial diver and have carried out at least 100 commercial dives.
    d. Have undergone a training course at a qualified institution and have passed the final examination for assistant diving supervisors.
    e. Have completed an introductory Dynamic Positioning (DP) course and minimum 25 commercial dives from a DP vessel, if a DP vessel is directly engaged in the diving operation.
    f. Have thorough knowledge of Operator's requirements and Diving contractor's procedures, equipment, and routines.
8. The diving doctor must have the following qualifications:
    - Documented adequate theoretical background in diving medicine (minimum 60 hours)
    - Have documented practical experience in diving medicine corresponding to at least 1 year of work.
    - Have more than 3 years' practice after national authorization as a physician
    - Be medically fit to work under increased ambient pressure.
9. The diving subcontractor must have a responsible competent diving doctor (RCDD) contracted with the organization. The RCDD must have the following qualifications:
    - Be recognized as a specialist in occupational medicine.
    - Have documented adequate theoretical background in diving medicine.
    - Have documented practical experience in diving medicine corresponding to at least five years of work.
10. Hyperbaric chamber and trained professional required on site for diving operations.

7.0 EHS FORMS AND DOCUMENTS

1. Compliance matrix based on the NORSOK U-103 standard
2. Applicable Training
3. First Aid/CPR/AED training
4. Diver certification
5. Medical fitness certification
6. Risk analyses (HAZID, HAZOP, SJA etc.)
7. Health services (RCDD etc.)
8. Safety delegate service (established safety delegate organization etc.)
9. Emergency response system (notification plans, drills etc.)
10. A system for planned maintenance; a) system for collecting and storing diver exposure data; b) limits for monitoring parameters, including early warning, to be approved by the contractor's RCDD.
11. Plan for handling non-compliance with corrective actions and alternative solutions
12. Plan describing internal auditory activities.
13. Fire prevention plan including fire prevention for the dive spread.
14. Diver log books.

8.0 INCLEMENT WEATHER AND LIGHTNING

8.1 General Requirements

The Project team shall conduct a thorough review of offshore operations to determine locations acceptable for use as shelter on barges or vessels and to review offshore evacuation procedures.

Severe weather responses shall be included in the project's Emergency Action Plan.

A project specific severe weather and lightning plan will be developed.

The project team will continuously monitor local weather reports and inform employees of the potential for inclement weather impacts. In the event of inclement weather approaching, the team will make a decision 48 hours in advance to cease dredging operations and seek safe harbor in Donjon's home base at Port Newark.

The following can be used to monitor for inclement weather and lightning: www.noaa.gov, weather.gov, lightning tracker mobile application, portable lightning detectors, USCG vessel traffic channels 13 and 14, working marine channel 78, local radio or television stations, etc.

Cranes and equipment and local legal restrictions shall follow the manufacture's requirements. When a crane is used, Skanska's crane policy shall be followed.

Project leadership will make the decision to stop work as a result of inclement weather and determine the appropriate communication method. Examples: radio communication, horn blast, mobile warning system, etc.

Work shall not resume until project supervision communicates the All Clear to resume suspended activities. At designated shelter/muster locations, all personnel shall be accounted for before anyone may leave.

8.2 Wind

Weather monitoring for wind conditions will be monitored using the resources identified under 8.1 General Requirements.

Offshore crane operations will adhere to wind limits identified in the work permit specifications. The manufacturer's requirements regarding the effects of wind speed shall also be identified and the more stringent regulation/specification will be adhered to. Cranes that are not equipped with an anemometer shall have a means (e.g., handheld device, etc.) to identify local wind speeds that could potentially have an adverse effect on the crane operations.

Upon notice of inclement weather, the barge will be secured. Materials that could possibly become airborne (i.e., plywood and loose debris) will be secured.

8.3 Thunderstorms and Lightning

Continuous weather monitoring will be conducted for all offshore operations, and the process detailed in the project specific weather and lightning plan will be followed.

When the nearest lightning strike is within 6 miles, all employees must cease offshore operations, secure equipment, and seek shelter. Activities may not resume for 30 minutes.

Weather monitoring will be conducted using www.noaa.gov, weather.gov, lightning tracker mobile application, portable lightning detectors, USCG vessel traffic channels 13 and 14, working marine channel 78, local radio or television stations, etc.

The count method may be used in addition to the weather monitoring through the resources listed above.

Count the time between the lightning and the thunder—for each 5 seconds between, the lightning is 1 mile away. See the following list:

- Activate lightning safety plan at count of 30 or 6 miles away and don't resume activities for 30 minutes.
- If thunder is heard, the lightning is:
    - 5 seconds after a flash 1 mile away
    - 10 seconds after a flash 2 miles away
    - 15 seconds after a flash 3 miles away
    - 20 seconds after a flash 4 miles away
    - 25 seconds after a flash 5 miles away
    - 30 seconds after a flash 6 miles away
    - 40 seconds after a flash 8 miles away
    - 50 seconds after a flash 10 miles away

9.0 HEAT AND COLD RELATED ILLNESS

The purpose of this program is to establish safe working guidelines when employees are working in hot or cold environments that could result in an injury or illness.

9.1 Legal and Other Requirements

Relevant health and safety regulations:

- OSHA 29 CFR 1926.28 Subpart C General Safety and Health Provisions - Personal protective equipment
- OSHA 29 CFR 1917.95 Subpart E Marine Terminals - Personal Protection
- OSHA 29 CFR 1910.141 Subpart J Occupational Safety and Health Standards - Sanitation
- OSHA 29 CFR 1926.50 Subpart D Occupational Health and Environmental Controls - Medical services and first aid
- OSHA 29 CFR 1910.132 Subpart I Personal Protective Equipment - General requirements
- OSHA Technical Manual Section III: Chapter 4 - Heat Stress
- OSHA 29 CFR 1926.21 Subpart C General Safety and Health Provisions - Safety training and education
- OSHA 29 CFR 1915.152 Subpart I Occupational Safety and Health Standards for Shipyard Employment - Personal Protective Equipment.

9.2 Equipment

OSHA 29 CFR 1904.7 Subpart C Recording and Reporting Occupational Injuries and Illness - General recording criteria.

9.3 Procedure

9.3.1 General Requirements

1. Evaluate work environment to identify potential exposures to hot or cold conditions.
2. Acclimate all employees to the ambient temperatures prior to working a full work schedule.
3. Train employees in the recognition of a heat or cold related illness and have a means to initiate emergency response.
4. Remind employees to drink plenty of water throughout the work shift.

9.3.2 Hot Environment

1. Provide one or more accessible shaded areas in accordance with local requirements.
2. During a heat wave, supervisors shall closely observe all employees. For purposes of this section only, “heat wave” means any day in which the predicted high temperature for the day will be at least 85 degrees Fahrenheit and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding 5 days.
3. Supervisors shall closely observe all employees in accordance with local requirements, who have been newly assigned or returning to work after a prolonged absence to a high heat area for the first 14 days.

9.3.3 Cold Environment

1. Employees shall wear layered clothing.
2. Establish areas where employees can warm up.
3. Closely observe employees to identify signs of frost bite or hypothermia.
4. Provide winter hard hat liners during times of cold weather.
5. Employees shall wear insulated gloves (water resistant if necessary) to protect their hands.
6. Project teams shall monitor the weather conditions during a winter storm and have a reliable means of communicating with workers in order to stop work or evacuate when necessary.