STATEMENT OF WORK (SOW)

Milford, CT Laboratory Salt (Sea) Water Pump and Electrical Infrastructure System Upgrade

Date: 4 August 2026

1.0 GENERAL

1.1 BACKGROUND

The Northeast Fisheries Science Center (NEFSC) operates under the National Marine Fisheries Service (NMFS), a part of the National Oceanographic and Atmospheric Administration (NOAA). The agency's core mission is the stewardship of living marine resources.

To support ongoing facility resilience, process fluid infrastructure, and reliable laboratory operations, the facility requires a complete replacement and modernization of its salt water pumping system and associated electrical infrastructure. The existing system must be decommissioned to make way for corrosion-resistant equipment capable of surviving a harsh coastal environment.

1.2 SCOPE

The scope of this project is the complete decommissioning of existing system, and procurement, installation, and wiring of a new corrosion-resistant salt water pumping system and its supporting electrical distribution and plumbing infrastructure. The Contractor shall furnish all labor, materials, equipment, transportation, and supervision required to execute the following transitions:

- Removal of legacy disconnects, starters, wiring troughs, wiring, breakers, enclosures and plumbing piping.
- Procurement and installation of a Vanton Chem-Gard® non-metallic horizontal centrifugal pump assembly or equivalent.
- Installation and configuration of four (4) active WEG variable frequency drives (VFDs/Inverters) and associated NEMA 4X enclosures or equivalent.
- Upgrading local field instrumentation, current transducers, and electrical distribution wiring.
- Delivery of required on-site backup components (spares) directly to facility inventory.

1.3 OBJECTIVE

To safely remove legacy infrastructure and deliver an operational, highly reliable, and corrosion-resistant salt water pumping system that offers precise local motor control for the Main Building at the Milford Laboratory.

2.0 SPECIFIC REQUIREMENTS / TASKS

2.1 TASK 1: Pre-Construction & Engineering Requirements

- **Submittals:** The contractor shall submit a Site-Specific Safety Plan (SSSP) and any necessary Hoisting/Crane/Installation Plans to the designated Contracting Officer Representative (COR) for pre-approval.
- **Material Approval:** The contractor shall email the COR all project supplies, materials, and equipment specifications for prior approval before ordering.

2.2 TASK 2: Legacy Infrastructure Demolition

- **Electrical & Pump Decommissioning:** Safely isolate, apply Lock-Out/Tag-Out (LOTO), disconnect, and completely remove all existing electrical disconnects, motor starters, electrical wiring and plumbing associated with the legacy pump system.
- **Enclosure Removal:** Demolish and remove the existing legacy wire trough, old relay enclosure, and button enclosure.
- **Pipe Containment:** Install terminal/junction boxes on the Pumps pipes to securely transition or isolate the existing runs as specified.

2.3 TASK 3: Pump System & Electrical Installation

2.3.1 Pump Operating & Process Fluid Parameters

The procured pump assembly must be rated for continuous duty matching the following parameters for pumps supplying Building #1:

- **Fluid:** Salt Water
- **Specific Gravity (SG):** 1.03
- **Temperature:** Ambient
- **Flow Rate:** 200,000 GPD Gallons Per Day.
- **Total Dynamic Head (TDH):** 100 Feet

The procured pump assembly must be rated for continuous duty matching the following parameters for pumps supplying Building #4:

- **Fluid:** Salt Water
- **Specific Gravity (SG):** 1.03

- **Temperature:** Ambient
- **Flow Rate:** 350 GPM Gallons Per Minute
- **Total Dynamic Head (TDH):** 10 Feet

2.3.2 Pump Mechanical Specifications

The contractor shall supply and install:

- **Manufacturer/Model:** Two (2) 10HP Vanton Chem-Gard® ANSI horizontal centrifugal pump, Model CGA-PY3X2X6-OP (A-10), brand name or equivalent (To supply building #1).

- **Manufacturer/Model:** Two (2) 15HP **(**Vanton Chem-Gard® ANSI horizontal centrifugal pump, Model CGA-KY4X3X10-OP (A-70) brand name or equivalent (To supply Building #4).
- **Fluid Contact Parts:** Homogeneous,(KYNAR) non-metallic materials.
- **Impeller:** Dynamically balanced, keyed, semi-open design. **Diameter:** TBD (To Be Determined based on final performance curve selection).
- **Shaft & Sleeve:** Stainless steel shaft, wet end sleeved with PVDF (Kynar).
- **Materials of Construction:** Kynar.
- **Suction & Discharge Connections:** 3" x 2" Flanged.
- **Impeller: dynamically balanced keyed, semi open design. Diameter:** TBD (To Be Determined based on final performance curve selection) Impeller material must be (KYNAR).
- **Shaft & Sleeve:** Stainless steel shaft, wet end sleeved with PVDF (Kynar).
- **Materials of Construction:** Polypropylene (Kynar)..
- **Suction & Discharge Connections:** 3" x 2" Flanged.
- All newly installed sea water pumps shall be placed on spring isolators to minimize vibration on the existing concrete pad.
- All plumbing piping shall be reconfigured to accommodate the newly installed pumps.
- **Sealing System:** Double Mechanical Seal (#8 & #21).
    - *Inner Seal Code:* XVLIVLI-1.25-FF
    - *Outer Seal Code:* XP-ICI-1.25-21
    - *Water Jacket:* Flush Face (External seal water supply required).
- **O-Rings & Gaskets:** Viton.
- **Accessories:** Pedestal and Coupling Guard included.

2.3.3 Electrical Distribution & Wiring Upgrades

- **Breaker Replacement:** Remove legacy breakers and replace with two (2) new GE TED Breakers, brand name or equal, in the main power panel.
- **Feeder Wire Upgrade:** Upgrade and route new properly rated THHN wiring from the power panel to the new disconnect locations.
- **Disconnects:** Provide and install eight (8) NEMA 4X non-metallic disconnects (Hubbell, Leviton, or approved equal).

- **Trough Replacement:** Replace the removed legacy trough with a new 8" x 8" NEMA 4X wire trough.
- **VFD Drive Cabling:** Provide, route, and install four properly rated (4) VFD-rated drive cables running from the new inverters directly to the pump motors.

2.3.4 Motor Drives, Enclosures, & Control Integration

- **Inverter / VFD Installation:** Provide and install four (4) WEG Inverters (VFDs**)**, Two (2)rated at 10HP and two rated at 15HP, NEMA 4X, brand name or equal..
- **Enclosure Upgrades:** Replace the legacy relay and button boxes with a new NEMA 4X Relay Enclosure and a new NEMA 4X Button Enclosure, .
- **Sensors:** Replace four (4) existing Kobold, brand name or equal, sensors and boxes. Provide an additional two (2) spare identical sensor/box units to the COR (6 total sensor units procured).
- **Current Transducers:** Provide and install four (4) ACUAMP 3ACT CT units, wired exclusively for motor monitoring only.
- **Control Automation:** Wire system relays to manage the Start Control on the WEG inverters. Configure the system for motor speed control to be operated locally via the inverter integrated keypads.

2.3.5 Lighting Systems

- Install one (1) new LED fixture in the designated pump room/area.
- Replace lamps all existing local lighting fixtures in the work zone with energy-efficient LED bulbs.

3.0 CONTRACTOR PERSONNEL

- **Legal Status:** The Contractor shall provide proof that all on-site employees are legal aliens or US citizens.
- **Background Restrictions:** The Contractor shall not employ personnel with felony convictions, or with a record of narcotics use, for work at any NEFSC property.
- **Property Damage Liability:** The Contractor shall be liable for the repair or replacement of any Government property damaged by Contractor personnel.

4.0 OTHER APPLICABLE CONDITIONS

4.1 PLACE OF PERFORMANCE

All work will be performed at the NOAA Northeast Fisheries Science Center (NEFSC) Main Building located at 212 Rogers Ave Milford, CT 06460.

4.2 PERIOD OF PERFORMANCE

- The actual start date shall be coordinated directly with the COR and the Contracting Officer (CO).
- The Contractor shall be required to complete all work between 10/1/2026 and 12/1/2026 or within (60) Calendar Days Upon receipt of the Notice to Proceed (NTP).

4.3 HOURS OF OPERATION / ACCESS TO THE WORK SITE

- Standard working hours shall be 7:00 AM – 3:30 PM (Monday through Friday). The contractor shall observe all federal holidays.
- Any night or weekend work requires prior coordination and explicit approval from the COR.
- All personnel employed within the boundaries of the property or restricted-access areas shall comply with the security regulations for the NEFSC Milford Laboratory.
- The Government reserves the right to close down the job site and order Contractor personnel off the premises in the event of a national emergency or shutdown. The Contractor may only return to the site with verbal approval from the COR.
- The Government reserves the right to exclude or remove from the site any employee of the Contractor or subcontractor whom the Government deems incompetent, careless, insubordinate, or otherwise objectionable.

4.4 EXISTING CONDITIONS

- If discrepancies are discovered between the actual existing field conditions and those noted within this SOW or accompanying drawings, the Contractor shall immediately notify the COR.
- The Contractor shall immediately notify the COR if bidding documents are found to be incomplete, or if discrepancies/omissions are discovered.

4.5 DELIVERY, STORAGE, HANDLING, AND PROTECTION

- Deliver materials to the job site in the manufacturer’s original, unopened containers or wrappings with labels, brand names, and installation instructions intact and legible.
- Deliver materials in sufficient quantities to permit continuous, uninterrupted progress.
- Comply strictly with the manufacturer’s written instructions for proper material storage. Any damaged materials shall be removed and replaced at the Contractor's sole expense.
- Care shall be taken to ensure total protection of surrounding campus structures, hallways, and interior building elements.

4.6 WARRANTY

- The Contractor shall provide a written comprehensive warranty for service, including labor and materials, for a period of 5 years from the date of system acceptance with no dollar limitation. This must include all associated manufacturer's warranties.

4.7 WORKMANSHIP & QUALITY ASSURANCE

- All work shall be of the highest quality, executed by an adequate number of experienced workers regularly skilled in this specific trade.
- Work must strictly align with the manufacturer's published specifications, recent codes, building standards, and the building owner's satisfaction.
- A dedicated Site Superintendent (who must be a direct employee of the General Contractor) must be on-site at all times while work is actively in progress.
- No deviations may be made from this specification or approved shop drawings without prior written approval from the COR. Any installation deviations must be backed by written certification on the manufacturer's letterhead.
- Substitution Requests:
    - Substitution requests are not permitted prior to the Notice to Proceed (NTP).
    - Requests must be submitted in writing to the COR post-award. The COR will have seven (7) working days to approve or disapprove.
    - Approved substitutions shall not result in project schedule extensions.
- Contractor shall submit manufacturer cut sheets and literature for all products to the COR for final approval. Quality Control remains the sole responsibility of the Contractor, alongside all incidental repairs.

4.8 FACILITIES AND CONTROLS

- **Waste Management:** Remove and dispose of all debris and trash from the job site in a timely, legally acceptable manner. Perform daily clean-ups to collect all wrappings, empty containers, and paper.
- **Environmental Compliance:** Comply with all applicable Federal, State, and local environmental pollution control and waste disposal laws. Immediately inform the COR of any environmentally hazardous situations.
- **Site Approvals:** Before beginning work, secure COR approval for site access, parking, designated material storage areas, and use of any Government facilities.
- **Campus Rules:** Obey all government requirements for personnel identification and inspection. The NEFSC is a strictly **smoke-free campus**; the Contractor and all employees must adhere to this policy.

4.9 SAFETY & JOB CONDITIONS

- **Safety Plan Submittal:** Five (5) days after NTP and prior to the start of work, the Contractor shall submit a comprehensive Site-Specific Safety Plan (SSSP). This plan must cover open flames, welding, debris management, workplace safety methods, and emergency procedures. It must be accessible on-site at all times.
- **Regulatory Compliance:** The Contractor is solely responsible for safety means and methods and must comply with all current OSHA, NEC, NFPA, EPA, local, state, and federal requirements. Compliance with **29 CFR Part 1910** (OSHA General Industry) and **29 CFR Part 1926** (OSHA Construction Standards) is mandatory.
- **Public Safety:** Ensure work operations do not impact the safety of the public or facility occupants. Implement guards, fences, barricades, flags, and signs at the Contractor's expense wherever hazardous conditions exist.
- **Work Suspension:** If a life-threatening condition is observed by the COR, an oral directive (followed by written confirmation) will be issued to immediately suspend work in the affected area until the condition is corrected.
- **Reporting & Logs:** Submit **Daily CQC Reports** to TPOC Domenick Capomolla summarizing daily progress, weather conditions, and site discrepancies. Strictly observe Lock-Out/Tag-Out (LOTO) regulations.
- **Hazardous Materials & SDS:** Safety Data Sheets (SDS) must be kept on-site. A separate set must be provided to the COR fifteen (15) days prior to starting work. No hazardous material may be brought onto the premises without prior COR consent, and it must be stored in compliance with all environmental laws.

4.10 TECHNICAL CONSTRAINTS

- **Laboratory Continuity:** Work involving significant vibrations (such as core drilling or crane operations) must be coordinated 72 hours in advance to protect sensitive scientific experiments.
- **Fume Hood Integrity:** Ensure laboratory fume hood exhaust systems located on the roof are never blocked, restricted, or structurally compromised during mechanical integration.
- **Labor Compliance:** Strict compliance with Davis-Bacon Wage Determination **MA20260001** is mandatory for all applicable field labor.

5.0 GOVERNMENT TERMS & DEFINITIONS

- (See Appendix 1 & 2 for detailed expansions of applicable professional agencies, standards, and technical acronyms).

6.0 GOVERNMENT FURNISHED RESOURCES

- Reasonable amounts of utility water and electricity for construction purposes will be made available at the designated work site.

- The premises will be occupied by facility staff and scientists during the performance of this work.

7.0 CONTRACTOR FURNISHED PROPERTY

- All equipment, tool/machinery rentals, project materials, manpower, local permits, required testing, and associated fees shall be the exclusive responsibility of the contractor.
- The Contractor shall provide self-contained temporary toilet facilities, coordinating their physical location with the COR.
- The contractor shall provide secure storage for tools and materials. The Government bears no responsibility for providing storage space or security for contractor-owned equipment.

8.0 GOVERNMENT ACCEPTANCE PERIOD

- Inspection of all completed work will be conducted by the NEFSC Facilities Operations Manager and/or the COR.
- Any corrective action identified during government inspection must be successfully resolved prior to final billing processing.
- Deficiency notifications will be issued in writing (or confirmed in writing if delivered orally). The Contractor shall take immediate corrective action.
- The Government will not formally accept the work until it determines that all elements have been satisfactorily completed within the parameters of this contract.

9.0 DELIVERABLES

The primary deliverable is an operational, modernized salt water pumping station complete with integrated NEMA 4X VFD control controls, upgraded wiring infrastructure, and delivered spare hardware components.

The contractor must maintain open communication with the COR, coordinate the work schedule to ensure continuing facility access, and strictly comply with construction industry best practices.

Deliverables Schedule Table

Item	SOW Reference	Deliverable / Event	Due By	Distribution
1	2.1	Installation Plan and Schedule	5 Days after Notice to Proceed (NTP) and prior to start of work.	COR, Contracting Officer
2	4.7 & 4.8	All Material and Supplies Documents / Specification Sheets	5 Days after Notice to Proceed (NTP) and prior to start of work.	COR, Contracting Officer
3	4.9	Safety Plan	5 Days after Notice to Proceed (NTP) and prior to start of work.	COR, Contracting Officer
4	4.9	Safety Data Sheets (SDS)	10 Days after Notice to Proceed (NTP) and prior to start of work.	COR, Contracting Officer
5	4.7	Substitution Requests	Post-Award; COR will have seven (7) working days to approve/disapprove.	COR, Contracting Officer
6	2.1	Site-Specific Safety Plan (SSSP) & Installation/Rigging Plan	Post-NTP; submitted to COR prior to the start of work.	COR
7	4.7	CQC Reports	Submit Daily	COR
8	—	Final Inspection	Upon completion; walkthrough with COR.	COR
9	4.6	5-Year Warranty Document	Prior to final project acceptance.	COR, Contracting Officer
10	—	Post-Award Conference	Prior to Period of Performance End Date.	All Parties

APPENDIX 1

PROFESSIONAL AGENCIES, ASSOCIATIONS, CODES, COUNCILS, INSTITUTES, AND STANDARDS

- **ARI:** Air-Condition and Refrigeration Institute
- **AMCA:** Air Movement and Control Association International, Inc.
- **ABMA:** American Bearing Manufacturers Association
- **ACI:** American Concrete Institute
- **ALI:** American Ladder Institute
- **AISC:** American Institute of Steel Construction
- **ANSI:** American National Standards Institute
- **ASCE:** American Society of Civil Engineers
- **ASTM:** American Society for Testing and Materials
- **ASME:** American Society of Mechanical Engineers
- **AWS:** American Welding Society
- **CFR:** Code of Federal Regulations
- **DEP:** Department of Environmental Protection
- **EIA:** Electronic Industries Alliance
- **EPA:** Environmental Protection Agency
- **ISO:** International Organization for Standardization
- **IBC:** International Building Code
- **IEEE:** Institute of Electrical and Electronics Engineers
- **NACE:** National Association of Corrosion Engineers
- **NEC:** National Electrical Code
- **NFPA:** National Fire Protection Association
- **NIST:** National Institute of Standards and Technology
- **OSHA:** Occupational Safety and Health Act / Administration
- **NEMA:** National Electrical Manufacturers Association
- **RCRA:** Resource Conservation and Recovery Act
- **UL:** Underwriters Laboratories
- **USACE:** United States Army Corps of Engineers

APPENDIX 2

ACRONYMS

- **AST:** Aboveground Storage Tank
- **AWG:** American Wire Gauge
- **BMP:** Best Management Practices
- **CO:** Contracting Officer
- **COR:** Contracting Officer's Representative
- **COTR:** Contracting Officer's Technical Representative
- **CT:** Current Transducer
- **DEMARC:** Demarcation Point
- **DEMO:** Demolition
- **DWG:** Drawing
- **FT:** Feet
- **FM:** Factory Mutual
- **GA:** Gauge
- **GC:** General Contractor
- **GPM:** Gallons per Minute
- **HP:** Horsepower
- **IN:** Inch
- **IT:** Information Technology
- **LF:** Linear Feet
- **LOTO:** Lock-Out / Tag-Out
- **MAX:** Maximum
- **NTP:** Notice To Proceed
- **NTS:** Not To Scale
- **OC:** On Center
- **OD:** Outside Diameter
- **PSI:** Pounds per Square Inch
- **PVC:** Polyvinyl Chloride
- **PE:** Professional Engineer
- **PLC:** Programmable Logic Controllers
- **SCH:** Schedule
- **SF:** Square Feet
- **SG:** Specific Gravity
- **SQ:** Square
- **TDH:** Total Dynamic Head
- **THHN:** Thermoplastic High Heat-Resistant Nylon-Coated Wire
- **THK:** Thick
- **TYP:** Typical
- **UST:** Underground Storage Tank
- **VFD:** Variable Frequency Drive
- **VOC:** Volatile Organic Carbon