Project: Multiple Location BEQ Chiller Loop Flushing and Chemical Cleaning
Project Number / Contract Number: 26M086CN / 26-0431
Date: 3 June 2026
Location: Marine Corps Base Camp Lejeune (MCBCL) & Marine Corps Air Station New River (MCASNR)

1.0 Project Objective and Location

The contractor shall provide all engineering, labor, specialized equipment, transportation, and materials required to perform heated chemical cleaning, flushing, and passivation of the chilled water (CHW) closed-loop systems servicing the Bachelor Enlisted Quarters (BEQs) located at Marine Corps Base Camp Lejeune, North Carolina.

The primary objective is to remove organic soil, hydrocarbons, flux, pipe mill varnish, pipe compounds, and iron oxide. (Note: Removal of tightly adherent mill scale is not required). All work must comply with UFGS 23 25 00 (HVAC Water Treatment), Section 23 24 00 (Hydronic Pipe Cleaning), and MCBCL Division 1 administrative specifications.

1.1 Designated Flushing Locations (Package 1 & 2)

Work shall be executed in approved phases per the Multi-Building Phasing Plan.

Package	Building (BEQ) Numbers	Notes / Area Designation
Package 1	AS4004, AS4006, AS4007, AS4015, AS4206, AS4207, AS4208, M457, M458	Marine Corps Air Station / Camp Johnson
Package 2	1140, BB260, BB265, BB355, FC504, FC507, FC360, FC371, FC372, FC478, FC481, FC515, FC520, FC525, FC530, FC571, FC573, FC574, HP117, HP118, HP119, HP125, HP175, HP195, HP235, HP245, HP255, HP265, HP275, HP285, HP295, HP301, PP2, WC140	French Creek, Hadnot Point, Camp Geiger, Courthouse Bay, Wallace Creek

---

1.2 Designated BEQ Points of Contact (POC)

All communications regarding building access, Lock-Out/Tag-Out (LOTO) coordination, and localized system isolation must be routed through the designated BEQ Point of Contact (POC) listed below:

Package 1 POC

Building (BEQ) Numbers	Designated BEQ POC	Phone Number	Area / Notes
AS4004, AS4006, AS4007, AS4015, AS4206, AS4207, AS4208	Rwegasira A. "Reggie" Rugumamu	910-449-6006	Air Station
M457, M458	Aaron Green	910-450-0839	M-Area

Package 2 POCs

Building (BEQ) Numbers	Designated BEQ POC	Phone Number	Area / Notes
FC504, FC507, FC360, FC371, FC372, FC478, FC481, FC515, FC520, FC525, FC530, FC571, FC573, FC574	GySgt Alan Papstein	(910) 451-7515	French Creek
HP117, HP118, HP119, HP125, HP175, HP195, HP235, HP245, HP255, HP265, HP275, HP285, HP295, HP301, PP2, WC140, BB265, BB355	Chuck Callahan	910-451-8070	Hadnot Point / Camp Geiger / Courthouse Bay / Paradise Point
BB260	Casey Barnes	910-440-0713	Courthouse Bay
1140	Gene Rued	910-451-7457	Main Side

2.0 Material and Chemical Requirements

All chemicals must be acceptable for discharge into the sanitary sewer, pending MCBCL Environmental Affairs Division (EAD) coordination and approval.

Material Type	Section 23 24 00 Specification
Cleaning Compound / Detergent	Alkaline phosphate or non-phosphate detergent/surfactant (Suggested: Trisodium phosphate). Strictly Prohibited: Sodium nitrite, molybdate, or similar corrosion inhibitors in the detergent phase. The *only* permitted inhibitor during cleaning is sodium sulfite (oxygen scavenger).
Passivation / Treatment Chemicals	Sodium Sulfite, Sodium Lauroyl Sarcosinate, and Dipotassium Phosphate (used strictly as a pH buffer).
Volume Testing Agent	Fluorescent dye for fluorometric analysis.

3.0 Performance, Quality Control, and Execution

Execution must be coordinated with the Contracting Officer's Representative (COR) using the standard DoD Three Phases of Control. The contractor must meticulously adhere to the following sequence:

Phase	Technical Execution
Phase 1: Isolation & Volume Testing	Close terminal unit service valves and open bypass valves (or drive 3-way valves 100% to bypass without closing service valves). Install temporary bypass piping upstream of terminal unit supply and downstream of return. Fill system with water and fluorescent dye to determine exact system volume via fluorometric analysis.
Phase 2: Initial Heated	Introduce detergent to manufacturer's specified concentration. Utilize existing steam heating systems (or temporary boilers) to heat and maintain water

Circulation (48 Hours)	temperature at 120°F. Circulate for a minimum of 48 hours while bleeding water/solids from the air/solids separator. Modulate drain to maintain pressure and makeup water concentration. Do not exceed pump motor service factor amperage.
Phase 3: Terminal Unit Circulation (48 Hours)	Clean all strainers. Open terminal device service valves (AHUs, FCUs, VAVs) and close bypass valves. Circulate heated (120°F) detergent solution through the terminal devices for an additional minimum of 48 hours. Periodically check and manually clean all terminal units and pump strainers during this period.
Phase 4: Fresh Water Flush	Drain the system and thoroughly flush with fresh water. Coordinate with the MCBCL Construction Manager (CM) to demonstrate system water opacity runs perfectly clear. Remove the pump startup strainer and conduct a final manual cleaning of all y-strainers and inline screens (including all VAV screens).
Phase 5: Passivation & Chemical Treatment	Treat the system water to the following strict parameters: • Sodium Sulfite: 30-100 ppm • Sodium Lauroyl Sarcosinate: 30-100 ppm• pH: 8.5 - 9.5 (utilizing Dipotassium Phosphate as a buffer).

4.0 Testing, Signage, and Deliverables

The contractor must provide the following specialized mechanical deliverables via the Government's Electronic Construction and Facility Support Contract Management System (eCMS):

Deliverable	Description & Timeline
Longitudinal Water Testing Report	A formal report documenting the verified system volume, pH, and sulfite concentration levels for the initial treatment, plus mandatory retests at One (1) Day, One (1) Week, and Four (4) Weeks post-treatment. If levels fall out of range, retreatment and retesting are mandatory. Submit to the KO and MCBCL Mechanical Design Branch.

Mechanical Room Signage	Provide and install one permanent plastic sign (minimum 12"x12" with 1/2" engraved lettering) hung in an unobstructed view near the chemical shot feeder in each mechanical room. *See Section 4.1 for sign text*.
Permanent SDS Placement	Provide Safety Data Sheets (SDS/MSDS) for all treatment chemicals and permanently locate a physical copy in each mechanical room.

4.1 Mandatory Engraved Signage Text

The 12"x12" engraved signs must explicitly read:

"This hydronic system is treated to the following chemical parameters:
Sodium sulfite: 30-100 ppm
Sodium lauroyl sarcosinate: 30-100 ppm
pH*: 8.5 - 9.5
System Volume: [Insert Verified Volume] Gallons
*use Dipotassium Phosphate as pH buffer"

WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

5.0 Safety, Environmental, and Base Access Controls (MCBCL)

Category	Compliance Standard
Site Safety & Access	Full compliance with USACE EM 385-1-1. A dedicated SSHO must be present. All personnel require DBIDS badges and MCBCL UXO 3R training.
Wastewater & Effluent Discharge	Strict Zero-Tolerance Unauthorized Discharge Policy. While Section 23 24 00 states chemicals shall be acceptable for sanitary sewer, the Contractor must obtain written authorization from the MCBCL Environmental Affairs Division (EAD) prior to discharging any flushed effluent into the base sewer system.
Solid Waste & Landfill	The MCBCL Sanitary Landfill is strictly for non-contaminated dirt/gravel. All other construction debris (replaced strainers, metal fittings, construction waste) must

go to the Defense Reutilization Maintenance Office (DRMO) or an off-base commercial facility.