

CCGS Henry Larsen	Statement of Requirements	30/05/17
Supply of Matrix S3600 Seawater Reverse Osmosis System		

Part 1: PURPOSE

- 1.1** This statement of requirements is intended to provide a guide for the supply of one (1) new Matrix S3600 Seawater Reverse Osmosis (R/O) System for the CCGS Henry Larsen.
- 1.2** The new R/O unit is to be installed in parallel with the current Matrix S3600 unit and shall utilize the same chemical cleaning system and remineralizer assembly.
- 1.3** The ship is available for viewing of project requirements, on an appointment basis, at the Coast Guard Base, St. John's, NL.

Part 2: GENERAL REQUIREMENTS

- 2.1** The R/O unit shall be capable of year round operation in the North Atlantic on Canadian Coast Guard platforms.
- 2.2** The R/O unit shall be capable of meeting or exceeding the WHO and USPH health guidelines and shall be certified as such.
- 2.3** The R/O unit shall be compatible with the current installation and spare parts shall be interchangeable with the existing units.
- 2.4** The deliverables shall include the engineering, construction, and certification of the R/O unit.

Part 3: OPERATIONAL REQUIREMENTS

- 3.1** The R/O unit shall be capable of producing at least 3600 US gallons (13, 645 L) of fresh potable water per 24 hour period when operated in seawater at 25°C and have a total dissolved solids content of 36,000 mg/L.
- 3.2** The unit shall be supplied with Nickel-Aluminum-Bronze pumps for both the supply and high pressure pumps. Both pumps shall be supplied with the corresponding starters complete with overload protection.
- 3.3** The unit shall be supplied with three (3) spiral wound, thin film composite membranes complete with corrosive resistant fiberglass pressure vessels.
- 3.4** The unit shall be supplied with dual, 5 micron cartridge filtration.
- 3.5** The unit shall be fitted with high and low pressure switches for system protection as well as a high pressure pulsation dampener.

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- 3.6** The system electrical control panel shall be in a NEMA 4X FRP enclosure and all conduit and wiring shall be waterproof.
- 3.7** All system fittings shall be high-pressure rated and constructed from 316 stainless steel. Pressure gauges shall be glycerin filled and are to be constructed of either 316 stainless steel or Monel.
- 3.8** Instrumentation / controls shall include product and concentrate flow indicators, elapsed time meter, digital conductivity meter, and solenoid controlled diverter.
- 3.9** The R/O unit shall be supplied with a timed, fresh water flush option and with a 25 micron bag filter assembly option.

Part 4: PROOF OF PERFORMANCE

- 4.1** The R/O unit shall be supplied as factory tested and shall be inhibited for long term storage (greater than three months) after testing. All test certificates shall be included with the supply of the unit.
- 4.2** The R/O shall be drained of all water to ensure no damage will result should the unit be exposed to temperatures at or below freezing during storage.
- 4.3** The R/O unit shall be delivered in a self-contained aluminum structural assembly with components mounted on vibration absorption mounts.
- 4.4** The R/O is to operate from an existing electrical supply of 575V/3ph./60Hz.
- 4.5** All required electrical work shall conform to the requirements of the Transport Canada Publication TP127 – Ships Electrical Standards or IEEE 45 – Recommended Practice for Installations on Ships.
- 4.6** The supplied R/O installation shall be warranted until such time as the unit is installed by CCG or designated Contractor and “functionally” tested to prove correct operation and shall be subject to witness and acceptance by the Chief Engineer, or delegate.

Part 5: DELIVERY REQUIREMENTS

- 5.1** The Contractor shall deliver the new R/O unit to the CCGS Henry Larsen, c/o Technical Stores, 280 Southside Rd., St. John’s, NL.
- 5.2** The R/O unit shall be delivered complete with all other components required for a fully operational system.

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- 5.3** Delivery of the R/O unit shall include all necessary **spare parts** and special **tools** required for installation, testing, commissioning and trials. In addition, the supplier is to identify a list of recommended on-board spares and shall include the price of these spares as part of the overall submission.
- 5.4** In addition to paper copies of the specifications and drawings, the supplier is to supply Microsoft Word compatible specification files and AutoCAD (Latest Release) compatible drawing files either electronically or in hardcopy to the Technical Authority.
- 5.5** The Contractor shall deliver to the Technical Authority three (3) copies of comprehensive manuals describing the full installation, operation, and maintenance requirements of the new R/O unit. The manuals are to be completely legible and written in the English language. French language manuals shall also be included should they be available.