

integration and standardization.

## **RESCUE 21 System Capabilities**

The core function of the National Distress and Response System Modernization Project (NDRSMP) is to provide reliable two-way voice and data communications between shore stations, vessels and vehicles in the coastal maritime environment. Capabilities of the **RESCUE 21** system include:

**Communications Coverage.** The system provides coverage out to 20 nautical miles seaward of the Territorial Sea Baseline of the contiguous U.S. Coast, Hawaii, Puerto Rico, Virgin Islands, Guam and Gulf of Alaska coastal zone, including the Great Lakes, the Intracoastal Waterway, and Western rivers. Coverage is transmitted from a 1-watt omni directional transmitter at two-meters of elevation, the minimum transmit strength for a VHF radio. The standard VHF marine radio transmits at 25 watts, resulting in a considerably greater area of coverage.

**Position Localization.** Direction finding (DF) equipment, (accurate within two degrees) will be installed throughout. The DF equipment will provide, a minimum of one line bearing (LOB) to a voice transmission. The maximum search area to locate mariners, with a single LOB, is 25 square nautical miles. In many regions, the system will receive more than one LOB, reducing search area. A Digital Selective Calling (DSC) radio with a GPS will provide a pinpoint location.

**Digital Selective Calling (DSC).** The new system will include DSC send and receive capability in the entire coverage area. Low cost DSC radios are capable of instantly transmitting exact location, name of vessel, nature of distress and other vital information when used in conjunction with an integrated GPS receiver and properly Registered Maritime Mobile Service Identity (MMSI) number.

**Operational Availability.** Operational commanders and mariners generally rely on the NDRS 24/7 for vital communications. The new system will demonstrate a high state of operational readiness—99.50%—for all critical functions.

**Channel Capacity.** Sufficient capacity to perform in multi-functional areas and support multiple operations in the same or separate geographic areas, including six simultaneous communications channels to include distress channels 16 & 70 DSC, two VHF-FM channels, one UHF channel, and one VHF-FM or UHF data channel.

**Data Communications.** Send and receive data on communication channel at 9.6 Kbs. **Automated Broadcasts.** Both VHF-FM voice capability and auto transmission of marine information broadcasts.

**Interoperability.** Will interoperate with federal agencies (such as FEMA, DOD, FBI, Secret Service, DEA), and State and local government agencies (such as police forces and emergency service agencies) to support emergencies or natural disasters by using the Association of Public Safety Communications Officials' Project 25 standard.

**Maintainability.** The new system provides vital communications for Coast Guard units and mariners in many areas, thus a national maintenance strategy was developed to reduce system down time and meet the operational requirement of 99.50%.

**Automatic Asset Tracking.** The new system will be capable of automatically tracking the position of all Coast Guard mobile assets (i.e. vessels, aircraft, etc). This will enhance the Coast Guard's ability to coordinate all mission activities.

**Recordable Communications.** The new system digitally records, time stamps and provides an instant playback and archiving of communications, both voice and data.

**Protected Communications.** Provide covered (protected) communications of Sensitive, But Unclassified (SBU) voice and data information throughout the coverage area, using APCO - 25 standards.

**Recoverability.** Restore critical functions under degraded conditions ranging from accidents and natural disasters to conventional war within 24 hours and full recoverability within seven days.

## **Implementation**

The modernized **RESCUE 21** system will be deployed in the 46 Coast Guard Group Regions during a three-year period (FY03-FY06). The System will be deployed region by region in accordance with the implementation schedule with the first system being deployed in two Initial Operational Capability (IOC) or prototype regions (Groups Atlantic City and Eastern Shore). Once the system is installed, tested and properly operating in the prototype regions, deployment will begin starting with the Low Rate Initial Production (LRIP) regions (Groups St Petersburg, Mobile, Seattle and Port Angeles)

## **Process**

**RESCUE 21** deployment is built upon a 5-stage process. The first step is internal data gathering and unit awareness conducted by the NDRSMP team. The remaining 4 steps are structured as delivery orders to be performed by the Phase II Systems

Integration Contractor (SIC). The project staff has established independent teams that will work closely with regional representatives to facilitate and monitor the progress of each of the implementation stages. This process will be carried out independently in each region.

**Preparatory Stage:** During this stage, a project team will work closely with region personnel to raise awareness about the coming system deployment and gather information needed for subsequent stages. Such information includes operational schedules, unit points of contact and other regions specific data.

**Detailed Regional Implementation Plan Stage:** The SIC will gather information through site surveys and develop a detailed plan for the systems deployment. This stage will involve SIC visits to Coast Guard units throughout the region. Following the site surveys, the SIC will submit the Detailed Regional Implementation Plan to the Coast Guard for review. Project personnel will team with region representatives and members of their chain of command to review these plans and address issues as necessary.

**Infrastructure Preparation Stage:** During this stage, the SIC will prepare the infrastructure within a region so that the communications equipment can be installed. This involves establishing remote antennae sites, or Remote Fixed Facilities (RFFs), to support the new system and the installation of a data network that connects the RFFs with CG communications centers. This stage may also involve modifications to existing Coast Guard units.

**Install and test the modernized system:** During this stage, the SIC will physically install the communications equipment at CG facilities (i.e. RFFs, communication centers and vessels) throughout the region. After the new system is installed and thoroughly tested, it will become the operational system and the legacy system (old system) will be de-installed. Operator training will be provided by the SIC during this stage.

**Support and Maintenance Stage:** The SIC will provide follow-on maintenance and support of the modernized system through a national maintenance contract.

**RESCUE 21 . . . Saving lives in the 21<sup>st</sup> Century will be a quantum leap forward in Search and Rescue.**

*(Questions concerning the RESCUE 21 Program should be directed to the U.S. Coast Guard office of Boating Safety.)*