

Dockside Radiation Monitoring System

The Dockside Radiation Monitoring System is a custom designed radiation detection system that is positioned beside visiting Nuclear Powered Vessels (NPVs) to measure gamma radiation. A Base Station and up to 3 Remote Monitors inland continuously monitor any gamma radiation emanating from the NPV. If radiation from the NPV increases beyond a preset level, the system goes into alarm mode and initiates the Nuclear Emergency Response process.

This system has been installed at three sites in Canada: Canadian Forces Bases at Halifax and Esquimalt, as well as at the Maritime Engineering Test Range, at Nanoose Harbour, BC.

The DMS is an integrated system which consists of a sensor-and-alarm-suite (SAS) for radiation detection and a base station (BS) for remotely monitoring, analyzing and displaying dosimetry measurements. Radiation data captured at the dockside by the highly sensitive SAS sensors are transmitted to the BS communication hub (CH), and then to several remote monitors (RMs) located in the local area at National Defence Headquarters, all using standard telephony technology.

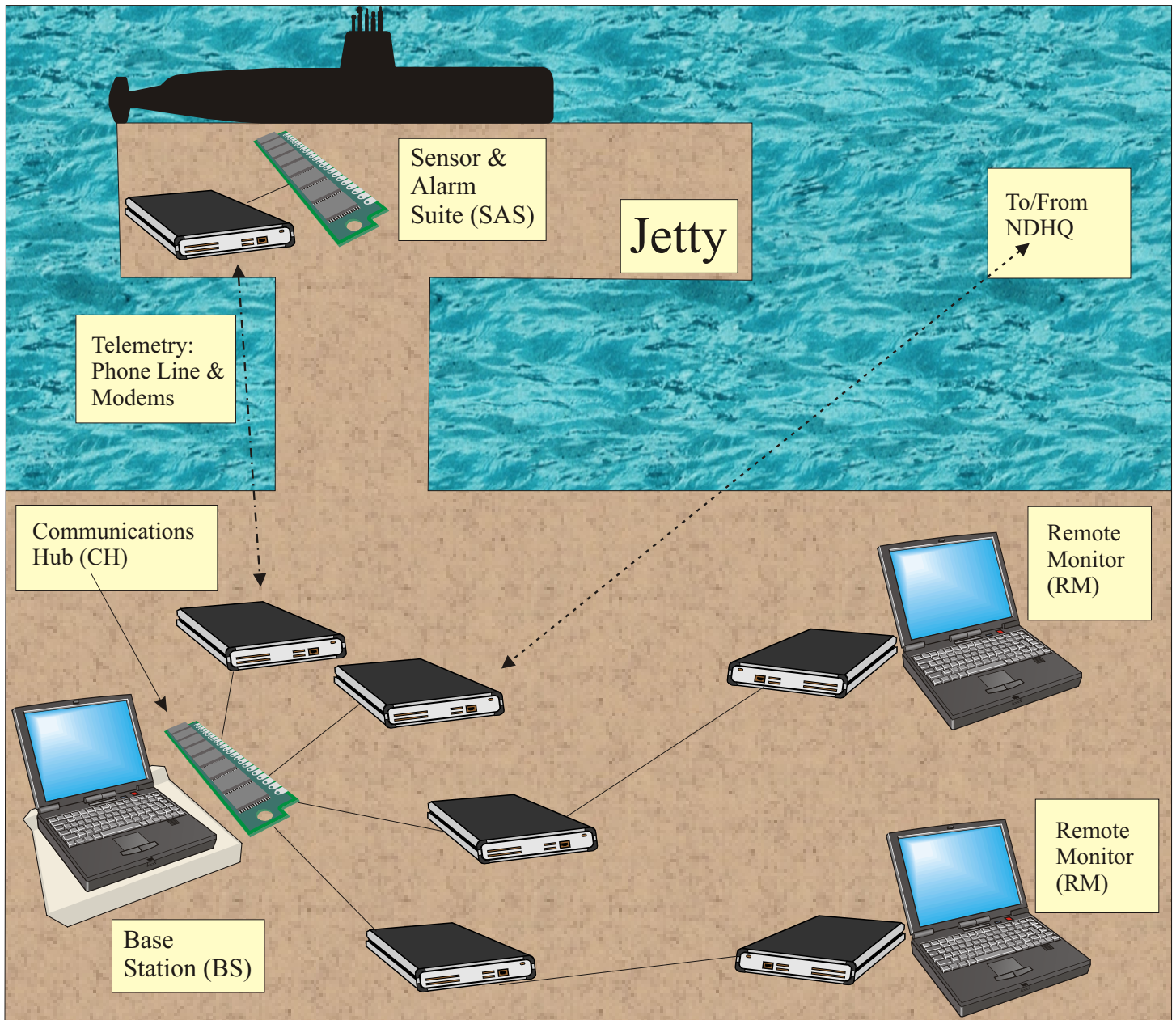
The SAS includes triply-redundant Geiger-Mueller gamma radiation sensors and a microprocessor which controls the operation of the SAS unit. It also includes an uninterruptible power supply which provides power for at least 8 hours in case of power-



Installing System at CFB Nanoose

Radiation levels exceeding safe limits cause alarm indicators such as a beacon, horn, and message player to activate. In addition, an anemometer is included to monitor local wind conditions.

The BS and RMs utilize identical, interchangeable notebook computers for redundancy. The BS, itself, consists of a docking station and a multiple serial port to which up to 8 external modems can be connected. This allows simultaneous data transmission between all stations. The laptop computers contain communication, analysis and data storage software, several warning and error correction facilities as well as a computer-based alarm system (visual, audio and recorded). The software continuously displays the dose rate in both graphical and digital formats.



System Specifications

Detectors	3 Sartrex 509A Wide-Range Survey Meters
Sensor Technology	Twin Geiger-Mueller Tubes
Detection Range	0.01 μ Sv/hr to 10 Sv/hr
Energy Response	57 1200keV
Operating Conditions	-20 C to +50 C
Computer Specifications (BS & RMs).....	NEC Versa 6050 MH Notebook Computer
Serial Port Panel.....	RocketPort 8 (RP*) Interface Panel
Telephony Components.....	Boca modems, V34 28800bps
Database Format.....	MS Access® compatible format



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