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Remote Sensor Operations



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REMOTE SENSOR OPERATIONS

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REMOTE SENSOR OPERATIONS

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FOREWORD

Marine Corps Warfighting Publication (MCWP) 2-2.3, *Remote Sensor Operations*, is the first in a new series of doctrinal publications on intelligence collection operations. MCWP 2-1, *Intelligence Operations* (under development) and FMFM 3-21, *MAGTF Intelligence Operations*, provide doctrine, tactics, techniques, and procedures for intelligence collection operations. MCWP 2-2.3 complements and expands upon this information by detailing doctrine, tactics, techniques, and procedures for the conduct of remote sensor operations in support of the Marine Air-Ground Task Force (MAGTF). The primary target audience of this publication is intelligence personnel responsible for the planning and execution of sensor operations. Personnel who provide support to remote sensor operations or who utilize the reporting from these operations should also read this publication.

MCWP 2-2.3 describes aspects of remote sensor operations including doctrinal fundamentals, equipment, command and control, planning, execution, logistics, and training. MCWP 2-2.3 provides the information needed by Marines to understand, plan, and execute remote sensor operations in support of the MAGTF.

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

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Lieutenant General, U.S. Marine Corps
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Unless otherwise specified, masculine nouns and pronouns used in this publication refer to both men and women.

Record of Changes

Log completed change action as indicated.

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Remote Sensor Operations

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Chapter 1

Remote Sensor Operations Fundamentals

Remote sensor operations expand the commander's view of the battlefield. Remote sensors provide a means to economically conduct continuous surveillance of vast areas, contributing key information to the intelligence collection effort. These operations decrease the number of personnel required for reconnaissance and surveillance operations and reduce the risk associated with these operations. A remote sensor system, consisting of individual sensors, communications relays, and monitoring devices, provides the capability to conduct remote sensor operations. Sensors, relays, and monitoring devices are employed in an integrated network, providing general surveillance, early warning, or target acquisition over selected areas of the battlefield. Key considerations in employing remote sensors are the nature of the target, characteristics of the area or operations, time and resources available for emplacing the sensor network, and the location and connectivity of the sensor monitoring sites.

1001. Remote Sensor Systems

A remote sensor system is a continuous, all-weather surveillance system which provides monitoring of activity in elected areas. The system consists of sensors, relays, and monitoring equipment; system components are emplaced at selected points on the battlefield to provide an integrated sensor network. Sensors are placed adjacent to the desired surveillance area, normally a route or point target (objective, helicopter landing zone, or assembly area). Individual sensors are activated by seismic, magnetic, infrared, or optical detections of moving targets.

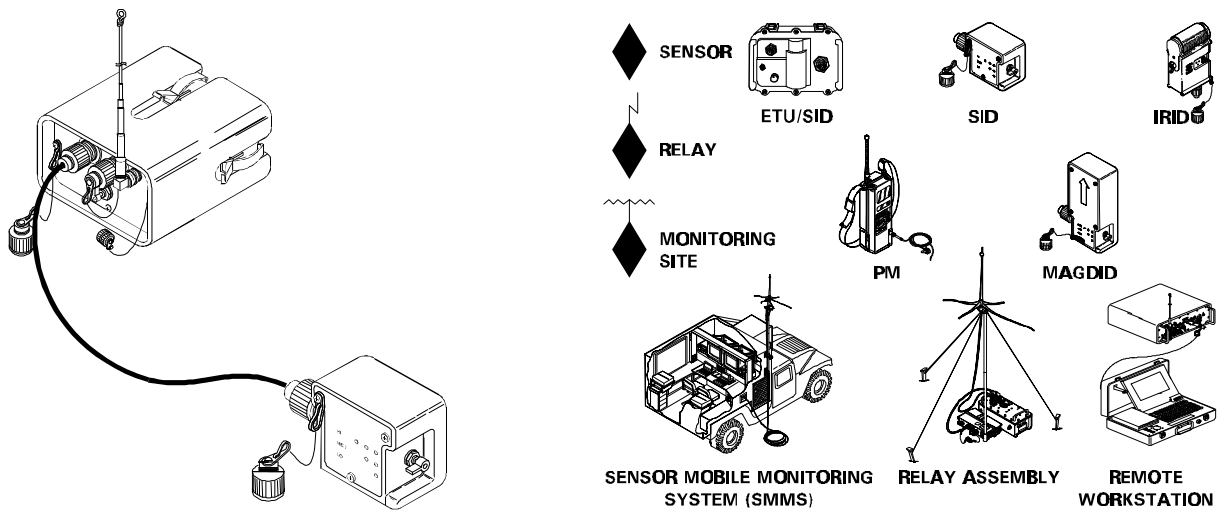
Detections are transmitted by FM radio link directly or via relays to the monitoring equipment. Operators at the monitoring site interpret the detections to determine location, direction, and speed of movement of the detected targets. They may also be able to provide an estimated number of vehicles or personnel detected and a generalized identification of the type of targets detected (e.g., tracked vehicles, wheeled vehicles, or personnel), depending upon the type of sensors employed and the nature of the target's activity. This information is forwarded to intelligence, operations, and fire support agencies in the form of sensor reports.

1002. Evolution of Remote Sensors

Remote sensors entered the Marine Corps inventory in 1967 during the Vietnam conflict. The development of a sophisticated remote sensor system permitted the continuous surveillance of vast areas, providing indications and warning of future enemy activities. Remote sensors decreased the number of personnel required to monitor the movements of men and material and reduced the risk associated with surveillance operations by providing the capability to monitor targets without physically locating personnel in the surveillance area. The intelligence developed from information provided by the remote sensor system was used to plan and execute numerous successful operations by Marine forces.

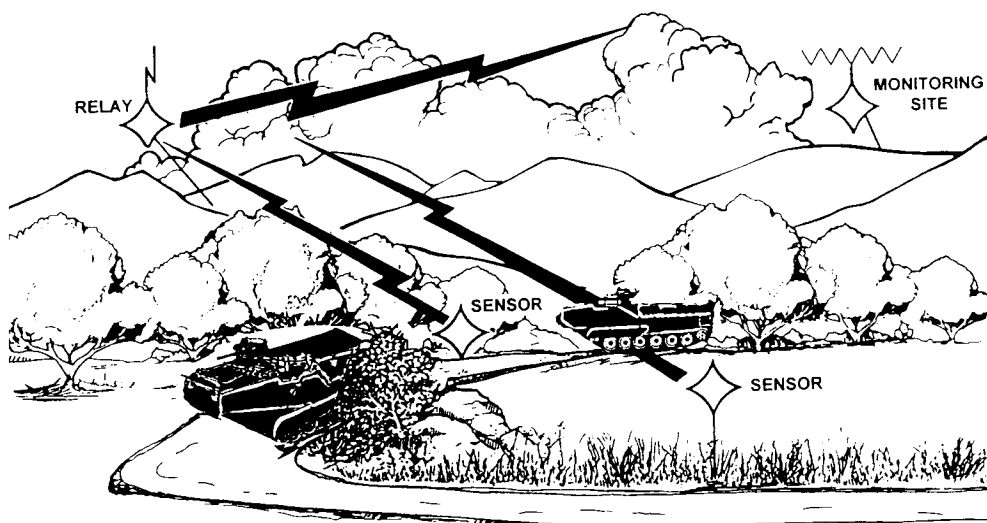
The use of sensors in Vietnam established their value as an intelligence collection asset. The third-generation Tactical Remote Sensor System (TRSS-Phase III or TRSS III) has been a mainstay of Marine Corps intelligence collection capability since 1972. In 1992, a new generation of sensor equipment, TRSS-Phase V (TRSS V), entered the inventory. TRSS V provides a greatly enhanced remote sensor capability through the use of light-weight sensors, new detection technology, and improved information processing capabilities. See figure 1-1 for the TRSS and its components.

1003. Remote Sensor Employment Principles



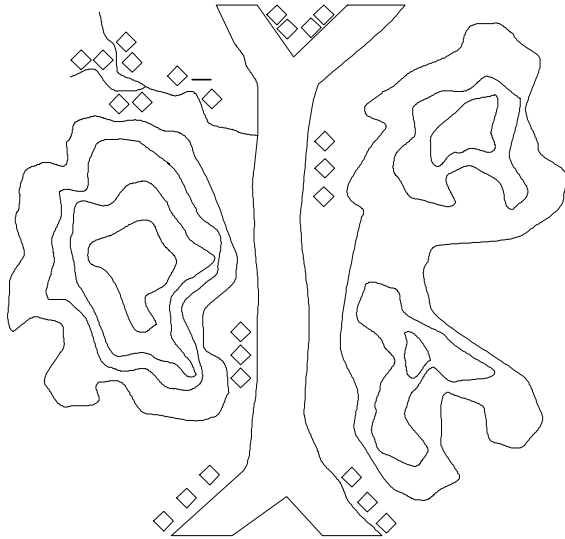
Remote Sensor. Device that detects the physical presence of an object by means of energy reflected or emitted by the object and transmits information from the detection to a specially equipped monitoring site located beyond visual observation range of the sensor. Also referred to as unattended ground sensor (UGS).

Remote Sensor System. An equipment suite consisting of sensors, relays, and monitoring equipment which provides a sensor surveillance capability. The current Marine Corps remote sensor system assets consist of suites of equipment designated the Tactical Remote Sensor System (TRSS).

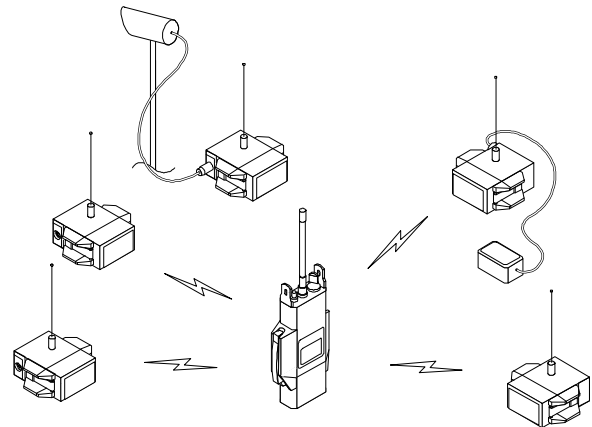


Sensor String. A grouping of 2 or more (usually 3-5) remote sensors emplaced within the same area to provide coverage of a specific surveillance target such as a road intersection, choke point, or objective. Sensors are normally employed in strings, since a string can provide significantly more information than an individual sensor. Target speed, classification, and direction of movement can be determined by tracking the target as it activates each of the

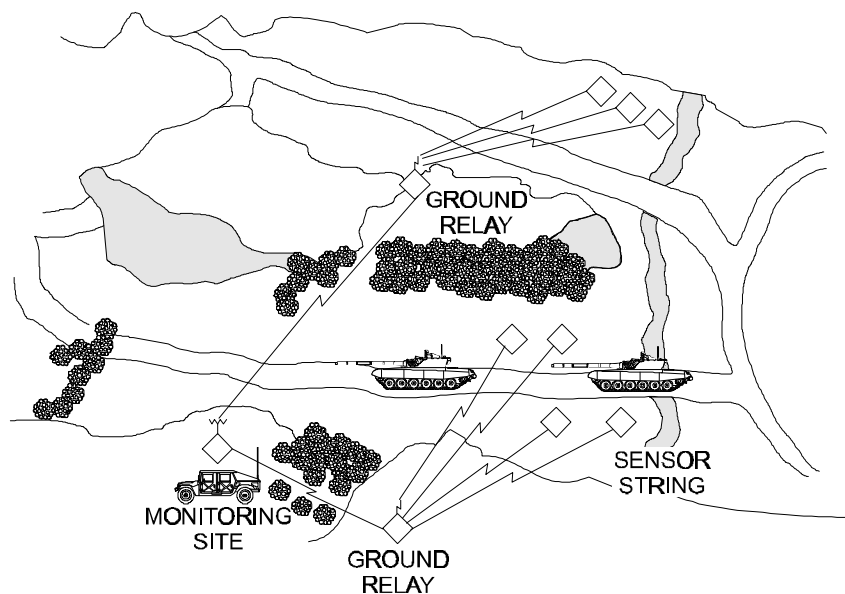
Figure 1-1. Remote Sensor Terminology.



Sensor Field. A grouping of sensor strings within the same geographic area which provide surveillance over a specific portion of the battlefield or a group of related surveillance targets, e.g. a series of sensor strings covering the approaches to and exits from a river



Intrusion Detection System (IDS). An IDS (also known as Attended Ground Sensors) consists of sensors and monitoring equipment intended to support local security requirements. Intrusion Detection Systems are distinguished from Remote Sensor Systems by their short range and the absence of the requirement to establish a special monitoring site. The current Marine Corps Intrusion Detection System is designated the Miniature Intrusion Detection System (MIDS). The MIDS is discussed in appendix A.



Sensor Network or Net. An integrated network system of sensor strings, relays, and monitoring sites established to provide sensor surveillance over all or part of the area of operations.

Figure 1-1. Remote Sensor Terminology (Continued).

Remote sensors can be employed in almost any tactical situation. Optimal employment is in areas where major movement is restricted to a few key lines of communications and the traffic pattern of military and civilian activity can be easily discriminated. Remote sensor operations are ideally suited to support relatively stable situations such as long-term defensive or security operations ashore, where the time and resources are available to develop an extensive sensor network throughout the area of operations. Remote sensors have limited utility in fast-moving mobile operations, raids, and other limited duration operations unless adequate time and means are provided to emplace sensors to support the planned operation. In addition, the employment of sensors in areas of open terrain or heavily congested urban concentration requires detailed planning to ensure the sensor network can provide the desired information in those environments.

a. Remote Sensor Applications

(1) General Surveillance. Sensors are used to provide general surveillance of lines of communications, beachheads, helicopter landing zones, assembly areas, objectives, and other named areas of interest (NAIs). Sensor information is used to develop the general enemy situation and support the scheme of maneuver through the detection of enemy activity near insertion points or other objectives.

(2) Early Warning. Sensors are placed along avenues of approach to provide early warning of enemy movement toward friendly positions. Sensor strings may be placed forward, on the flanks, or in the rear of friendly units to facilitate force protection. In this application, sensors should be implanted as far forward of friendly positions as possible, exploiting the extended range of the remote sensor system to provide maximum reaction time.

(3) Target Acquisition. A well-developed sensor network can be used for target acquisition. Sensors are implanted along key enemy lines of communications or NAIs and sensor activations are used to initiate targeting action. The key limitation of sensors in this application is the inability to discriminate between hostile, friendly, and noncombatant activity. As a result, sensor data must normally be confirmed by some other surveillance asset. Sensors do provide an excellent means of facilitating the targeting process through the cueing of other target acquisition sources, and, once a target is positively identified, a well-planned sensor network can track a target as it moves across the battlefield. If used for target acquisition, care must be taken not to compromise the location

of sensor strings through repeated attacks on enemy forces located in the same area.

b. Capabilities of Remote Sensors

(1) Remote Surveillance. Remote sensors provide an extended-range surveillance capability without the requirement to maintain a physical presence in the surveillance area. Through the use of relays to maintain line-of-sight communications connectivity between the sensors and the monitoring site, monitoring operations can be conducted a hundred miles or more from the surveillance area. This capability gives the MAGTF commander a means to economically monitor activity in the area of operations or area of interest, conserving the use of other reconnaissance and surveillance assets for other critical tasks.

(2) Target Detection and Classification. Sensors can confirm or deny the presence of activity in the designated area and give a general indication of the type and volume of activity. Sensors can provide the number, general type, location, direction, and speed of most acquired targets. The degree of detail and accuracy of the target classification is a function of the number and type of sensors used as well as the proficiency of the monitoring site operator. While sensor data alone is rarely sufficient for target acquisition, sensors can be used to cue other surveillance and target acquisition assets to obtain the data required for targeting.

(3) Near Real-time Reporting. Electronic transmission of sensor detections to the monitoring site provides near real-time reporting of activity in the surveillance area. Automated processing equipment can generate a sensor report for transmission within minutes of an activation.

(4) Continuous Operations. Sensors operate day and night, in all weather conditions. Individual sensors can operate continuously for up to 30 days; relay systems can function for up to 45 days. Battery life is the primary factor limiting sensor/relay endurance; battery life is dependent upon the number of activations and transmissions required along with weather and other environmental factors.

(5) Stealth. Properly emplaced remote sensors are extremely difficult to detect. Built-in electronic counter-countermeasures also make electronic detection and countermeasures against remote sensors unlikely. To enhance system security, individual sensors contain an alarm circuit which notifies the monitoring station if the sensor is tampered with.

(6) Flexibility. Remote sensors can be employed in a variety of means to support the concept of operations. Sensors can be hand emplaced by mobile and/or foot patrols or dropped from aircraft. Detections can be relayed and processed in real time or stored by relays for transmission on command.

c. Limitations of Remote Sensors

(1) Implant Operations. The time and resources required to implant sensors and relays are the key limitations on remote sensor operations. The placement of sensors and relays must be planned in detail and accomplished well in advance of when the information is needed. The tactical situation may preclude use of aircraft for implant operations and limit the number of ground patrols which can be employed for implanting sensors.

(2) Terrain Masking. Remote sensors require radio frequency line-of-sight between sensors and the monitoring site; as a result, they are susceptible to terrain masking. Effective employment requires detailed planning of sensor, relay, and monitoring site locations as well as knowledge of the capabilities and limitations of the transmitters. Terrain masking may preclude extended range employment of sensors in mountainous areas.

(3) Limited Target Discrimination. Remote sensors by themselves cannot provide positive target identification. Sensors activate in response to some type of physical presence. Using a mix of sensor types can provide a general category of the target, e.g., personnel, wheeled vehicles, or tracked vehicles, but sensors will not be able to determine whether the target is friendly, enemy, or non-combatant. Sensor activations must be combined with other information to provide a positive target identification.

(4) Responsiveness. Because of the time required to plan and execute implant operations, remote sensors are generally not responsive to rapidly changing requirements. Advance planning of sensor support through detailed study of the mission, enemy, area of operations, and commander's intent provides the best means of anticipating future sensor requirements.

(5) Sensor Positioning. Accurate emplacement of the sensors is crucial to obtaining coverage of the desired area. Knowing the exact location of the implanted sensor is critical to successful relay and monitoring operations. As a result, implants must be done according to a plan and the location of

the implants must be accurately reported to the monitoring agency.

(6) Inventory. Sensor assets are limited. Each Marine expeditionary force (MEF) will have sufficient sensors for emplacing approximately 200 sensor strings of 3-4 sensors each. Furthermore, while expendable, sensors are expensive and only a small war reserve stock is planned.

(7) Failure Rate. Inherent in all electronic systems is the possibility of component failure. Loss of any single electronic component may render the device inoperable and degrade the operation of the overall system.

1004. Concept of Employment

Sensors are implanted in strings of 2-5 sensors per string. Whenever possible, a variety of sensors will be used within a string in order to provide maximum target discrimination data. Strings are implanted according to a coherent sensor surveillance plan, facilitating comprehensive coverage of designated surveillance sites and the general area of operations. Sensor strings are integrated with data relays and monitoring sites, forming a sensor network. See figure 1-2.

a. Command and Control

(1) Control. Marine Corps remote sensor assets are maintained under centralized control of the Sensor Control and Management Platoons (SCAMP). SCAMP or SCAMP detachments maintain remote sensors and associated equipment, plan remote sensor employment, perform air-implant operations from rotary wing aircraft, assist in hand-implant operations, and monitor and report information generated by sensor activations. Operational control of remote sensor operations is exercised by the MAGTF Command Element (CE) through the Surveillance and Reconnaissance Center (SARC). The CE directs the employment of the SCAMP through the support relationships detailed below.

(2) Support Relationships

(a) General Support. Due to the depth and range of sensor operations and the need to integrate sensor information with other deep surveillance assets, SCAMP normally operates in General Support (GS) of the MAGTF. In GS, the MAGTF commander, through his G-2/S-2, determines priority of support, locations of sensor strings and monitoring sites, and information dissemination flow.

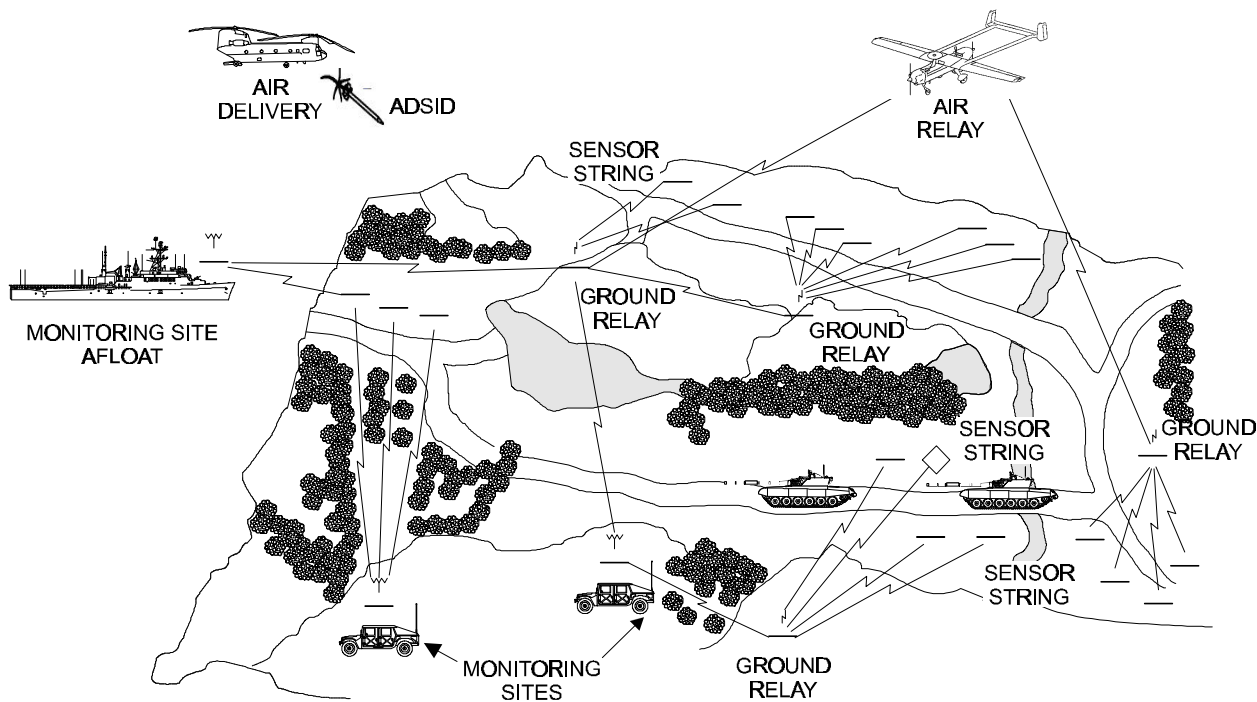


Figure 1-2. An Integrated Sensor Network.

(b) Direct Support. The entire platoon or portions of it may be placed in Direct Support (DS) of a designated unit. Under DS, priority of support goes to the supported unit. A SCAMP liaison element is provided to the supported unit. A monitoring site is collocated with the command post of the supported unit, or the unit receives sensor information directly from a designated monitoring site.

b. Planning

Sensor operations are planned to satisfy the intelligence collection requirements of the supported command. The Intelligence Preparation of the Battlespace (IPB) process provides the key elements to support remote sensor operations planning, including: identification of entry points, lines of communications, threat avenues of approach, designation of NAIs, and evaluation of communications line-of-sight conditions in the area of operations. IPB data is analyzed to determine the optimal locations of sensor strings, relays, and monitoring sites. Requirements for implant operations are developed along with concepts for the monitoring and dissemination of sensor data. These elements are combined into a sensor surveillance plan.

c. Implant Operations

There are two types of implant operations—hand-implant and air-implant. Implant operations are tasked, coordinated, and controlled by the SARC. Implant operations are planned jointly by the SCAMP and the designated implant unit.

(1) Hand-Implant Operations. Hand-implant operations offer the following advantages over air-implants:

- Greater accuracy of sensor placement.
- Ability to employ full sensor suite (air-drop-pable sensors are limited to seismic detectors).
- Flexibility to adapt implant plan to conditions in the surveillance area.

Sensors can be emplaced by any trained ground patrol. As sensors are designed for employment far forward of friendly positions (deep in the area of influence or in the area of interest), hand-implant operations are normally accomplished by reconnaissance units. Due to speed, range, and cargo capacity of the LAV-25, the Light Armored Reconnaissance Battalion/Company is the MAGTF's primary sensor implant unit. SCAMP personnel provide training in

implanting sensors, and they brief units tasked with implant missions. The SCAMPs are not manned, trained, or equipped to operate in the deep or distant reconnaissance areas and should not be tasked to undertake implant missions in these areas. However, a remote sensor operator should accompany any patrol tasked with a sensor implant mission, to ensure the correct emplacement and functioning of the sensors. Due to the importance of proper siting and testing of relays, a remote sensor operator will always be included in any patrol assigned to emplace a ground relay. SCAMP personnel can carry out emplacement missions when access to the implant area does not require unique reconnaissance skills or security measures beyond the platoon's organic capabilities; due to the limited number of remote sensor operators, the use of SCAMP personnel to carry out sensor emplacement may detract from ongoing sensor planning and monitoring activity.

(2) Air-Implant Operations. The speed and range of aircraft provide a means to rapidly emplace a large number of sensors across a wide area. Due to current equipment configuration, only rotary wing aircraft can drop sensors, limiting air-implant operations to areas where the air defense threat is relatively low. Additional disadvantages of air dropping are decreased accuracy and limited types of sensors available. The SARC will request and coordinate air support for air-implant missions. SCAMP personnel will coordinate with the designated squadron on the details of the mission and perform the actual air drops of the sensors.

ing sites in proximity to supported unit command posts to facilitate rapid reporting of sensor-derived information.

(3) Redundancy. The monitoring plan attempts to establish redundancy in the sensor network, insuring that at least two separate sites can receive activations from each sensor or relay. Redundancy permits displacement of monitoring sites by echelon, ensuring continuous monitoring of the sensor network, and reduces the impact of the loss of any single site due to equipment failure or enemy action.

e. Dissemination of Sensor Information

Sensor-derived information will be disseminated in accordance with the intelligence dissemination plan. Sensor reports may be disseminated via area networks, a sensor reporting radio net, or other reconnaissance radio net. In GS, these reports go the SARC for further dissemination throughout the force. In DS, reports go directly to the supported unit as designated by that unit's G-2/S-2. However, any unit may enter the sensor reporting net to receive sensor reports from the monitoring sites in near-real time.

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d. Monitoring Operations

(1) Processing Sensor Data. The SCAMP performs monitoring operations in accordance with the Sensor Surveillance Plan. Sensor activations are received by TRSS monitoring equipment. The monitoring equipment provides real-time, on-screen monitoring of sensor activations, data storage, and automated assistance in the analysis of sensor data generation of sensor reports.

(2) Monitoring Sites. A monitoring site consists of sensor monitoring equipment, communications equipment, and one or more sensor operators. Primary monitoring equipment is mounted in a HMMWV; a man-portable workstation can be remotored from each primary monitoring site. Monitoring sites are located to maintain communications line-of-sight with sensors and/or relays. Every effort is made to locate monitor-

Chapter 2

Tactical Remote Sensor System

A remote sensor system consists of sensors, communications data-relay devices, and monitoring equipment. The current Marine Corps remote sensor system is designated the Tactical Remote Sensor System (TRSS). TRSS provides the capability to establish an integrated sensor network in support of the MAGTF intelligence collection plan. TRSS equipment includes a variety of hand-emplaced and air-deliverable sensors, ground relays, and portable and mobile monitoring devices.

2001. Tactical Remote Sensor System Equipment Suite

A TRSS is made up of—

- Sensors
- Communications data-relay devices
- Monitoring equipment

One complete TRSS suite consists of the equipment listed in figure 2-1. A suite has sufficient equipment to implant and monitor 24 hand-emplaced sensor strings and 8 air-delivered strings. It is intended to support a Marine expeditionary unit (MEU). Each SCAMP operates six TRSS suites.

Detailed descriptions of TRSS components are provided in appendix B.

2002. Sensors

A sensor consists of a detection device, an encoder transmitter unit (ETU), an antenna, cabling, and associated connectors. Sensors detect changes in the physical environment through a variety of means. When activated by a target, the sensor sends an electronic impulse to the ETU. The impulse is encoded and transmitted to a relay or monitoring site via VHF radio signal.

Detection devices are placed within detection range of the target area, either on or in the ground, depending on the type of detector. For hand-emplaced sensors, the detector is attached

to the ETU by means of a cable and the encoder transmitter is buried in the ground or concealed in vegetation with its antenna extended. Air-delivered sensors are self-contained units, consisting of a seismic detector, encoder transmitter, and antenna in one package designed to bury itself in the ground when dropped from an aircraft. This package is designated the air-delivered seismic intrusion detector (ADSID). See figure 2- 2.

Seismic Intrusion Detectors (SID)	24
Infrared Intrusion Detectors (IRID)	24
Encoder Transmitter Units (ETU)	24
Encoder Transmitter Unit/Seismic Intrusion Detectors (ETU/SID)	96
Air-Delivered Seismic Intrusion Detectors (ADSID)	24
Ground Relays	5
Portable Monitors	4
Sensor Mobile Monitoring Systems	1

Figure 2-1. Tactical Remote Sensor System Equipment Suite (TRSS).

a. Detector Types

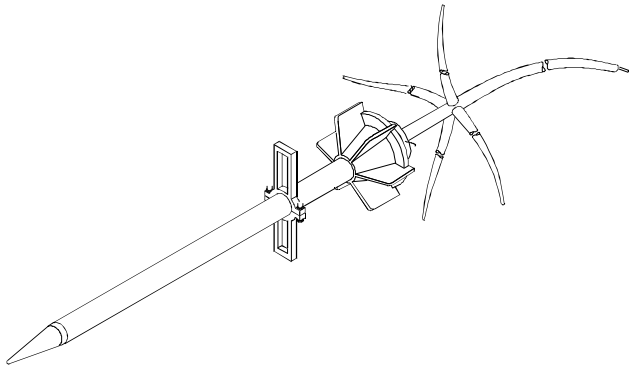


Figure 2-2. Air-delivered Seismic Intrusion Detector.

(1) Seismic. The seismic intrusion detector (SID) is the basic detector. The SID is equipped with a seismic geophone which detects ground vibrations caused when personnel or vehicles pass within the geophone's detection range. SIDs have an average detection radius of 25 meters for personnel and 100 meters for vehicles. The detection radius will vary with soil type; the sensor's sensitivity may be adjusted to suit specific environmental conditions. See figure 2-3.

(2) Magnetic. Magnetic sensors are confirming sensors, primarily used to detect the presence of vehicles or distinguish between vehicles and personnel. They detect disturbances in a self-generated magnetic field caused by the presence of ferrous metals. They can also determine direction of movement across their magnetic field, i.e., left-to-right or right-to-left. Magnetic detectors have a limited radius: 3 meters for personnel and 25 meters for vehicles. Magnetic sensors cannot be implanted from the air. See figure 2-4.

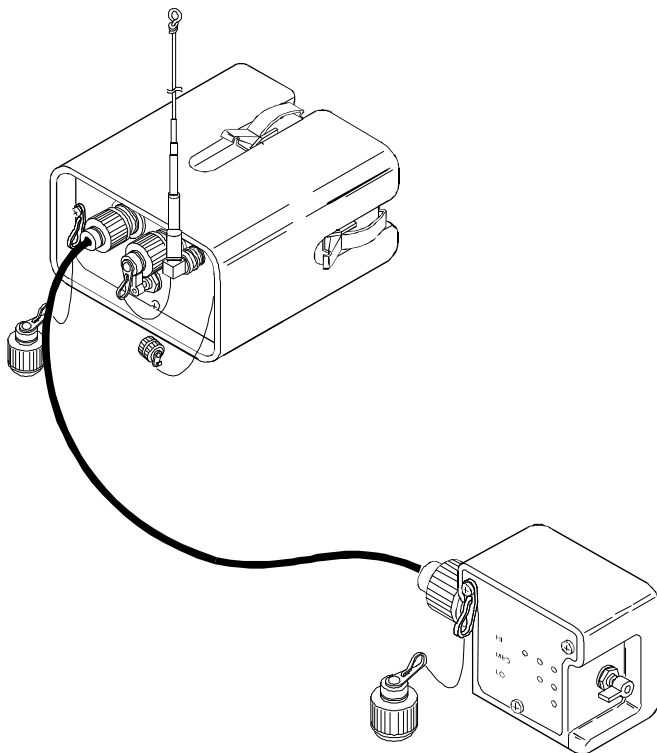


Figure 2-3. Hand-emplaced Seismic Intrusion Detector with Encoder Transmitter Unit.

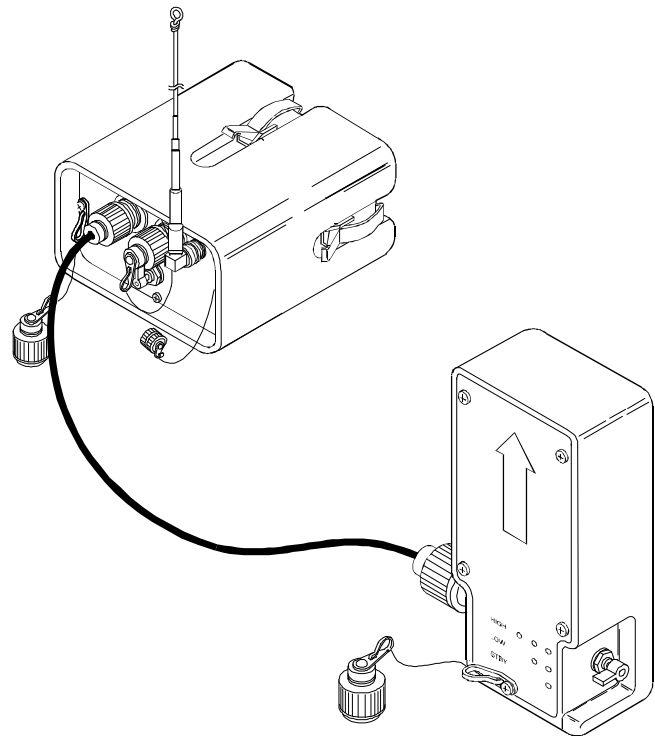


Figure 2-4. Magnetic Intrusion Detector with Encoder Transmitter Unit.

(3) Infrared. Infrared sensors are another type of confirming sensor; they are particularly useful for counting the number of objects (personnel or vehicles) moving through a sensor string. Infrared sensors use a passive infrared detector to sense changes in ambient temperature caused by the movement of an object through its field of view. Infrared detectors can also determine direction of movement across their field of vision. Infrared detectors have a unidirectional detection range of 15 meters for personnel and 100 meters for vehicles. Infrared detectors must be above ground with their sensor head sited to provide an unobstructed field of view to the surveillance area. They cannot be implanted from the air. See figure 2-5.

b. Encoder Transmitter Units. ETUs contain the logic, circuitry, and power source necessary for the transmission of sensor detections. A common ETU is used with all three types of hand-emplaced detectors; two detectors can be attached to each ETU. See figure 2-6.

In addition, there is an ETU/SID which consists of a seismic detector and ETU integrated into a single package. See figure 2-7. For air-delivered sensors, an ETU is integrated into the ADSID package. ETUs transmit using one of 599 available VHF radio channels; the channel is selected prior to implant and cannot be changed without recovering the ETU. In addition to detections, ETUs transmit periodic messages to confirm proper operating status and a specially

coded message to indicate that a sensor has been tampered with. ETUs are powered by standard C-cell batteries. Battery power is sufficient for 30 days of continuous operations; since the battery is used primarily to transmit sensor activations, battery life may be extended significantly if sensor detections are limited.

2003. Relays

Relays provide line-of-sight communications connectivity between sensors and monitoring sites, extending the range of the TRSS and permitting its use in restricted terrain. Relays consist of a receiver/transmitter, control circuitry, power source, and antenna. See figure 2-8. The relay can be programmed to relay incoming data in real time or store the data until remotely commanded to transmit the data to an available monitoring site. Relay is accomplished via VHF or UHF radio link; UHF is used for the transmission of stored data at a faster data rate. Relay functions such as channel selection and operating mode can be controlled remotely via VHF link from the monitoring site. Relays are hand-emplaced; the relay and power source are concealed on or under the ground with only the antenna extending from the camouflaged relay equipment. A single battery pack provides 30 days of continuous operation; additional battery boxes can be connected to provide extended operational periods.

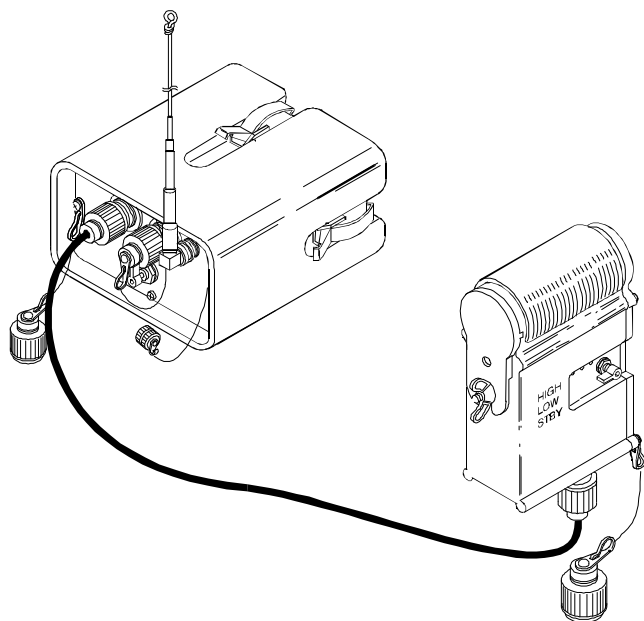


Figure 2-5. Infrared Intrusion Detector with Encoder Transmitter Unit

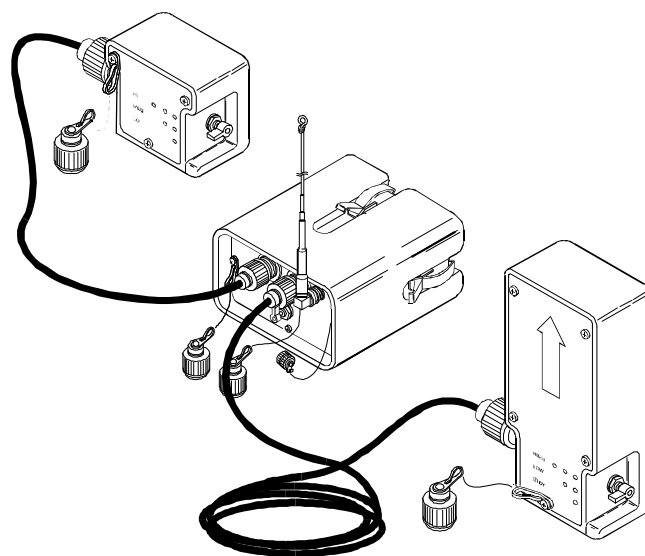


Figure 2-6. Encoder Transmitter Unit with Seismic Intrusion Detector and Magnetic Intrusion Detector.

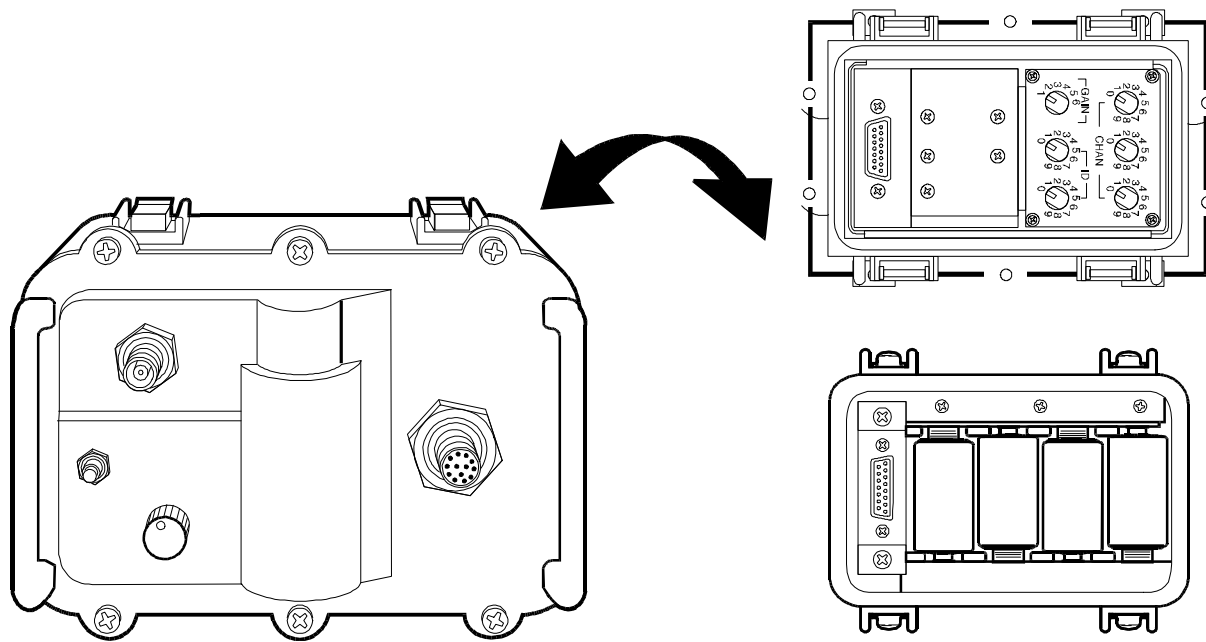


Figure 2-7. Encoder Transmitter Unit/Seismic Intrusion Detector

2004. Monitoring Equipment

Monitoring equipment receives data from sensors and relays, processes the data to derive the maximum amount of information, and generates an automated sensor report. Sensor operators verify the reports and disseminate them to the appropriate agency. TRSS uses two types of monitoring equipment: the sensor mobile monitoring system and portable monitors. Both can receive, decode, and display sensor data from the U.S. Army Improved Remotely Monitored Battlefield Sensor System (I-REMBASS) and the Miniature Intrusion Detection System (MIDS).

a. Sensor Mobile Monitoring System. The sensor mobile monitoring system provides equipment for the receipt, storage, processing, display, and reporting of remote

sensor activity. The sensor mobile monitoring system is a self-contained system of monitoring, processing, and communications equipment mounted on the back of a HMMWV. See figure 2-9. A system has two workstations, each of which can monitor up to 504 sensors. Either one of the monitoring workstations can be displaced from the shelter to provide limited, stand-alone monitoring capability at remote locations.

b. Portable Monitors. A portable monitor is a hand-held receive/display unit that receives, decodes, and displays sensor identification code transmissions. See figure 2-10. It is primarily used to perform field operational checks at the sensor implant site. It can be used to monitor sensor activations on a limited basis, but all data received by the portable monitor must be processed manually.

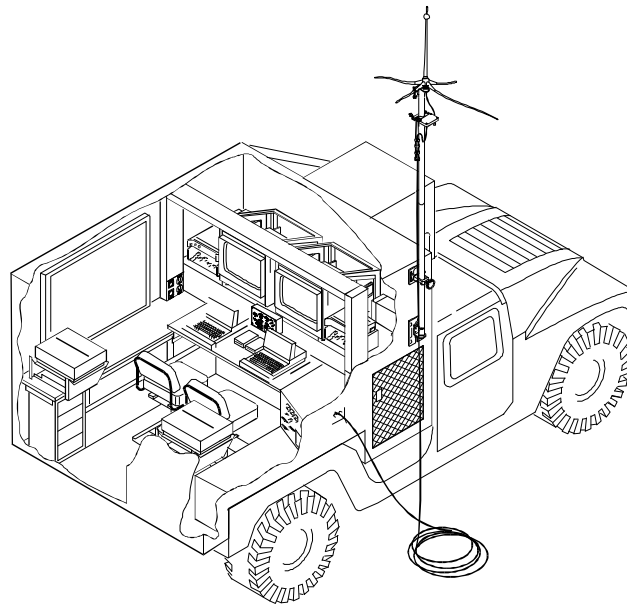


Figure 2-9. Sensor Mobile Monitoring System.

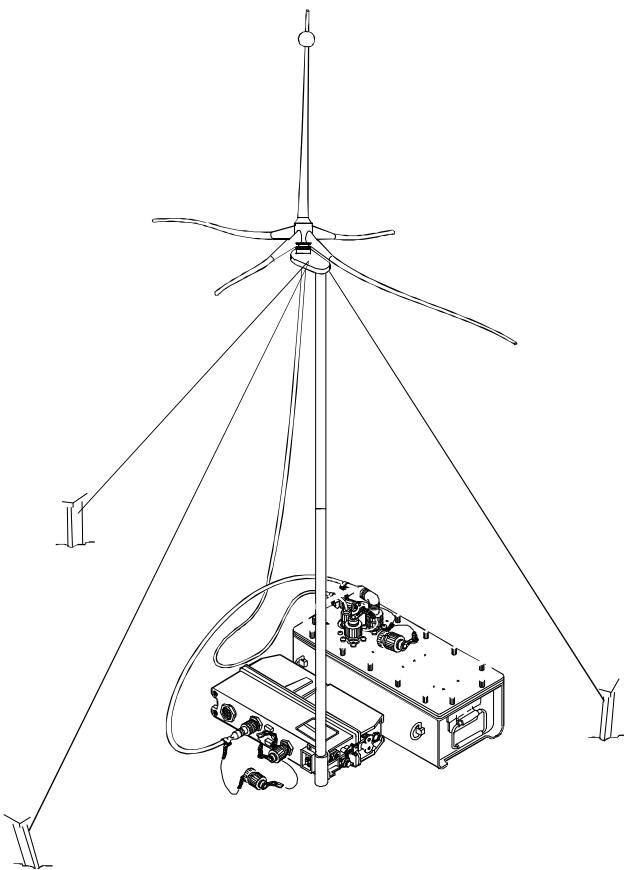


Figure 2-8. Ground Relay Assembly.

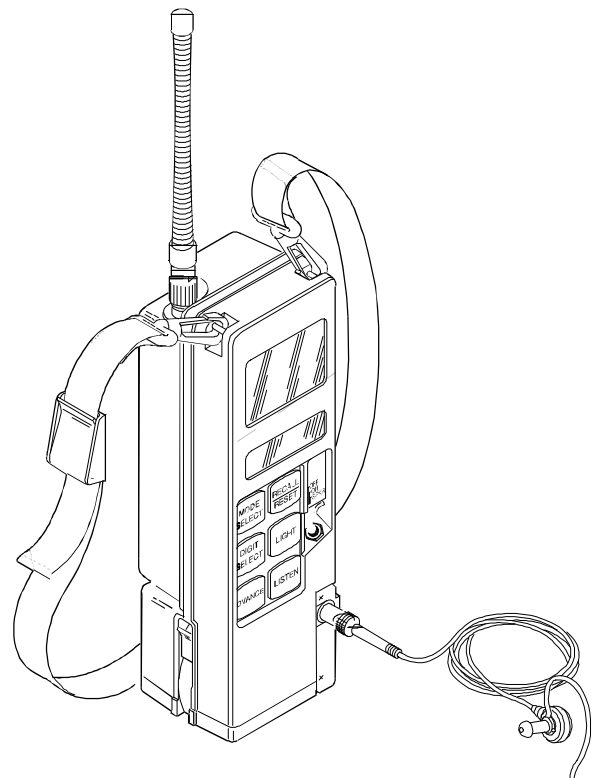


Figure 2-10. Portable Monitor.

2005. Future Capabilities

a. Day/Night Thermal Imager. A day/night thermal imager is under development which will provide an enhanced confirmation/classification capability. The imager consists of an imaging head and an imager transmission unit. See figure 2-11. When activated, a sensor in the imaging head will take a thermal image of the target in its field of view. See figure 2-12. The image will be transmitted to a relay or monitoring site for analysis and integration with other sensor data.

The imager head has a 28 degree field of vision and a range of 9 meters for a full screen image. The imager has an internal SID which activates the imager head when it detects vibrations from a target; it can also be activated by cueing from a separate, externally-connected sensor. Each TRSS suite will have 24 imaging sensors.

b. Airborne Relay. An airborne relay will provide the capability to relay sensor activations in real time and/or retrieve data stored by ground relays. See figure 2-13. Use of an airborne relay simplifies the communications line-of-sight problem and thus increases the range and depth of the sensor network. An airborne relay is an effective way to service a general surveillance network emplaced deep in the area of interest, where sensor activations are stored in ground relays far forward of friendly lines. The airborne relay will consist of an add-on package which can be mounted on a variety of rotary winged aircraft and UAVs.

c. Fixed-wing Air Droppable Sensor. The earlier third-generation sensor suite included separate ADSIDs for use by fixed-wing and rotary wing aircraft. The current TRSS ADSID is not suitable for use by fixed-wing aircraft. This ADSID will be redesigned in the future to restore this

capability, providing a means to rapidly implant sensors deep within the area of interest, even in a medium or medium-high air defense threat environment.

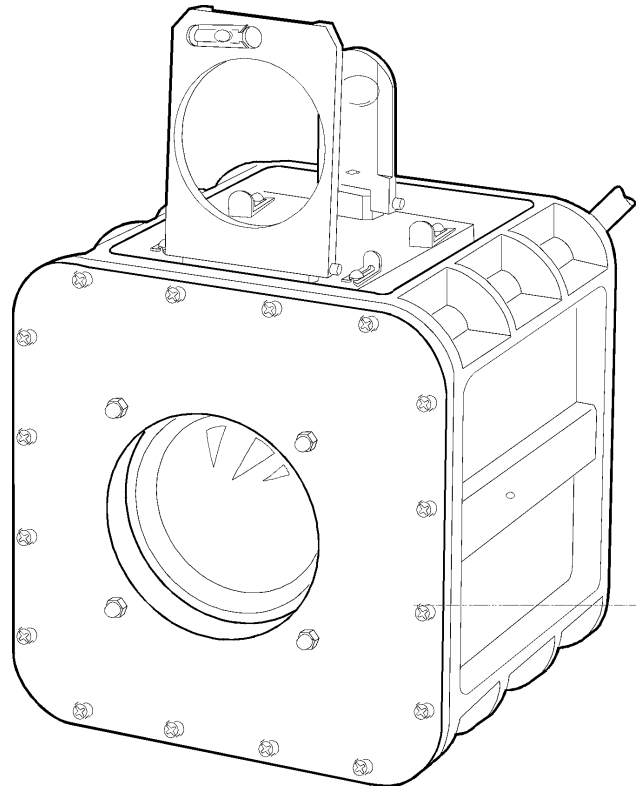


Figure 2-11. Thermal Imager.

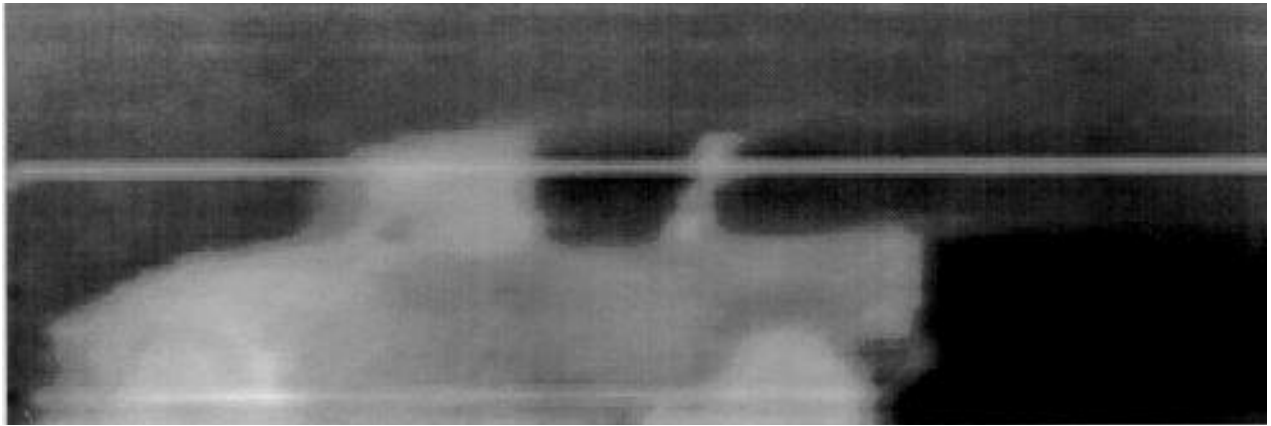


Figure 2-12. Sample Image from Thermal Imager.

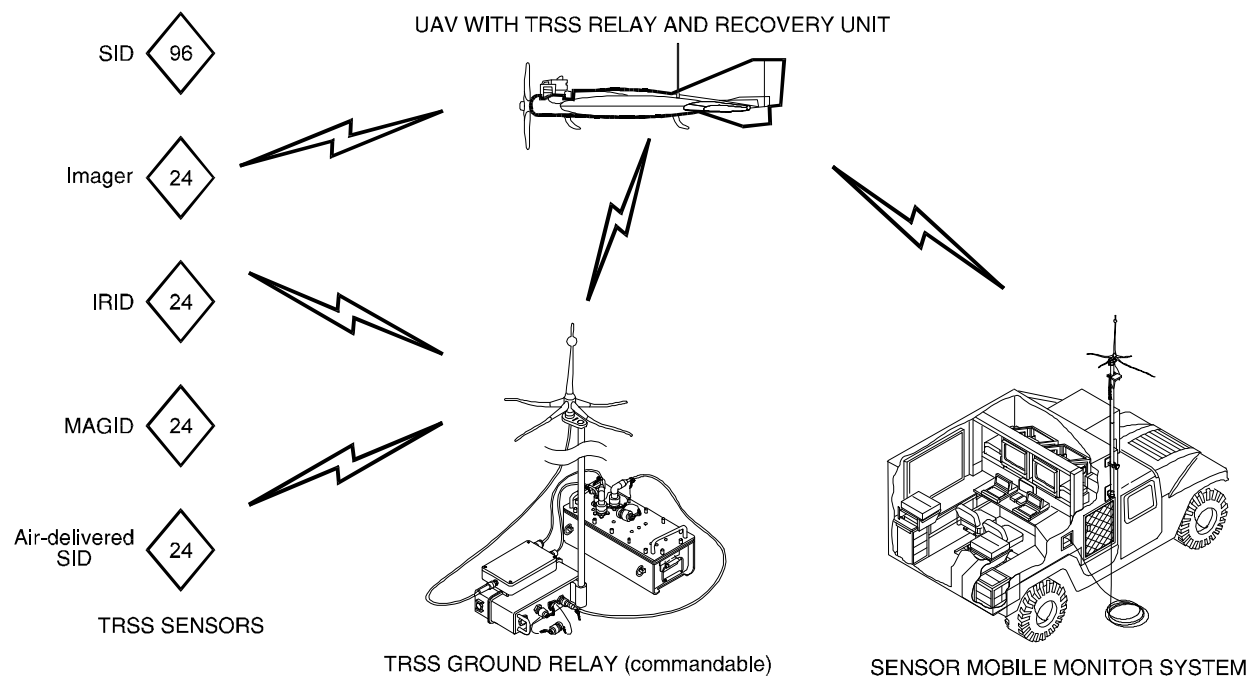


Figure 2-13. Tactical Remote Sensor Equipment Suite Airborne Relay.

Chapter 3

Command and Control of Remote Sensor Operations

3001. Remote Sensor Command and Control

Marine Corps remote sensor assets are assigned and employed under the centralized control of the SCAMP. The SCAMP has responsibility for planning and execution of remote sensor operations in support of MAGTF operations.

a. Command. The SCAMP is commanded by the SCAMP platoon commander, whose authority and responsibilities are similar to those of other commanders.

b. Operational Control. Operational control (OPCON) of SCAMP rests with the MAGTF commander. The MAGTF commander exercises OPCON through the G-2/S-2 and the SARC. OPCON includes the authority to plan and execute remote sensor operations, assign a tactical mission to the platoon, and designate support relationships.

c. Administrative Control. Administrative control (ADCON) is exercised through the administrative chain of command. Currently, the intelligence company exercises ADCON over the SCAMP and is responsible for training, equipping, and ensuring the required order, discipline, maintenance, and sustainment of the platoon.

d. Attachment

(1) Temporary command relationships, such as the attachment of the platoon or detachments from the platoon to MAGTFs smaller than a MEF or major subordinate commands, may occur depending on the tactical situation.

(2) In this relationship, the command to which the SCAMP/SCAMP det is attached assumes full command (OPCON and ADCON) responsibility for the attached element.

(3) Attachment of SCAMP subelements will normally be used to provide remote sensor capability to deploying MAGTFs smaller than a MEF. When the entire MEF deploys, general support (GS) and direct support (DS) relationships should be used to tailor remote sensor support, rather than attachment.

(4) SCAMP detachments should be built around standing elements (sensor employment squads/sensor employment teams [SESSs/SETs]). When the attachment of a SCAMP det to a standing MAGTF (e.g., a MEU), will be a recurring evolution, every effort should be made to establish a habitual relationship between that MAGTF and the detachment's base SES or SET.

e. Support Relationships

(1) General Support. When the SCAMP or a detachment from the platoon operates in GS, it supports the entire MAGTF. Due to the depth and range of remote sensor operations and the need to integrate remote sensors with other deep surveillance assets, GS will be the normal support relationship for SCAMP elements. In GS, the MAGTF commander, through the G-2/S-2, determines priority of support, locations of sensor strings and monitoring sites, and information dissemination flow.

(2) Direct Support. The entire SCAMP or portions of it may be placed in DS of a particular unit. Under DS, the SCAMP element provides specific support in accordance with the supported unit's requirements. This support can consist of emplacing a new sensor network, enhancing an existing one to cover the supported unit's area of interest, or simply establishing a monitoring site to provide direct dissemination of sensor data to the supported unit's SARC or COC. In DS, a SCAMP liaison element is provided to the supported unit. A monitoring site is collocated with the command post (CP) of the supported unit or the unit receives sensor information directly from a designated monitoring site. As

with attachment, habitual relationships between SCAMP elements and supported units should be established whenever possible.

(3) Factors Influencing Support Relationships. No single mode of support is appropriate to all situations. Key considerations in determining the appropriate support relationship are as follows:

- Concept of operations.
- Remote sensor application being employed.
- Depth of the sensor network forward of friendly lines.
- Requirement for timeliness of sensor information.

As the most common use of remote sensors is to provide general surveillance of the area of interest and because sensor information must normally be combined with other intelligence to gain full benefit of this information, GS is the preferred support relationship. The use of DS may be appropriate in the following circumstances:

- To support a unit designated as the main effort for a particular operation or phase of an operation.
- During the conduct of independent or geographically separated operations by a subordinate element.
- To provide early warning of enemy activity to the unit (s) responsible for that sector of the area of operations (AO).
- To provide target acquisition support to fire support agencies responsible for that sector of the AO.

Responsibilities under general support and direct support are shown in figure 3-1.

a. Mission. The mission of the SCAMP is to plan the employment of, to operate, and to maintain a remote sensor system in support of MAGTF operations.

b. Tasks

The SCAMP performs the following tasks:

- Plans employment of remote sensor systems in support of MAGTF operations.
- Conducts remote sensor monitoring operations.
- Maintains remote sensor equipment.
- Trains personnel to emplace remote sensors and data relays.
- Assists in the planning and execution of sensor emplacement missions.
- Implants air-delivered remote sensors from helicopters.
- Provides liaison teams to the MAGTF CE and units designated to receive DS from the remote sensor system.

c. Organization

There is one SCAMP per MEF. A SCAMP consists of a headquarters section and three SESs. Each SES consists of a squad headquarters and two SETs. See figure 3-2. Each SET operates one TRSS suite of equipment. Each SCAMP can deploy six SETs and six full TRSS suites.

(1) Headquarters Section. The headquarters section consists of the headquarters group (platoon commander, assistant platoon commander/maintenance officer, platoon sergeant), planning section, supply/maintenance section, and administrative section.

3002. Sensor Control and Management Platoon

The headquarters section performs the following functions:

Responsibility	General Support	Direct Support
Establishes liaison	SCAMP liaison and control element with SARC or MAGTF G-2/S-2 Note 1	Liaison team with supported unit G-2/S-2
Develops sensor surveillance plan	SARC	Supported unit G-2/S-2 or SARC Note 2
Directs sensor emplacement missions	SARC	Supported unit G-2/S-2 or SARC Note 2
Positions monitoring sites	SCAMP commander in coordination with SARC	SCAMP commander in coordination with supported unit
Determines sensor data flow	MAGTF G-2/S-2 or SARC	Supported unit G-2/S-2
Provides admin/log support responsibility	Commander with ADCON	Commander with ADCON

Note 1: When no SARC is established, MAGTF G-2/S-2 performs SARC functions.

Note 2: The SARC or supported unit G-2/S-2 may perform these functions depending on the tasking authority given to the supported unit.

Figure 3-1. Responsibilities Under General Support and Direct Support.

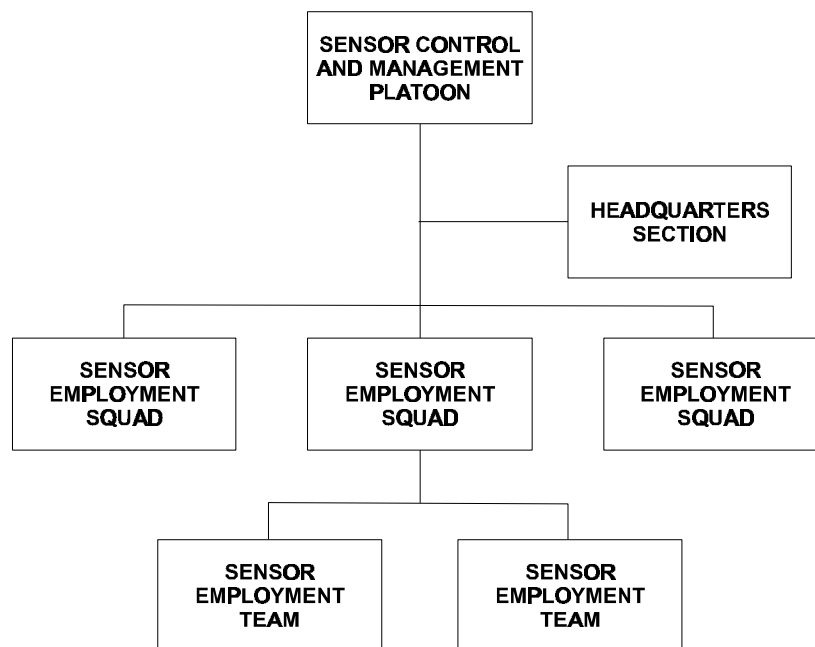


Figure 3-2. SCAMP Organization.

- Plans remote sensor operations for the MAGTF as a whole.
- Manages execution of the sensor surveillance plan.
- Provides liaison element to CE or senior supported headquarters.
- Performs 2d-4th echelon maintenance on remote sensor equipment.
- Provides supply support for the platoon.
- Training management.
- Embarkation.
- Platoon administration.

(2) Sensor Employment Team. The SET is the basic unit of employment for remote sensor operations. A SET is made up of four Marines and operates one TRSS suite of equipment. A SET is designed to support a MEU-sized MAGTF. A SET can provide the following capabilities:

- Develop a limited-scope sensor surveillance plan.
- Assist in the planning and execution of implant operations.
- Provide sensors and relays for the employment of up to 24 hand-emplaced and 8 air-delivered sensor strings
- Operate a single monitoring site on a continuous basis.
- Operate a remote monitoring site for limited periods.
- Perform 1st echelon maintenance on remote sensor equipment.

(3) Sensor Employment Squad. A SES consists of a three-man squad headquarters and two SETs. The squad headquarters provides an enhanced planning and liaison capability over that of the SET. In addition, it provides greater flexibility in the establishment of remote monitoring sites.

d. Concept of Employment

(1) SCAMP assets will be task-organized to provide remote sensor support. While a SET or SES is configured to support

a notional MEU or larger MAGTF, the specifics of the situation will determine the configuration of the sensor assets employed.

(2) The SET is the basic unit of remote sensor employment. It is also the smallest element capable of independent employment.

(3) A SET is configured to support a MEU-sized MAGTF. A SES is designed to support a MEF(Fwd). A MEF will normally be supported by an entire SCAMP.

(4) During tactical operations, the SCAMP or SCAMP detachments remain under OPCON of the MAGTF commander, normally in GS of the entire force. The MAGTF G-2/S-2 exercises OPCON for the MAGTF commander through the SARC.

(5) The entire platoon/detachment or portions of it may be placed in DS of a subordinate unit. SESs or SETs are configured for the DS role.

3003. Tasking Remote Sensor Assets

a. Tasking Authority. Tasking authority for remote sensor assets rests with the commander who exercises OPCON over the SCAMP/SCAMP detachment. Tasking authority includes directing the—

- Emplacement of sensors and relays.
- Establishment of monitoring sites.
- Dissemination of sensor information.

Under DS, the supported commander may be given complete or partial tasking authority over the supporting remote sensor assets. For example, a unit with a SCAMP det in DS may be given authority to position monitoring sites and direct the dissemination of sensor data, but not be authorized to emplace new sensors. In establishing the support relationships, the MAGTF commander must designate the degree of tasking authority delegated to the supported commander.

b. Exercise of Tasking Authority. Tasking authority is normally exercised by the SARC, based upon commander's guidance, direction from the G-2, the intelligence collection plan, and the concept of operations. The majority of remote sensor tasks will be assigned by the sensor surveillance plan. Modifications to the plan or new taskings

will be given to the SCAMP in the form of frag orders, usually via a SCAMP liaison and control element located in the SARC.

c. Requesting Remote Sensor Support

(1) Remote sensor support is requested through the operational chain-of-command, utilizing established intelligence collection support procedures.

(2) Subordinate units will normally identify general intelligence collection requirements rather than asking specifically for remote sensor support. This permits the MAGTF collections officer to determine the best asset to satisfy the requirement; the best asset might be an unmanned aerial vehicle (UAV) or a recon team but not remote sensors.

(3) In certain circumstances, it may be appropriate for a subordinate unit to specifically request remote sensor support. In asking specifically for remote sensor support, a subordinate unit may request that sensor surveillance be established in a particular location(s), a SCAMP det be placed in DS, or that sensor reporting be provided through a specific communications link. For example, the ground combat element (GCE) may want to incorporate sensors in support of its covering force during defensive operations; in this case, the GCE should request a SCAMP det be placed in DS, with authority to emplace its own sensor network.

(4) Any type of remote sensor support request should be coordinated between the collections section of the MAGTF and the requesting unit.

3004. Remote Sensor Control Agencies

The following agencies are normally established to exercise control over remote sensor operations. See figure 3-3.

a. SARC. The SARC serves as the focal point for the planning and execution of intelligence collection operations within the MAGTF. The SARC exercises operational control for the MAGTF commander over remote sensor assets. The SARC develops the sensor surveillance plan, supervises the execution of the plan, develops and issues new remote sensor tasks, and maintains the current status of the established sensor network and re-manning remote sensor assets. When no SARC is established, the G-2/S-2 section of the supported unit will carry out these functions.

b. SCAMP Liaison and Control Element. The SCAMP/SCAMP det will provide a liaison and control element to the SARC. This element is headed by the platoon or detachment commander. It performs the following functions:

- Plans remote sensor operations.
- Exercises command and control of SCAMP elements.
- Maintains status of remote sensor assets.
- Receives sensor reports from monitoring sites.

c. SCAMP Headquarters. The platoon or detachment headquarters provides administrative and logistical support to remote sensor operations. A SCAMP CP will normally be established in proximity to the SARC.

d. Monitoring Sites. Monitoring sites maintain the status of and provide reporting from their assigned portions of the sensor network. A senior monitoring site may be designated to coordinate the activities of all the monitoring sites; otherwise, this function is carried out by the SCAMP liaison and control element of the SARC.

e. SCAMP Liaison Teams. SCAMP liaison teams are provided to units assigned implant missions and units receiving DS from a SCAMP element. Responsibilities for liaison teams to implant agencies are listed in paragraph 5002. Responsibilities of liaison teams for supported units parallel those of the SCAMP liaison and control element of the SARC.

3005. Communications for Remote Sensor Operations

The success of remote sensor operations depends upon the maintenance of effective command and control of monitoring operations and the timely dissemination of sensor data. Detailed planning is required to ensure that the necessary communications architecture is established to support remote sensor operations.

a. Sensor Data Transmission. The transmission of sensor data from the encoder transmitter units and relays is done in a unique frequency band; no other U.S. military equipment uses this frequency band. Therefore, there is no requirement to establish a unique "Sensor Data Transmission" net. However, the SCAMP must still request allocation and coordinate the use of frequencies and channels for sensor data transmission with the communications-electronics officer

in accordance with established procedures for use of electronic emitters.

b. Sensor Reporting. The timeliness requirement for sensor reporting will dictate the choice of means used to disseminate sensor reports. The following are options available, listed in order of preference:

(1) Direct Dissemination. Whenever possible, a monitoring site should be collocated with the SARC or CP of the supported unit. A monitoring site in proximity to the supported unit can provide direct dissemination of sensor reports via messenger, telephone, or local area network.

(2) Radio. Transmission of sensor reports via radio nets may be the only way to disseminate sensor information in a timely manner, particularly when monitoring sites are dispersed throughout the AO.

(a) If a high volume of time-sensitive reporting is anticipated, a sensor reporting net should be established; otherwise, time-sensitive reports can be sent over the supported unit's intelligence or reconnaissance net while non-time-sensitive reports can be disseminated via messenger or other means.

(b) The supported unit's intelligence or alert/broadcast net should be used to transmit critical early warning or target acquisition reports.

(c) Data transmission should be used whenever possible to minimize transmission time and ensure accuracy of the reporting.

c. Command and Control. The SCAMP/SCAMP det commander must maintain effective command and control over his subordinate elements. While this can sometimes be accomplished by using the communications assets of the supported unit(s), normally, positive control requires the establishment of a separate SCAMP command net.

d. SCAMP Radio Nets The following unique SCAMP radio nets may be required for the conduct of remote sensor operations:

(1) Sensor Reporting Net

(a) Purpose. Provides a means for rapid reporting of sensor data to supported units. This net will operate in a broadcast mode whenever possible; any unit with the capability may enter the net to copy pertinent sensor reports.

(b) Composition

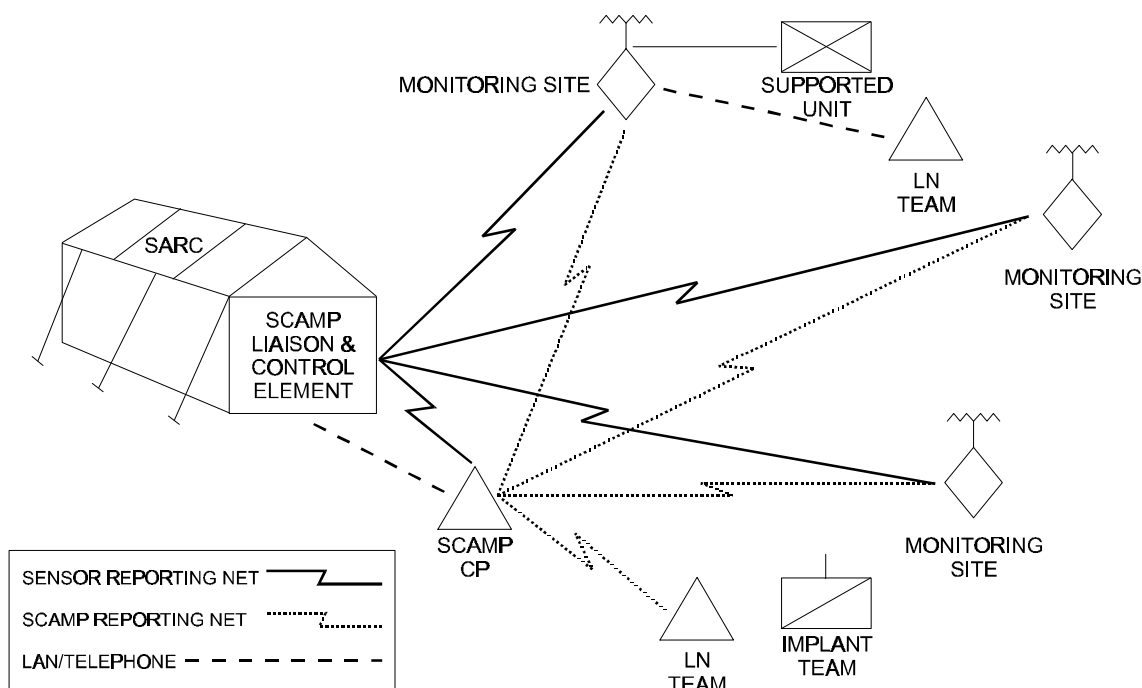


Figure 3-3. Sensor Control Agencies.

- SARC (net control).
- Monitoring sites.
- Supported units.
- SARC (SCAMP liaison and control element).
- Platoon/det headquarters (net control).
- Monitoring sites/deployed SES/SETs liaison teams.

(2) SCAMPCommand Net

(a) Purpose. Provides means for SCAMP commander to exercise command, monitor status of remote sensor operations, and coordinate administrative and logistics requests of subordinate elements.

(b) Composition

Chapter 4

Planning for Remote Sensor Operations

Remote sensor operations require detailed planning and key intelligence developed through the IPB process in order to be successful. The mission, area of operations, threat, commander's intent, and concept of operations must be analyzed to determine the potential for remote sensor employment and the sensor information requirements which must be satisfied. To develop a sensor surveillance plan, a sensor employment planning cell headed by the intelligence collections officer uses a six-step sensor employment planning cycle. The sensor surveillance plan provides the employment concept and detailed instructions for the execution of remote sensor operations. Requirements for implant operations are developed along with concepts for the monitoring and dissemination of sensor data and these elements are combined into the sensor surveillance plan.

4001. Remote Sensor Support to Operations

The nature of the mission determines the tactical application and scope of remote sensor operations. For each type of mission, there are unique considerations for the employment of remote sensors.

a. Offensive Operations. Offensive operations, along with amphibious operations, are the most difficult to support with remote sensors. The rapid pace and fluid nature of modern offensive operations may result in emplaced sensor networks being quickly uncovered by friendly forces; sufficient time and resources may not be available to reestablish the network to support exploitation and pursuit. In addition, monitoring operations and the dissemination of sensor data are complicated by frequent displacements of advancing units. When a sensor network can be established in advance of the operation, remote sensors can provide the following support:

- **Monitoring of objectives.** Sensors can provide surveillance of an objective and the avenues of approach to it, detecting and characterizing the nature of activity on and around the objective.
- **Surveillance of entry points.** As with objectives, sensors can provide surveillance of beaches, heli-

copter landing zones (HLZs), and drop zones to help determine their suitability.

- **Surveillance of the area of interest.** Sensors emplaced deep in the battle area can help guide the planning effort by characterizing the location, nature, and intensity of enemy activity in the area of operations. Once execution begins, the sensor network helps monitor enemy response to the attack, providing early warning of reinforcement or counterattacks, identifying retrograde operations, and assisting in target acquisition efforts.

b. Defensive Operations. The TRSS is well suited to support defensive operations. As in offensive operations, sensors provide the best support when they can be emplaced deep in the area of interest. In the defense, sensors are implanted along likely avenues of approach and in and around probable assembly areas to provide early warning of enemy attacks. An extensive sensor network can be used to track enemy formations as they move across the battlefield, providing basic targeting data and cueing other target acquisition assets. In a mobile defense, sensors can also be used to provide surveillance of gaps between units or of open flanks or rear areas.

c. Amphibious Operations. The employment of remote sensors in support of amphibious operations presents

many of the same challenges as supporting offensive operations, coupled with the following additional complications:

- Increased size of operating area and number of objectives, entry points, lines of communications, and named area(s) of interest (NAI) to be covered.
- Limited access to the amphibious objective area for implant operations.
- Risk of compromising OPSEC by emplacing sensors.
- Maintenance of communications line-of-sight between sensors/relays and shipboard monitoring sites.
- Conduct of shipboard monitoring operations.

d. Military Operations Other Than War. The TRSS can be used to support forces engaged in military operations other than war (MOOTW). Generally, it is the nature of the threat, the characteristics of the area of operations and the duration of the operation rather than the particular MOOTW mission which will determine the applicability of remote sensor support to a particular operation. Missions which have a large area of operations and are conducted over an extensive period such as peacekeeping or support to counterinsurgency are more likely to benefit from TRSS employment. Conversely, the opportunity to emplace and develop an effective sensor network in support of short-duration, limited-scope operations like raids or recovery operations is minimal.

4002. Planning Considerations

a. Terrain. Terrain factors have a significant impact on sensor employment. The prevailing terrain in large part determines potential sensor locations, implantation means, sensor detection radius, the requirement for relays, and the positioning of monitoring sites. Terrain factors to be considered are as follows:

- Soil type and composition. These factors determine detection radius and emplacement method; hard, compacted soils offer best detection conditions for seismic sensors.
- Ambient interference. Seismic noise due to volcanic activity, earth tremors, surf action, or

running water (either natural, e.g., rivers and streams, or man-made, e.g., sewer or water supply systems) will degrade the quality of seismic sensor performance. Emissions from power lines and other electronic sources can disrupt magnetic sensors.

- Vegetation. Vegetation provides cover and concealment for sensors and relays, but may inhibit antenna placement and interfere with communications line-of-sight.
- Lines of communications. The traffic pattern in the area of operations is a critical factor in determining the best locations for sensor emplacement. In general, areas with limited lines of communications and restricted cross-country mobility provide the best sensor information. Choke points along lines of communications are particularly lucrative sensor targets.
- Waterways and water table. In addition to the ambient noise problem, the drainage pattern and water table must be analyzed to ensure potential sensor locations will not become inundated during operations.
- Communications line-of-sight. Unless airborne relays are employed, communications line-of-sight is a critical factor in sensor employment. The topography of the area must be analyzed to determine the feasibility of sensor employment and best positioning of sensors, relays, and monitoring sites.

b. Weather. While TRSS components are designed to operate in all weather conditions, extreme weather conditions can impact the system's performance. Adverse weather can—

- Cancel or delay implant operations.
- Displace antennas and above ground sensors or relays.
- Degrade sensor performance.

c. Threat. The nature of the threat will also have a major impact on the success of remote sensor operations. An enemy force made up of mechanized or motorized units with an established doctrine for movement and pattern of activity is much more susceptible to detection by the TRSS than a small, foot-mobile insurgent group. Detailed threat analysis

must be used to determine if sensors can be employed effectively against a given enemy and how to employ the TRSS in order to obtain the best possible sensor information. The enemy's ability to detect and interdict implant operations must also be considered. The potential compromise of OPSEC and loss of assets during emplacement operations must be balanced against the benefits to be gained from sensor employment.

d. Implant Operations. The establishment of a comprehensive sensor network requires time and a significant investment of resources. In addition to the OPSEC concerns discussed above, reconnaissance and aviation assets must be available to conduct implant operations and there must be sufficient time to establish the network before sensor information is required.

4003. The Sensor Employment Planning Cycle

Successful employment of remote sensors requires detailed planning. TRSS employment planning is a shared responsibility of the G-2 collections officer or ground reconnaissance and surveillance officer (normally the officer in charge of the SARC, if assigned) and the SCAMP platoon commander/detachment commander. A six-step sensor employment planning cycle is used to plan remote sensor operations. See figure 4-1. At the MAGTF level, a sensor employment planning cell may be established. See figure 4-2.

a. Determine Sensor Information Collection Requirements. The first step in the sensor employment planning cycle is to develop specific collection requirements for remote sensors. The intelligence collection officer—

- Analyzes the intelligence collection requirements, considering the sensor planning factors described in paragraph 4001, commander's intent, and guidance from the G-2/S-2 to determine which requirements may be satisfied by remote sensor employment.
- Breaks the general collection requirements down into specific sensor information collection requirements. These are then used to develop a rough task list for the SCAMP detachment. See figure 4-3. The intelligence collection officer also

tries to establish priorities among the potential tasks.

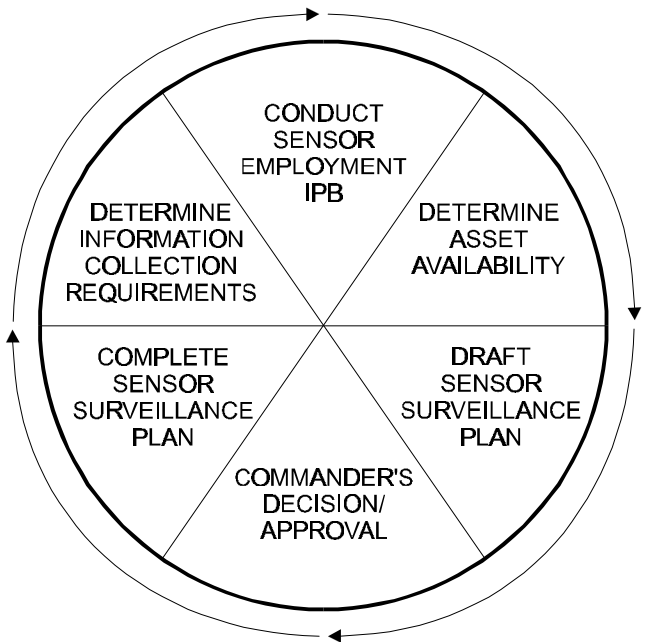


Figure 4-1. Sensor Employment Planning Cycle.

Collections Section Representative
SCAMP Plt/Det Cdr or Rep
G-2/S-2 Intelligence Analyst
Terrain Analyst
and
Representatives from implant agencies: Force Recon, LAR Bn, Helicopter Sqdn, or MAG

Figure 4-2. Sensor Employment Planning Cell.

INTEL COLLECTION REQUIREMENT	SENSOR INFORMATION REQUIREMENT	SCAMP TASK
Provide warning of armor attack against amphibious task force (ATF) Obj A	Detect movement towards ATF Obj A from East along Hwy 1	Establish sensor surveillance of Hwy 1 east of ATF Obj A
Determine enemy activity in vic HLZ Crow	Detect enemy presence and movement in vic of HLZ Crow	Establish sensor surveillance in/around HLZ Crow

Figure 4-3. Relationship Between Intelligence Collection Requirements, Sensor Information Requirements, and SCAMP Detachment Tasks.

- Considers the command and support relationships to be utilized based on the commander's intent, ongoing operational planning, and the sensor information collection requirements. If placing all or part of the SCAMP detachment in DS of a particular unit is appropriate, the intelligence collection officer provides this planning guidance to the sensor planning cell.
- Provides a detailed briefing for the sensor planning cell. The briefing should cover the following:
 - Command mission.
 - Orientation to the area of operations.
 - Friendly and enemy situations.
 - Commander's intent and guidance.
 - Concept of operations or courses of action under consideration.
 - Intelligence collection requirements.
 - Collection strategy.
 - Sensor information collection requirements/SCAMP detachment tasks.
 - Priorities and risk assessment.

A format for this briefing is contained in appendix C.

b. Conduct Sensor Employment IPB. Drawing heavily on IPB conducted by the supported unit's intelligence section, the planning cell analyzes the area of operations to determine environmental and threat factors affecting sensor employment. Key IPB products used in this analysis include soil analysis studies, lines of communications overlays, combined obstacle overlays, enemy situation templates, and line-of-sight profiles. When this process is completed, the planning cell will have a detailed understanding of the influence of terrain, weather, and enemy forces on sensor employment and

will have identified potential locations for sensors, relays, and monitoring sites.

c. Determine Asset Availability. Using the results of the sensor employment IPB process, the planning cell next determines the availability of sensor assets and assesses whether the assets are sufficient to accomplish the assigned tasks. The availability of units to conduct implant missions must be considered along with the number of sensors, relays, and monitoring sites required.

d. Prepare Sensor Surveillance Plan

(1) The key elements from the first three steps in the planning cycle are integrated to develop a draft sensor surveillance plan. These steps provide the sensor information collection requirements, potential TRSS element locations, and availability of sensor assets and implant agencies.

(2) The sensor surveillance plan specifies the—

- Type and location of sensors, relays, and monitoring sites.
- Time of emplacement and unit responsible for emplacing each sensor string and relay.
- Frequency and channel assignment for each sensor and relay.
- Command and support relationships for SCAMP detachments.
- Conduct of monitoring operations.
- Dissemination flow of sensor data.

(3) The planning cell attempts to ensure that the plan will accomplish all assigned taskings within the constraints of available sensor assets, implant agencies, and time. When assets are insufficient to carry out the entire plan, the cell must make recommendations as to which locations offer the highest

potential for collection of sensor data and prioritize among them. It must also do a risk assessment for each implant mission, attempting to determine the potential for compromise of the individual implant mission and the impact on OPSEC. Appendix D provides a checklist for determining the suitability of remote sensor employment.

(4) The draft plan defines support relationships between the SCAMP detachment and elements of the MAGTF throughout the course of the operation. As support relationships are closely tied to the concept of operations, it is critical that the planning cell be aware of ongoing operational planning. Decisions regarding the employment of SCAMP detachments in DS should be based on the commander's intent, the concept of operations, and nature of the sensor information requirements that can be satisfied.

(5) Initial plans are refined based on updated intelligence, the completion of detailed terrain profiles which determine communications line-of-sight connectivity for each sensor and relay, the developing concept of operations, and further guidance from the G-2/S-2.

(6) The sensor surveillance plan can be executed in phases. Phases of the sensor surveillance plan can be tied to phases of the overall operation, developing the depth of the sensor network to support increasing scope of operations. Implant operations can also be "phased" when there are limited units available to emplace sensors and/or relays.

e. Submit the Sensor Surveillance Plan to the Commander for Decision/Approval. The draft plan is submitted to the commander or decision and approval. The decision brief must clearly state the sensor assets to be employed, resources required for implant operations, and the potential risks and benefits associated with TRSS employment. A format for this brief is provided in appendix E. The detail provided in this brief will vary with the level of command, time available, and unit SOP. At a minimum, the details of sensor concept of employment must be presented to the unit G-2/S-2 and G-3/S-3 for approval.

f. Complete the Sensor Surveillance Plan. After the commander's decision, the draft plan is finalized. Modifications based on commander's guidance and/or coordination issues raised at the decision brief are incorporated into the plan. Warning orders for ground implant missions and air support requests for air implant sorties are prepared and issued. If required, Joint Remote Sensor Report/Request (JRSR/R) notification reports and support requests are

completed and disseminated. For more information on JRSR/Rs, see chapter 5 and appendix H. If not already underway, coordination with supported units, implant agencies, and key staff sections begins.

4004. Sensor Surveillance Plan

The sensor surveillance plan provides the employment concept and detailed instructions for the execution of remote sensor operations. When time permits, the plan is prepared as a formal document and included as an appendix to the Intelligence Annex. Otherwise, elements of the plan can be disseminated in the form of overlays, briefings, or frag orders. At a minimum, the following information must be provided:

- Planned locations of sensor strings.
- Taskings for implant operations.
- Time monitoring operations will begin.
- Dissemination plan for sensor data.

The format for a sensor surveillance plan is provided in appendix F.

Chapter 5

Execution of Remote Sensor Operations

Effective employment of the TRSS depends upon detailed planning, precise emplacement of sensors and relays, a comprehensive monitoring regime, effective analysis of sensor data, and the integration of sensor information with other intelligence. The execution of remote sensor operations includes the conduct of emplacement operations and monitoring operations and the reporting and dissemination of sensor information. Each aspect must be carried out successfully to produce useful sensor information. Information produced from remote sensor operations is combined with other intelligence in an effort to build a complete picture of the area of operations and the threat. Depending upon the concept of operations, sensor information may be used to provide general surveillance, early warning, or limited target acquisition.

5001. Employment Considerations

a. Detailed Planning. As discussed in chapter 4, detailed planning is essential to effective employment of remote sensors. The time and resources necessary to emplace a comprehensive sensor network requires a focused planning effort. The employment of remote sensors must be linked to both the anticipated enemy activity as indicated by the results of IPB analysis and the concept of operations.

b. Precise Emplacement of Sensors and Relays. Precise emplacement of sensors and relays is crucial to ensure that sensor surveillance will be established at the proper locations and that communications line-of-sight will be maintained between the sensors and the monitoring sites. Detailed coordination between the sensor planning agency and the units conducting implant operations facilitates proper execution of the sensor surveillance plan.

c. Comprehensive Monitoring Regime. A comprehensive monitoring regime must be established to ensure receipt, processing, and reporting of sensor data. The sensor monitoring plan should ensure data is received in time to impact the planning/decisionmaking process. The plan must also attempt to establish redundancy in the monitoring system to ensure no data is lost as a result of displacements, equipment failure, or results of enemy action.

d. Effective Analysis of Sensor Data. Sensor activations alone provide minimal information. It is the analysis of activations from strings of mixed-types of sensors that yields detailed and useful intelligence information. Skilled sensor operators can provide not only times and locations of activations, but estimated number of personnel or vehicles, vehicle classifications, as well as speed and direction of movement.

e. Integration of Sensor Data with Other Intelligence. While sensor data may provide important information concerning enemy activity, sensors alone rarely disclose the full nature of the activity or enemy intentions. However, the value of sensor data is significantly increased when combined with other intelligence information. In particular, sensor activations can be used to focus other intelligence collection assets on an area or activity of interest. The use of sensors should be based upon detailed IPB analysis and fully integrated with the overall collection plan to provide surveillance of named areas of interest (NAI) and cue other collection assets.

5002. Emplacement Operations

a. Emplacement Methods

(1) Air. Aerial emplacement of sensors can rapidly establish a sensor network over a large area. Disadvantages of air-implant operations include detection and interdiction by the enemy air defense system, inaccuracies in emplacement inherent in the air drop technique, and the limited sensor types available for air drop. Aerial emplacement should be used in areas of low or no air defense threat when the requirement for speed and depth in establishing the sensor network outweighs the need for accurate emplacement and the use of confirming sensor types.

(2) Mounted Patrol. Mounted patrols can also rapidly establish the sensor network over a wide area, although not as efficiently as air assets. However, hand emplacement by mounted patrols overcome most of the disadvantages associated with air-dropping including accuracy of emplacement and employment of confirming sensor types. Mounted patrols are subject to detection and interdiction by enemy defenses and are restricted to areas accessible by vehicle. Mounted patrols should be used to implant sensors whenever the terrain and threat permit the conduct of such patrols. Because of their speed, range, and self-defense capabilities, LAR battalions are primary sensor implant units.

(3) Foot Patrol. Foot patrols provide a clandestine means to implant sensors forward of friendly lines. The key limitations on implantation by foot patrol are the time and assets required to establish the sensor network. A normal foot patrol can carry 2-3 sensor strings; it can take 24-72 hours to complete the emplacement of those strings. Unless a large number of patrols can be dedicated to implant operations, only a limited sensor network can be established in a short period of time. Foot patrols should be employed to emplace key sensor strings/relays when the terrain or threat precludes use of other implant methods. Because they are trained to operate at significant depths in front of friendly lines, ground reconnaissance units are the preferred agencies for these implant operations, however any unit with the capability to conduct ground patrols, including the SCAMP, can carry out this mission.

(4) Implant Agency Selection Criteria. The following criteria should be used in determining the implant method and unit:

- Implant location.
- Threat.
- Time available.
- Implant unit availability.

- Requirement for use of confirming sensor types.

b. Planning Emplacement Operations

(1) Tasking. Sensor implant missions are assigned in the sensor surveillance plan. Implant requirements which arise subsequent to the publication of the sensor surveillance plan will be developed by the SARC or cognizant G-2/S-2 section and tasked via the appropriate operational chain-of-command. Coordination between the sensor planning cell and units tasked with implant missions should occur early in the planning process to ensure the feasibility of the implant tasking and the availability of assets to perform the implant missions.

(2) Combining Sensor Implant Missions with Other Taskings. A sensor implant mission may be combined with other tasks during a single patrol or sortie, however, such dual-tasking should be coordinated with the SARC and everyone involved must understand and agree on the relative priorities of each task assigned.

(3) Mission Planning. The unit tasked with the implant mission is responsible for planning the mission. A sensor implant mission will be planned like any tactical mission, with the focus of actions in the objective area on the emplacement of the sensors or relays. Consideration must be given to the additional preparation time required for the handoff of sensor equipment, coordination of implant requirements, and provision of instructions on sensor emplacement techniques.

(4) SCAMP Liaison Responsibilities. The SCAMP or SCAMP det will provide a liaison element to the unit tasked with the sensor implant mission. The liaison element—

- Provides the sensor equipment.
- Gives instructions on emplacing sensor equipment.
- Loads the proper settings into each sensor/ETU.
- Coordinates details of emplacement locations.
- Discusses alternate implant locations, equipment troubleshooting, abort criteria, and other operational contingencies.

If appropriate, and with prior coordination, member(s) of the SCAMP liaison element may participate in the implant mission. When the mission involves emplacement of a ground relay, a remote sensor operator should accompany the patrol to ensure proper siting and testing of the relay. At a

minimum, SCAMP personnel should observe a rehearsal of the actions in the implant area to ensure the unit can properly emplace the sensors or relays.

c. Execution of Implant Missions. Implant missions will be conducted like any other tactical mission, with special consideration given to the actions in the objective area required to emplace the sensor equipment.

(1) Actions in the Objective Area. The following actions are performed in the objective area. The nature of these activities will vary slightly depending on whether the sensors are air dropped or hand emplaced.

- Confirm conditions in the implant area.
- Emplace sensor equipment in accordance with the mission tasking.
- Verify the location of the implant (preferably with global positioning system).
- Conduct operational checks of the equipment.
- Prepare a sensor tag and sketch diagram of the implant site. See figure 5-1, figure 5-2, and appendix G.

(2) Command and Control. Hand-implant missions will be controlled by the SARC or the unit operations section exercising control over that area of the battlefield. Air-implant missions will be controlled by the appropriate Marine air control agency. The SCAMP or SCAMP det should monitor the progress of ongoing implant missions, providing input to any modifications required during mission execution.

(3) Post-mission Activity. Upon completion of the implant mission, the unit will debrief, complete the sketch diagram, and prepare a sensor implant report. See appendix H. The sensor implant report will be forwarded to the SARC and SCAMP det by the most expeditious means. The debrief report, sensor tag, and sketch diagram will be delivered to the SCAMP det as soon as practical.

5003. Monitoring Operations

a. Monitoring Techniques

(1) Near Real Time. Near real time (NRT) monitoring is the receipt, processing, and analysis of sensor activations as they occur. It is the preferred monitoring technique, as it provides rapid reporting of sensor data, and is the only fully effective method to employ when sensors are used for early

warning or target acquisition. NRT monitoring is accomplished by establishing a monitoring site with communications line-of-sight to the sensors and relays in its assigned area; this site provides continuous monitoring of its portion of the sensor network. The disadvantages of this technique are the need to maintain line-of-sight to all sensors/relays and the requirement to conduct non-interrupted operations.

(2) Store and Interrogate. TRSS relays have the capability to store sensor activation data for retrieval at a later time via interrogation by an airborne relay or ground monitoring site. The store and interrogate technique can be employed—

- When sensors are employed for general surveillance and speed of reporting is not critical.
- When the depth of the sensor network precludes NRT monitoring of all sensors/relays in the network.
- During monitoring site displacements.
- To recover data not collected during interruptions in NRT monitoring ops.

The principal drawback of this technique is the lack of timeliness of the data.

(3) Fixed Site. The establishment of a fixed monitoring site occupied by a SMMS provides the most reliable means of monitoring sensor activations. The monitoring site must have communications line-of-sight to the monitored sensors and relays. Every effort should be made to collocate or establish the site in proximity to the supported unit to facilitate reporting of sensor data.

(4) Remote Site. One of the two receive terminals in the mobile monitoring system can be displaced from the system to provide a remote monitoring site capability. This capability provides redundancy for monitoring operations and can be used to provide a direct feed of sensor data to supported units when the requirement for timeliness of the data or lack of communications connectivity precludes providing support from the fixed site. The portable monitor can also be used to conduct remote site monitoring, but the portable monitor is limited in the number of sensors it can handle and all processing must be done manually. The remote site must have communications line-of-sight to the sensors or relays. Additional monitoring personnel are required to conduct remote site operations over an extended period.

SENSOR EMPLACEMENT TAG	
String # _____	Type Device _____
Channel # _____	ID # _____
Location _____	Date _____
Recovery Code _____	Time _____
Emplaced by (unit) _____	
Recovered by (unit) _____	
AIR EMPLACED SENSORS	
Drop Sequence # _____	

Figure 5-1. Sensor Tag.

(5) Mobile Monitoring. Sensors cannot be monitored while the monitoring site is moving. However, by employing the store and interrogate method, it is possible to perform monitoring operations during short halts on the march. Communications line-of-sight must be established at each new monitoring position, and there must be sufficient time allotted to recover and process all stored sensor data. This technique is effective in supporting high-tempo mobile operations or in servicing a widely dispersed sensor network which cannot be monitored from established fixed site(s).

(6) Shipboard Monitoring. It is possible to monitor sensor activations from offshore, however, shipboard monitoring operations require detailed planning and coordination. As with other monitoring techniques, the principal difficulty is maintaining communications line-of-sight. Unless the ship will be continuously positioned close to the coastline, the store and interrogate method must be used. At periodic intervals, the ship can approach the coastline to establish line-of-sight or an airborne relay can interrogate the sensor relays. Other complications in shipboard monitoring include the requirement to deck-mount antennas, coordination of transmissions with shipboard emission control conditions, the presence of extensive electro-magnetic interference, and the lack of spaces from which to conduct monitoring operations. Extensive coordination with the ship's operations and deck divisions is required to ensure proper ship's positioning and the availability of effective locations for antennas and monitoring equipment.

b. Planning Monitoring Operations

(1) Principles

(a) Provide Monitoring and Dissemination of Data to Meet Requirements. The monitoring plan must ensure sensor data is collected, processed, and reported to satisfy the requirements set forth in the commander's guidance and collection plan. Particular attention must be paid to the timeliness of the data provided.

(b) Monitoring Operations Must be Integrated with Operations. The monitoring plan must take into account the location and activities of the supported units. Monitoring sites must be positioned where they can best collect sensor data and report that data to the supported units. Enemy activity may be anticipated at certain phases of the operation; monitoring personnel must have a situational awareness of both intelligence estimates and ongoing operations in order to focus their efforts at a particular time and area. Finally, the requirement for timeliness in processing and reporting may vary depending upon the stage of the operation; monitoring personnel must be aware of current timeliness requirements.

(c) Provide Redundancy in the Monitoring Plan. The monitoring plan should ensure that there are at least two sites which can monitor data from each sensor or relay, whenever possible. This helps prevent the loss of data should one site fail to receive the data transmission, experience equipment malfunction, or be required to interrupt monitoring operations. The ability to provide this redundancy is

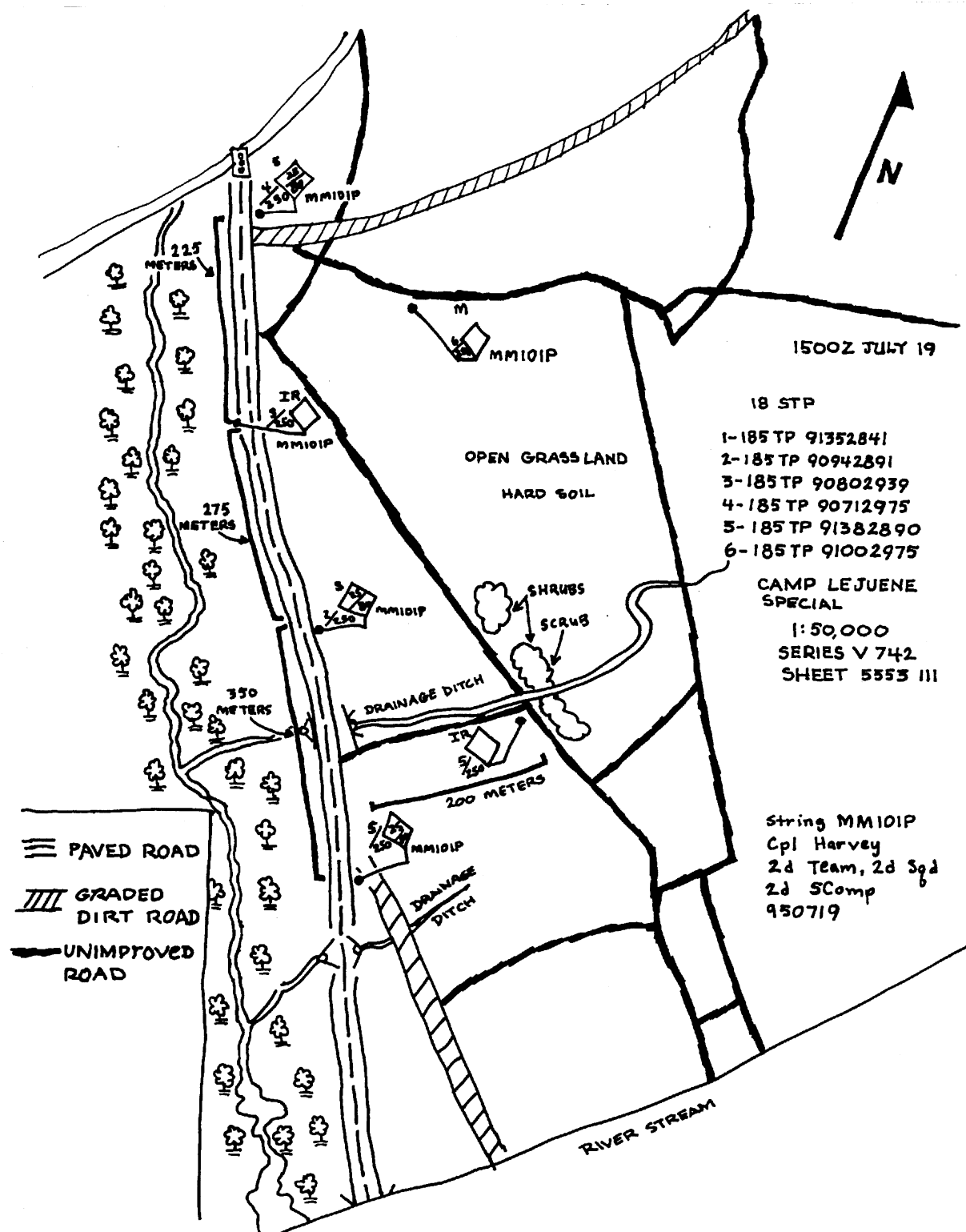


Figure 5-2. Sketch Diagram.

dependent upon a number of factors, primarily the number of sensor mobile monitoring sets available and the number and location of sensors to be monitored.

(d) Make Full Use of All Monitoring Equipment.

Sensor monitoring equipment will not normally be held in reserve. The establishment of multiple monitoring sites helps provide redundancy in the monitoring system and facilitates rapid dissemination of sensor data throughout the force.

(2) Planning Considerations

(a) Selection of Monitoring Technique. The choice of monitoring technique will be dictated primarily by the concept of operations and the remote sensor application being utilized (general surveillance, early warning, or target acquisition).

While continuous monitoring from fixed-sites is the preferred monitoring technique, this technique is probably only applicable to relatively static defensive situations. In most cases, a mix of monitoring techniques must be employed throughout the course of an operation; the technique used in each phase being based upon the operational situation and the sensor information requirements pertinent to that phase of the operation.

(b) Location of Monitoring Sites. The selection of locations for monitoring sites is based on a number of factors. The most important consideration is the requirement to establish communications line-of-sight. The second most important factor is the ability to provide sensor data to the supported unit. Every effort will be made to collocate the monitoring site with the command post of the supported unit or one of its subordinate elements; collocation simplifies and speeds the dissemination of sensor reporting. If collocation is not possible, communications plans must be developed to ensure expeditious dissemination of sensor data. Other important considerations in site selection are security, accessibility, and supportability.

(c) Allocation of Monitoring Responsibilities. Ideally, all emplaced sensors should be monitored from a single site, providing a completely integrated monitoring effort; line-of-sight considerations will rarely permit such centralization of the monitoring regime. Thus, responsibility for monitoring different segments of the sensor network must be divided among monitoring sites. Line-of-sight and the support relationships in effect at the time will be the main factors considered in determining the allocation of monitoring responsibilities among the monitoring sites. Allocation decisions should provide for redundancy by assigning primary

and secondary monitoring responsibilities for each sensor string to two different monitoring sites.

(d) Displacement Requirements. The requirement to displace monitoring sites will also be dictated primarily by the concept of operations. Consideration must be given to the timing and conduct of displacements to ensure there is no loss of monitoring capability, particularly during critical phases of the operation.

(3) The Sensor Monitoring Plan. Based on guidance provided by the sensor planning cell, the SCAMP or SCAMP det commander develops his monitoring plan. This plan becomes part of the sensor surveillance plan. See appendix F. The plan covers—

- Monitoring technique(s) to be employed.
- Time and location for the establishment of monitoring sites.
- Sensor monitoring responsibilities by site and string.
- Designation of the senior monitoring site.
- Sensor data reporting thresholds and procedures.
- Displacement procedures.
- Instructions for coordination with supported units and units located in proximity to monitoring sites.

c. Conduct of Sensor Monitoring Operations

(1) Automated Monitoring. TRSS provides automated support for most monitoring functions. Computers in the SMMS process, correlate, and display sensor activations for analysis by the operator. They also provide automated support for the generation of standard sensor reports. The monitoring can also be performed manually. In manual monitoring, the operator must record and process all data and generate reports by hand. Because automated monitoring is faster, more accurate, and can process data from more sensors, it is the preferred method. The manual mode should be used only to support remote monitoring operations or in the event of automated equipment failure.

(2) NRT Monitoring Procedures. In NRT monitoring, sensor activations are processed and analyzed as they are received. Sensor operators generate and disseminate reports according to the monitoring and dissemination plan. The

emphasis is on rapid dissemination of sensor data. While detailed analysis can provide additional information regarding the movement and classification of detected targets, sensor operators must insure that extensive analysis does not delay the reporting of basic data. Additional information can be forwarded in amplifying reports.

(3) Store and Interrogate Monitoring Procedures.

In this technique, sensor operators must quickly review all stored activations, analyze any patterns of activity detected, and identify key information concerning critical movements or areas. Key information is reported first; detailed analysis and reporting of non-time sensitive data is performed later.

(4) Monitoring Site/Operator Responsibilities. In addition to carrying out the monitoring and reporting plan, each monitoring site/operator will—

- Coordinate for use of AO. Even if the location of a monitoring site is directed by the monitoring plan and coordinated by the SARC, site personnel must still coordinate with the operations section of the unit responsible for the area in which the site will be established. Details to be coordinated include precise location of site, displacement procedures, information exchange, site security, and logistics.
- Maintain situational awareness. The monitoring site must be aware of the operational situation in order to anticipate enemy activity, hand off targets or monitoring responsibilities from one site to another, changes in supporting relationships, a requirement to increase timeliness in reporting, and possible displacements. Situational awareness is maintained through contact with the SARC or other controlling agency and coordination with the friendly units located in proximity to the monitoring site.
- Provide initiative reporting. In addition to primary reporting responsibilities, monitoring sites should provide sensor reports on information of interest to units located in proximity to the site.
- Maintain status of sensors and relays. The monitoring site is responsible for keeping track of the status of all sensors and relays in its assigned sector of the sensor network. The site must

provide appropriate status and change-of-status reports to the SARC and SCAMP/SCAMP det headquarters to ensure the supported unit is aware of the current state of the sensor system.

- Remain responsive to changing requirements. The monitoring site must be prepared to assume responsibility for monitoring sensors assigned to other sites, utilize a different monitoring technique, shift reporting responsibilities in accordance with changing support relationships, or displace to maintain contact with the supported unit.

5004. Disseminating Sensor Information

a. Reporting Techniques

(1) Format. The Sensor Report (SENREP) is the standard format used to report sensor data. See figure 5-3. This format is used for voice, data, and hard copy reports. The general state of the sensor network, changes in the status of specific sensor strings and relays, and planned sensor operations can be reported using the Sensor Status Report. Other information concerning the sensor network and monitoring operations of primary interest to SCAMP personnel (implants, changes in monitoring responsibilities, etc.) is reported using the Joint Remote Sensor Report Request (JRSR/R). For details concerning these reports see appendix H. The Intelligence Analysis System (IAS) is equipped with software to process both SENREPs and JRSR/Rs. Use of standard formats permits the direct exchange of sensor information between monitoring sites and units equipped with the IAS, facilitating rapid integration of this information with other intelligence.

(2) Report Preparation

(a) SENREP. SENREPs are prepared when the sensor operator determines activity has been detected by a particular sensor or sensor string. Operators will normally use the automated processing capability of the SMMS to generate these reports.

(b) Sensor Status Reports. Sensor Status Reports are employed only when the requirement to keep MAGTF elements informed of the state of the sensor network cannot be met by liaison with the various SCAMP elements or other regular intelligence collection status reporting. The MAGTF G-2/S2 will direct the use of the Sensor Status Report. The

TITLE	SENDER ID	SEQ NO	CLASS	RELEASABLY	DOR	ENVIR/OPNAME
1. SENREP	1STSCAMPHQ	016	U	UK	941117	TANDEMTHST
STR-NO	TIME	QTY	TGT-TYP	SUB-TYP	SPD	DIR
2. MM114A	1411Z	004	VEHICL	WHEEL	030	SE
COL-LGTH						
3.	ETA-LOC	ETA				
3.						
COMMENTS						
4.	CONT OF ACTIVITY RPTD SENREPS 013-15/MAJ ACTIVITY NOTED MOVING SE ALONG HWY 101 THRGHOUT AM HOURS//					

Figure 5-3. Sample Sensor Report.

senior SCAMP element will prepare this report. This report is normally a regular report covering a 24-hour period.

(c) JRSR/R. JRSR/Rs are used primarily to exchange technical data between sensor units. They will be prepared on an as required basis by the appropriate SCAMP element.

(3) Report Timeliness. Timeliness of the reporting of sensor data is critical, especially when sensors are used in the early warning or target acquisition applications. The sensor monitoring and reporting plan should specify reporting thresholds, i.e., the criteria for sensor activations that should trigger a report, and the timeliness required for the report based upon the type of information contained in the report. See figure 5-4. Sensor operators must ensure the prompt reporting of critical sensor data is not delayed in order to perform extensive analysis.

b. Information Flow

(1) Reporting Chain. The support relationship in effect at the time will determine the reporting chain to be used.

(a) General Support. In GS, SENREPs will normally be sent to the SARC and the MAGTF All-Source Fusion Center (MAFC) for correlation with other sensor and reconnaissance/surveillance information and dissemination throughout the force. If no SARC is established, the senior monitoring site may act as the central reporting node for sensor information, however, the SCAMP commander must ensure that centralization does not adversely affect the timeliness of the reporting.

(b) Direct Support. In DS, reports go directly to the supported unit, as directed by that unit's G-2/S-2. Normally, SENREPs will be sent to the supported unit's SARC, or if no

SARC is established, the intelligence watch section of the combat operations center.

(c) Broadcast and Lateral Dissemination. Sensor information should be made available to any unit that wants it. To the maximum extent possible, sensor reports will be transmitted in a broadcast mode, and any unit with the capability of entering the sensor reporting net will be permitted to receive the SENREPs. When broadcast reporting is not possible, monitoring sites will attempt to provide lateral dissemination of critical SENREPs to the unit(s) most directly affected by the reports.

(2) Dissemination Means. Sensor reports lend themselves to processing and dissemination over data circuits; data circuits should be used to transmit sensor information whenever possible. If data transmission is not available, voice radio should be used to pass key SENREPs with other sensor reports being sent by other means.

5005. Utilizing Sensor Information

Sensor information is used like any intelligence information: it is analyzed and combined with other intelligence information in an effort to build a complete picture of the area of operations and the threat. Sensor reports are normally sent from the SARC to the supported unit's G-2/S-2 watch. The intelligence watch integrates the report with other intelligence in an effort to refine the target classification and analyze the significance of the detection. After analysis, the sensor information is passed to the appropriate operations agency for action and/or combined with other information in standard intelligence reports. The specific utilization of sensor information is based upon the concept of operations and sensor application being employed.

Activity	Size	Report Timelines
Personnel movement	Less than plt size	20 minutes
Personnel movement	Plt size or larger	15 minutes
Vehicle movement	4 vehicles or less	10 minutes
Vehicle movement	5 vehicles or more	ASAP

Figure 5-4. Sample Sensor Reporting Criteria.

a. General Surveillance. Sensors are used to help define the nature and level of activity in the surveillance area as well as identify the high and low density lines of communications. This information is used in the overall threat assessment, the formulation of the concept of operations, the selection of beaches, HLZs, and objectives, and the refining of the intelligence collection plan to target specific areas of enemy activity. In this application, the timeliness of the sensor data is not normally as critical as the completeness of the information.

b. Early Warning. To provide early warning, sensors are emplaced at considerable distance (15-100+ km) from friendly positions along potential enemy avenues of approach. In this application, sensors are normally used to provide initial indications of enemy movement down these avenues. SENREPs can be used to trigger a variety of responses including the focusing of additional intelligence assets on the threatened area, raising the alert status of the appropriate units, or the initiation of pertinent defensive plans.

c. Target Acquisition. Extensive analysis and integration with other intelligence is required to use sensors for target acquisition. Sensors must be placed in areas of known enemy activity and the network developed in sufficient density to permit detection and tracking of a target into established supporting arms target areas. Normally, SENREPs are used to cue other target acquisition assets to focus on a particular area; UAVs, ground reconnaissance elements, air or ground observers are dispatched to confirm the nature and identity of the target and control the fire mission(s). Occasionally, sen-

sor information alone may be used to initiate the use of long-range fires. However, the result of this process is generally unobserved fire on unconfirmed targets. When employing sensors to assist target acquisition efforts, care must be taken not to compromise the locations of sensor strings by repeated or continuous attack of targets located near a particular string.

Chapter 6

Combat Service Support

Routine CSS is provided to the SCAMP/SCAMP dets by the commander with ADCON. TRSS is designated as a critical low density (CLD) item, which affects both maintenance and supply support as detailed below. There are no other unique administrative or logistics requirements associated with remote sensors.

6001. Maintenance

The SCAMP is authorized to perform both organizational and intermediate maintenance on CLD TRSS components. Sensor operators perform 1st echelon maintenance within the SETs while sensor maintenance technicians, in the SCAMP's headquarters section, carry out 2nd through 4th echelon maintenance. A limited depot maintenance float is available to support 4th and 5th echelon maintenance. Maintenance support for all other non-TRSS unique equipment will be provided in accordance with normal maintenance procedures.

6002. Supply

Supply support for CLD TRSS components will initially be provided through contractor support. Thereafter, supply support will be provided through normal supply procedures. After initial provisioning, the maintenance float and

a small war reserve will be the only sources of replacement items. Other supply requirements will be provided by the commander with ADCON. Remote sensor equipment does not use any unique consumables; standard batteries used by sensors and relays are the primary TRSS consumables.

6003. Transportation

TRSS is transportable by airlift and sealift, and presents no special embarkation problems. An equipment density list for a SET (equipped with a single TRSS suite) and a SES is provided in appendix I. The SCAMP table of equipment (T/E) provides sufficient organic motor transport to move sensors, relays, and monitoring equipment. External support is required to move TRSS maintenance shelters.

Chapter 7

Training

7001. Types of Training

Training for remote sensor operations encompasses—

- TRSS orientation and familiarization.
- TRSS planning and employment.
- Operator training.
- Maintenance training.
- Sensor emplacement training.
- MAGTF training.

7002. Tactical Remote Sensor System Orientation and Familiarization

a. Intelligence Personnel. All intelligence personnel will receive instruction on the capabilities, limitations, and employment of remote sensors as part of their formal MOS school training. In addition, TRSS orientation and familiarization should be incorporated into unit intelligence training programs.

b. Professional Military Education. Information on remote sensor capabilities, limitations, and employment should be incorporated into instruction on organic intelligence capabilities in formal professional military education (PME) courses. Unit PME programs should include TRSS orientation and familiarization in any classes covering intelligence collection or reconnaissance and surveillance. The SCAMP can provide support to unit PME programs.

TRSS planning and employment training will be provided as part of the formal school training for MAGTF intelligence officers (MOS 0202), ground intelligence officers (MOS 0203), MAGTF intelligence chiefs (MOS 0231-SSgts and above), and surveillance sensor operators (MOS 8621). In addition, training on TRSS planning and employment should be included in any specialized courses on intelligence collection or reconnaissance and surveillance.

7004. Operator Training

Sensor operators attend a 5-week Remote Sensor Operations Course. Upon completion of this course, graduates receive the surveillance sensor operator secondary MOS (MOS 8621). Each SCAMP establishes its own training cycle, the primary objective of which is to develop and enhance operator proficiency.

7005. Maintenance Training

First echelon sensor maintenance is included as part of the Remote Sensor Operations Course. Training in basic sensor maintenance procedures is provided to electronics maintenance technicians at the Communications-Electronics School. Further maintenance training is done within the SCAMPs.

7003. Tactical Remote Sensor System Planning and Employment Training

7006. Sensor Emplacement Training

Units with primary or secondary responsibilities for emplacing sensors and relays (LAR Bn, Recon Cos/Plts, and Helicopter Sqds) will incorporate sensor emplacement training as part of their regular training syllabus. This training will be conducted jointly with a SCAMP element.

7007. MAGTF Training

TRSS employment should be incorporated into all types of MAGTF training. The goal of this training should be to integrate remote sensor operations with other reconnaissance and surveillance activities of the MAGTF as well as enhance the capability to conduct emplacement and monitoring operations. Remote sensors should be used in all applications and in a variety of support relationships during the course of major training evolutions.

a. Command Post Exercises/Staff Exercises.

Remote sensor employment should be included in all command post and staff exercises. The emphasis in this type of

exercise is on the planning of remote sensor operations and the dissemination and utilization of sensor data. During a CPX or Staffex, the intelligence collections section should exercise the sensor planning cycle and develop a realistic emplacement plan, rather than administratively placing sensors on the exercise map board. SCAMP representatives should be provided to any exercise control group to validate the sensor surveillance plan and generate simulated sensor reports.

b. Field Training Exercises. Field training exercises should be used to practice sensor emplacement, monitoring, and reporting as well as planning and coordination procedures. Opportunities to conduct tactical vice administrative implant missions must be exploited whenever possible. The SCAMP must be aggressive in seeking and utilizing training evolutions of other units to provide remote sensor operations training. SCAMP dets can be used in exercises down to the battalion level and in support of both the exercise force and the opposing forces (OPFOR) to provide maximum operator training.

Appendix A

Miniature Intrusion Detection System

An intrusion detection system (IDS) consists of sensors and monitoring equipment intended to support local security requirements. IDSs are distinguished from remote sensors systems by their shorter range and the absence of the requirement to establish a special monitoring site (MCWP 2-2.3). The Marine Corps has adopted the Miniature Intrusion Detection System (MIDS) as its IDS. MIDS provides a lightweight, short-range surveillance capability to ground force commanders. A MIDS set consists of five hand-emplaced sensors and a single, handheld portable monitor. MIDS sensors employ seismic, magnetic, and infrared detectors. MIDS functions like the Tactical Remote Sensor System (TRSS) except that sensor data transmission range is shorter, there is no relay capability, and all monitoring must be performed in a continuous, manual mode by the MIDS operator.

MIDS Employment

MIDS is employed primarily to enhance local security around ground force positions or installations. MIDS sensors are emplaced along likely avenues of approach or access routes to provide early warning and force protection. MIDS can also be used to enhance and extend the surveillance area of observation posts/listening posts. Offensive applications of MIDS are limited, but they can be used to trigger ambushes or initiate fires into an established kill zone.

MIDS employment considerations are similar to those for TRSS, although MIDS emplacement and monitoring operations are less complex. Planning is required to identify the best location for sensor emplacement and proper siting of the portable monitor. The principal employment consideration is the need to maintain communications line-of-sight between the sensors and the monitor. Rapid dissemination of MIDS

data is also a significant factor, since MIDS is a short-range system and provides only limited warning and reaction time.

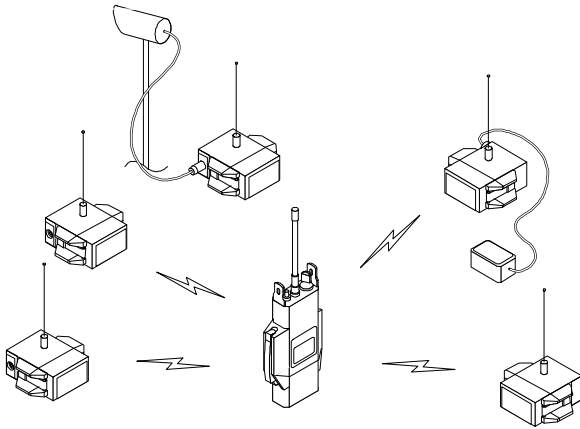
MIDS will be employed primarily by ground reconnaissance personnel in conjunction with their normal reconnaissance and surveillance tasking. However, MIDS is intended to be a simple system, requiring minimal familiarization training in order to achieve operator proficiency; thus, any personnel familiar with local security operations can be trained to operate the system. SCAMP personnel can provide this training to units equipped with MIDS. Three MIDS sets will be issued to each infantry battalion scout-sniper platoon, regimental reconnaissance platoon, division reconnaissance company, and force reconnaissance company. Each SCAMP will receive two MIDS sets.

MINIATURE INTRUSION DETECTION SYSTEM, AN/GSQ-263 SERIES

DESCRIPTION AND FUNCTION

Frequency 143.625, 143.675, 143.725 Mhz

<u>TAM</u>	<u>NSN</u>	<u>ID</u>	<u>QUANTITY</u>	<u>ITEM</u>
H2203	6350-01-398-1579	10148A	1	Monitor (MPDM)
H2203	6350-01-389-1639	10148B	3	Detector, seismic (MSID)
H2203	6350-01-389-1619	10148C	2	Transmitter (MXT)
			1	Detector, magnetic
			1	Detector, infrared
			1	Earphone assembly
			5	Antenna, whip
			1	Antenna, stub
			1	Bag, carrying



Receiver sensitivity..... -107 dbm
 Message data rate 1200 bps
 RF power output..... 1 watt
 Battery life (sensors)..... 60 days
 Battery life (monitor)..... 60 days
 Power source (per device)..... BA-90/U (2)
 Range 4-10 km

The AN/GSQ-263 is a lightweight, attended ground sensor system capable of providing all-weather, continuous, early warning and force protection surveillance missions. It consists of an assortment of five sensors which detect seismic, infrared, and magnetic activity in a given area. All activity detected is communicated to a handheld monitor on one of three fixed frequencies. AN/GSQ-263s are employed by Marine Corps' scout-sniper platoons and reconnaissance elements. MIDS is compatible with the USMC TRSS.

MAJOR COMPONENTS

TECHNICAL CHARACTERISTICS

<u>ITEM</u>	<u>LENGTH (INCHES)</u>	<u>HEIGHT (INCHES)</u>	<u>WIDTH (INCHES)</u>	<u>WEIGHT (POUNDS)</u>	<u>PERSONNEL DETECTION RANGE</u>	<u>VEHICLE DETECTION RANGE</u>
Seismic sensor	3.2	1.5	3.3	0.5	20M	100M
Mini-transmitter	4	1.5	4.25	0.56	N/A	N/A
Infrared head	1.5	1.5	0.75	0.1	30M	100M
Magnetic head	1.5	4	2	0.56	2M	10M
Monitor	1.5	5.3	3.2	0.75	N/A	N/A

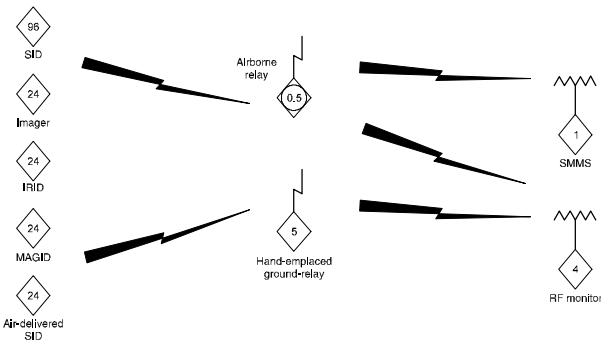
<u>TAM</u>	<u>NSN</u>	<u>ID</u>
H2203	6350-01-398-1579	10148A
H2203	6350-01-389-1639	10148B
H2203	6350-01-389-1619	10148C

Appendix B

Tactical Remote Sensor System Technical Characteristics

TACTICAL REMOTE SENSOR SYSTEM AN/GSQ-261

<u>TAM</u>	<u>NSN</u>	<u>ID</u>
A2548	N/A	09855A



DESCRIPTION AND FUNCTION

The AN/GSQ-261 is a suite of systems that provides the capability for all-weather remote monitoring of activity within and near a given objective area.

At a minimum, TRSS is capable of detecting human activity and/or the presence and movement of vehicles, providing real time or non-real time monitoring of sensors ashore and/or over the horizon.

Monitoring equipment is lightweight and mobile to support fast-moving amphibious and expeditionary operations. Individual sensors can be emplaced by air or ground forces.

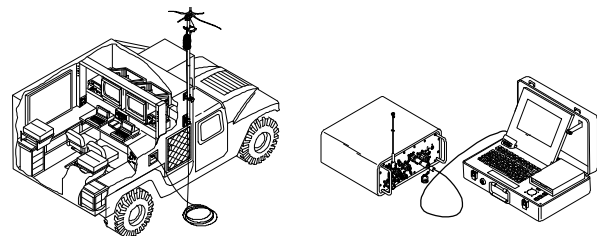
Sensors and relays have sufficient power sources to operate continuously for 30 days. TRSS is employed by the Marine Corps SCAMP. One AN/GSQ-261 represents the standard material requirements for one SET to support one MEU. This suite of equipment is commonly referred to as TRSS Phase V and will replace the Marine Corps' aging family of Phase III sensor equipment.

MAJOR COMPONENTS

<u>QUANTITY</u>	<u>ITEM</u>	<u>TAMCN</u>
1	Unattended Ground Sensor Set (UGSS), AN/GSQ-257	A3255
4	Portable Monitor (PM), AN/USQ-121	A1221
1	Sensor Mobile Monitoring System (SMMS), AN/MSQ-77	A2306
5	Relay Assembly (RA), RE-1162/U	A2296

SENSOR MOBILE MONITORING SYSTEM TECHNICAL CHARACTERISTICS
AN/MSC-77

TAM	NSN	ID
A2306	6350-01-382-1826	09856A



SHELTER EMPLOYMENT REMOTIZED WORKSTATION

Frequency band (VHF).....	138-153 Mhz
Available channels (VHF).....	599
Message data rate (VHF).....	1200 pbs
RF power output (VHF).....	10 watts
Frequency band (UHF).....	311.5-313.5 Mhz
Avialable channels (UHF).....	3
Message data rate (UHF).....	16,384 bps
Power output (UHF).....	none
Sensor monitoring capacity.....	1008 sensors
Operating temperature range.....	-30C to +65C
Length	180 in
Height	104 in
Width	85 in
Weight (includes vehicle).....	7,785 lbs

MAJOR COMPONENTS

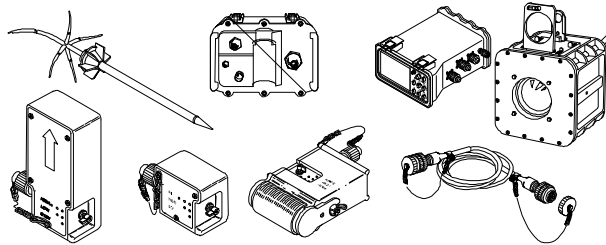
DESCRIPTION AND FUNCTION

The AN/MSC-77 is a mobile sensor monitoring and control facility which receives, stores, processes, displays, and reports sensor activity. In the normal operating mode, an on board diesel powered generator provides power for the monitoring equipment and the environmental control unit. The system can also be powered by 120 volt single phase or standard three phase power. Either one of the monitoring workstations can be displaced from the shelter to provide limited stand-alone monitoring capability at remote locations. Automated sensor correlation allows up to 504 sensors to be monitored by a single operator. The AN/MSC-77 relay interrogation capability allows non-real time data from storage relays to be quickly reviewed for indications of enemy activity and movement patterns without continuous monitoring/line of sight. Either one of its two workstations are capable of remotely controlling and interrogating the RE-1162/U relay assembly. On-board integrated communications equipment enables timely reporting of sensor activations in Joint Remote Sensor Report/Request (JRSR/R) formats using standard USMTF protocols. The AN/MSC-77 can also receive, decode, and display sensor data transmitted in the U.S. Army Improved Remotely Monitored Battlefield Sensor System (IREMBASS), or USMC MIDS formats. Software controlled decoders enable the SMMS to be adapted to interoperate with the USAF Base and Information Security Systems (BISS) and other sensor/security systems operating in the "DOD Physical Security Systems" VHF band.

QUANTITY	ITEM
2	Signal Data Recorder, RO-630/USQ
2	VGA Monitor
2	UHF Recovery Unit
2	Printer, Epson LQ-870
1	Heavy duty HMMWV, (M-1097)
1	Power generation unit
1	Environmental control unit, 18000 BTU
1	Shelter assembly
1	Sensor monitor system antenna group
1	Signal data recorder remote kit
1	Radio set, VHF, AN/VRC-46 (AN/VRC-91A in future)
1	Radio set, HF, AN/GRC-231

**UNATTENDED GROUND SENSOR SET
AN/GSQ-257**

<u>TAM</u>	<u>NSN</u>	<u>ID</u>
A3255	6350-01-343-7134	09632A



Thermal Imager, which consists of an Imager head and an Imager Transmitter Unit (ITU). An Air Delivered Seismic Intrusion Detector (ADSID) is the functional equivalent of a ETU/SID which can be delivered from rotary wing aircraft. The encoded sensor data is transmitted over 1 of 599 selectable VHF channels to a monitoring site. All sensors including the Imager communicate to monitoring sites using LPI/ECCM transmission schemes.

TECHNICAL CHARACTERISTICS

Frequency range	138-153 Mhz
RF power output.....	2 watts
Power source.....	BA-3042/U (4)
Data rate	1200 bps
Operating temperature	-30C to +65C

MAJOR COMPONENTS**DESCRIPTION AND FUNCTION**

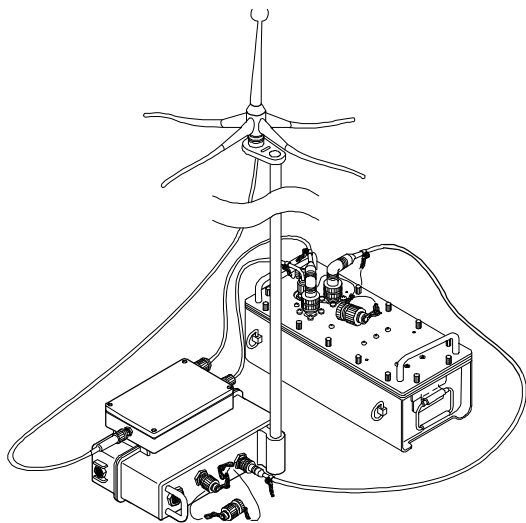
The AN/GSQ-257 is a suite of hand and air emplaced sensors that detect movement of personnel and vehicles within tactical objective areas. The UGSS configuration is structured to provide one SET the capability to employ up to twenty four hand emplaced and eight air emplaced sensor strings with sufficient target confirming/classification capability. The Encoder Transmitter Unit/Seismic Intrusion Detector (ETU/SID) is the basic sensor. It can accommodate an additional externally-cabled Magnetic Intrusion Detector (MAGID), Infrared Intrusion Detector (IRID), or another Seismic Intrusion Detector (SID). The ETU/SID has sufficient built-in capability to accommodate up to four additional types of detectors/sensors without a redesign of its hardware. Target Classification is accomplished with the Day-Night

<u>QUANTITY</u>	<u>ITEM</u>
96	Encoder Transmitter Unit/ Seismic Intrusion Detector
24	Magnetic Intrusion Detector (MAGID)
24	Infrared Intrusion Detector (IRID)
24	Day-Night Thermal Imager
24	Seismic Intrusion Detector (SID)
24	Air Delivered Seismic
96	Cables

<u>ITEM</u>	<u>ETU/SID</u>	<u>MAGID</u>	<u>IRID</u>	<u>SID</u>	<u>ADSID</u>	<u>IMAGER HEAD</u>	<u>ITU</u>
Length (in)	7	6.05	5.55	4.13	55.5 w/ant	6	12
Height (in)	4.38	1.63	1.95	1.86	N/A	5.74	3
Width (in)	6.63	0.5	3.6	2.38	1.5 dia	5.84	8
Weight (lbs)	5.5	2.9	1.2	0.55	5.5	6	5

RELAY ASSEMBLY RE-1162/U

<u>TAM</u>	<u>NSN</u>	<u>ID</u>
A2296	5945-01-384-4790	09784A



DESCRIPTION AND FUNCTION

The RE-1162/U is a multiple channel VHF/UHF receiver/relay used to overcome radio line of sight/ distance limitations between remote sensors and monitoring sites. Each relay can simultaneously monitor two VHF channels and retransmit on two different channels. The relay can be programmed to either immediately relay all incoming data and/or store the data until remotely commanded to send the data to a monitoring site or Airborne platform. Other operational parameters such as channel selection, operating mode

and status can be accomplished remotely over VHF RF links. An optionally attached UHF transmitter allows stored data to be transmitted using faster data rates. Battery boxes can be ganged to provide for extended operational periods. An adjustable 2 to10 foot antenna mast is provided; however, the dual band antenna element can be used in a “toss up” manner if desired.

TECHNICAL CHARACTERISTICS

Frequency band (VHF).....	138-153 Mhz
Message data rate (VHF).....	1200 bps
RF power output (VHF).....	10 watts
Frequency band (UHF).....	311.5-313.5 Mhz
Message data rate (UHF).....	16,384 bps
RF power output (UHF).....	15 watts
Power source.....	BA-5590/U (2)

MAJOR COMPONENTS

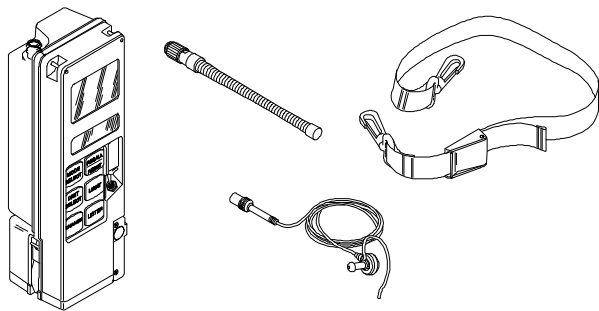
<u>QUANTITY</u>	<u>ITEM</u>
1	Relay unit
2	Battery box CY-8680/G
1	UHF unit
1	Relay antenna assembly

	<u>RELAY UNIT</u>	<u>UHF UNIT</u>	<u>BATT BOX</u>	<u>ANT</u>
Weight (lbs, w/batt)	10	4.34	8.24	9.42
Height (inches)	5	2.21	8	24
Length (inches)	13.62	9.85	12.5	6
Width (inches)	6	5	3.25	N/A

PORTABLE MONITORAN/USQ-121

adapted to monitor USAF Mobile Individual Resource Security System (M-IRSS) sensors through the use of optional firmware.

<u>TAM</u>	<u>NSN</u>	<u>ID</u>
A1221	7035-01-363-9067	09769A



TECHNICAL CHARACTERISTICS

Frequency band.....	138-153 Mhz
Receiver sensitivity.....	-112 dbm
Available channels.....	599
Message data rate	1200 bps
Power source.....	BA-3042U (4)
Battery life	24 hours
Dimensions (inches).....	2.5 (L) x 3 (W) x 9.5 (H)
Weight	5.00 lbs
Sensor monitoring capacity.....	63 sensors

MAJOR COMPONENTS

DESCRIPTION AND FUNCTION

The AN/USQ-121 is a hand-held receiver/display unit that receives, decodes, and displays sensor identification code transmissions. The AN/USQ-121 is used primarily to perform field operational checks at the sensor implant site. The AN/USQ-121 can also be used to monitor sensors wherever sensor messages can be received. The PM can register activations from U.S. Army Improved Remotely Monitored Battlefield Sensor System (I-REMBASS) and USMC Miniature Intrusion Detection System (MIDS) sensors. It can be also

<u>QUANTITY</u>	<u>ITEM</u>
1	Portable monitor
1	Attenuator, 30 dBm
1	Antenna, flexible
1	Earphone assembly
1	Bag, carrying

Appendix C

Remote Sensor Planning Orientation Briefing Format

- 1. Command Mission**
- 2. Orientation to the Area of Operations**
 - a. Terrain**
 - Topography
 - Drainage
 - Vegetation
 - Soil composition
 - Trafficability and cross-country mobility
 - b. Lines of Communications and Traffic Patterns**
 - c. Civilian Population**
 - Population centers
 - Daily routine/mobility patterns
 - d. Weather**
- 3. Enemy Situation**
 - a. Composition**
 - b. Location**
 - c. Equipment**
 - d. Doctrine and Tactics**
 - e. Operating Patterns**
 - f. Intel, EW, Air Defense, and Counterrecon Capabilities**
 - g. COAs and Expected Activity**
- 4. Friendly Situation**
 - a. Force Composition**
 - b. Mission Analysis and Identified Tasks**
 - c. Commander's Intent and Guidance**
 - d. Concept of Operations or COAs Under Consideration**
 - e. Planning Schedule**
- 5. Collection Plan**
 - a. Collection Requirements**
 - b. Collection Strategy**
 - c. Sensor Surveillance Concept**
 - d. Sensor Info Requirements/SCAMP tasks**
 - e. Priority of Requirements**
- 6. Planning Guidance**
 - a. Implant Unit Availability**
 - b. Support Concept and Priority of Support**
 - c. Threat and Risk Assessment Factors**
 - d. Time Constraints**

(reverse blank)

Appendix D

Checklist for Determining the Suitability of Remote Sensor Employment

1. Is there a suitable sensor surveillance target?
2. Can specific NAI or surveillance areas be identified?
3. Are the surveillance areas suitable for sensor emplacement?
4. Can communications line-of-sight be established from surveillance areas to relay and/or monitoring sites?
5. Are the surveillance areas accessible for sensor emplacement operations?
6. Are units available to conduct implant operations?
7. Are sufficient sensors/relays available?
8. Can the sensors and relays be emplaced in time to provide the required information?
9. What are the risks involved in sensor employment?
10. What is the impact of a compromise of a sensor implant mission?

(reverse blank)

Appendix E

Sensor Surveillance Plan Decision Brief Format

1. Intelligence Update

2. Collection Plan

- a. Priority Intelligence Requirements
- b. Collection Strategy
- c. Current Collection Posture
- d. Planning Guidance for Remote Sensor Operations

3. Sensor Surveillance Plan

- a. Remote Sensor Operations Mission and Tasks
- b. Overview
 - Concept of operations
 - Priority of support
 - Plan phases

c. Emplacement Plan

- Emplacement missions
- Tasking
- Threat and risk assessments

d. Monitoring Plan

- Concept
- Monitoring site locations
- Dissemination of sensor reports
- Command, control, and communications

e. Execution Timeline

4. Commander's Decision and Guidance

(reverse blank)

Appendix F

Sensor Surveillance Plan Format

CLASSIFICATION

Copyno. of copies
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TAB B (Sensor Surveillance Plan) to APPENDIX 11 (Reconnaissance and Surveillance Plan) to ANNEX B (Intelligence) to OPERATION PLAN

Ref:

1. () SITUATION

a. Area of Operations. Highlight environmental factors which will influence the employment of remote sensors in the area of operations.

b. Enemy. Describe enemy's susceptibility to surveillance by remote sensors and his ability to interdict or counter remote sensor operations.

c. Sensor Assets. Detail SCAMP and TRSS assets available to the MAGTF. Also note remote sensor support provided by external agencies.

2. () MISSION

3. () EXECUTION

a. Concept of Remote Sensor Operations. Provide overview of remote sensor employment for the operation. This paragraph should describe the purpose and scope of remote sensor operations. Support relationships should be defined throughout the operation. Phasing of the sensor surveillance plan should be described, providing details on the sensor operations.

b. Sensor Information Collection Requirements. Provide a listing of sensor information collection requirements which the plan is targeted against.

c. Implant Operations. Give an overview of the concept and conduct of implant operations. Details should be provided in a supporting enclosure.

d. **Monitoring Operations.** Give an overview of the concept and conduct of monitoring operations. Details should be in a supporting enclosure.

e. **Coordinating Instructions**

4. () **REQUESTS FOR ADDITIONAL REMOTE SENSOR SUPPORT**. Provide information on how to obtain additional sensor support.

5. () **COMMAND AND SIGNAL**

a. **Command and Control.** Identify supporting relationships between SCAMP/SCAMP detachment and MAGTF elements which are exercising operational control over remote sensor operations. Note any changes in command and support relationships that occur during different phases of the operation. Identify and provide locations for SCAMP headquarters elements.

b. **Remote Sensor Communications.** Describe remote sensor communications systems and procedures.

c. **Reporting and Dissemination of Sensor Data.** Outline reporting procedures and the flow of sensor data from monitoring sites to supported units.

ENCLOSURES:

1 - Sensor Implant Plan

2 - Sensor Employment Plan

3 - Sensor Monitoring and Dissemination Plan

4 - Sensor Resources

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ENCLOSURE 1 (Sensor Implant Plan) to TAB B (Sensor Surveillance Plan) to APPENDIX 1 1
 (Reconnaissance and Surveillance Plan) to ANNEX B (Intelligence) to OPERATION PLAN

1. **Concept of Implant Operations.** Provide overview of the concept of implant operations. Describe units participating, priorities, and phases of the plan.

2. **Implant Missions**

<u>IMPLANT UNIT</u>	<u>STRING/RELAY NUMBER</u>	<u>LOCATION</u>	<u>IMPLANT DATE</u>	<u>NOTES</u>
2d Plt, 2d Force Recon Co	MM101	TP873285-875281	D-6	
	MM102	TP892343-895340	D-5	
	R01	TP913292	D-5	
HMM-267	MM103	TP654211-656213	D-1	
	MM104	TP658215-661217	D-1	
B Co, 2d LAR Bn	MM105	TP906305-907302	D-DAY	
	MM106	TP907300-906296	D-DAY	
	MM107	TP947394-949395	D+1	
	MM108	TP956371-955358	D+1	
	R02	TP924334	D+1	

3. **Coordinating Instructions**

a. **Mission Planning Procedures.** Provide details for coordination of mission planning between SCAMP and implant units. Include time/place for assignment of SCAMP liaison teams.

b. **Implant Reports.** Specify requirements for implant reports, preparation and forwarding of sketch diagrams, etc.

TAB A - Sensor Implant Mission Overlay

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ENCLOSURE 2 (Sensor Employment Plan) to TAB B (Sensor Surveillance Plan) to APPENDIX 11
 (Reconnaissance and Surveillance Plan) to ANNEX B (Intelligence) to OPERATION PLAN

1. **Concept of Sensor Employment.** Provide overview of the concept of sensor employment. Highlight the sensor application being employed (general surveillance, early warning, or target acquisition), extent of the sensor net, and sensor surveillance areas of concentration.

2. **Sensor Strings**

<u>STRING</u>	<u>SENSOR TYPE</u>	<u>LOCATION</u>	<u>FREQ/CHAN</u>	<u>IMPLANT DATE</u>	<u>NOTES</u>
MM113	S	JJ90145822		D-6	
	M	JJ90375817			
	I	JJ90625791			
	S	JJ90865784			

Note: the following codes will be used for sensor types:

S - Seismic	AS - Air-delivered Seismic
I - Infrared	SM - Seismic/Magnetic*
M - Magnetic	SI - Seismic/Infrared*
G - Imager/Graphic	*For use when confirming sensors are cabled to one ETU/SID

3. **Relays.**

<u>NUMBER</u>	<u>LOCATION</u>	<u>IMPLANT DATE</u>	<u>NOTES</u>
R01	JJ88424917	D-8	

TAB A - Sensor Employment Overlay

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ENCLOSURE 3 (Sensor Monitoring and Dissemination Plan) to TAB B (Sensor Surveillance Plan) to APPENDIX 11 (Reconnaissance and Surveillance Plan) to ANNEX B (Intelligence) to OPERATION PLAN__

1. **Concept of Monitoring Operations.** Provide overview of monitoring operations. Describe monitoring techniques to be employed, support relationships in effect, and phases of the monitoring operations, if appropriate.

2. **Monitoring Sites and Responsibilities.** List all planned monitoring sites. For each, give site designation, location, time the site will be operational, strings monitored, and secondary monitoring responsibilities. An overlay showing monitoring site locations and responsibilities should be included.

<u>MONITORING SITE</u>	<u>LOC</u>	<u>OPERATING TIME</u>	<u>PRIMARY STRINGS</u>	<u>SECONDARY STRINGS</u>
SET 1	TP901567	100645-TBD	MM101-11 MM153-58	MM023-27 MM072-76

3. **Reporting** Provide detailed instructions on dissemination of sensor data and other reporting requirements.

a. **Reporting Procedures**

b. **Reporting Thresholds**

c. **Status Reports**

4. **Coordinating Instructions.**

TAB A - Sensor Monitoring OperationsOverlay

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**ENCLOSURE 4 (Sensor Resources) to TAB B (Sensor Surveillance Plan) to APPENDIX 11
(Reconnaissance and Surveillance Plan) to ANNEX B (Intelligence) to OPERATION PLAN _**

This enclosure provides a listing of sensor resources remaining after the sensor surveillance plan has been executed. If SCAMP elements have been attached or placed in direct support, those elements and their remaining equipment should be listed separately.

1. Second SCAMP.

a. Sensors.

TYPE

QUANTITY

b. Relays.

c. Monitoring Equipment.

2. Second SES, Second SCAMP (D/S, Second Marine Division).

a. Sensors.

TYPE

QUANTITY

b. Relays

c. Monitoring Equipment

Appendix G

Sketch Diagrams and Sensor Emplacement Tags

1. Sketch Diagrams

a. Description. A sketch diagram is depiction of the area in which a sensor, sensor string, or relay has been emplaced. The diagram consists of a map enhancement, picture or image, or freehand drawing. The designation, precise location, time of emplacement, and implant unit are listed for each sensor or relay along with distinguishing natural or man-made features in the vicinity of the emplacement site. See figure G-1.

b. Purpose. Sketch diagrams are used to facilitate both monitoring and recovery operations. Monitoring sites use sketch diagrams to record the precise locations of the sensors and determine the nature of the environment around the sensor. This information is crucial to effective analysis of the sensor data. Should it be necessary to recover the sensors once implanted, the sketch diagram is essential to locating a properly concealed sensor.

c. Responsibility. The preparation of sketch diagrams is the responsibility of the unit performing the implant mission. Instructions on the preparation of the diagrams to include the type and detail of information required will be provided by the SCAMP liaison team to the implant unit.

d. Preparation

(1) Format. Any format that conveys the required information in appropriate detail can be utilized. Maps or overhead imagery annotated with sensor data and additional information can be used, provided the scale of the map or image covers the entire area and the scale is large enough to accurately portray the precise locations of the sensors and the details of the surrounding terrain. Normally, the scale of the standard tactical map is too small for this purpose; the specific section of the map must be enlarged or enhanced to permit inclusion

of the necessary details. A simple freehand drawing based on a map or image is usually the most effective format.

(2) Preliminary Diagram. Prior to departing on the implant mission, the implant unit should prepare a preliminary sketch diagram. A detailed and carefully prepared preliminary diagram will minimize the amount of time required to complete the diagram while in the implant area. All available information (maps, imagery, HUMINT reports) should be used to prepare a rough sketch of the implant area. The sketch should include the surveillance target, normally a road, trail, choke point, or terrain feature, the planned sensor locations with the type of sensor and coordinates noted, and any significant natural or man-made features in the area which will aid in orienting the patrol or aircraft performing the implant mission.

(3) Actions in the Objective Area. Once in the objective area, the implant patrol or flight modifies the diagram to reflect actual conditions surrounding the implant site.

(a) As each sensor is emplaced, its position is verified (preferably with GPS) and annotated on the diagram. Descriptions of terrain features or conditions that can aid recovery operations are sketched or noted. (For example: "ETU/SID buried under bush 3.5m from road; antenna concealed in foliage of bush.")

(b) Details of man-made or terrain features in the area which will assist the sensor operator's analysis of sensor activations (such as houses, secondary roads or trails not on the map, parking areas, fields or shelters for domestic animals, etc.) are added to, corrected, or deleted from the preliminary drawing.

(c) If possible, hand-held photography should be used to augment the sketch diagram. Photos of each sensor implant location which include some type of surrounding feature for orientation are invaluable during recovery operations.

(d) In preparing the sketch diagram, the need for detailed information about the surveillance area must be balanced with

objective of minimizing the time spent at the implant site. The preparation of a preliminary diagram along with the use of photography and GPS can help reduce the time needed to record data while in the objective area. In any event, the safety of the patrol and the locations of the sensors should not be compromised by remaining at the implant site to complete the sketch diagram.

(4) Completion. Upon conclusion of the implant patrol or flight, the sketch diagram should be completed. Operational details of the mission should be added: unit executing the mission, date and time of implant, person who did the diagram, map references, and any other pertinent data. All members of the patrol or flight should review the diagram for accuracy and add any additional information.

e. Disposition. The implant unit should make a copy of the completed diagram, if possible. The original diagram is forwarded along with a patrol or mission debrief report and any photography to the SARC or the control element designated in the sensor surveillance plan or tasking order. The implant unit retains a copy of the diagram, or, if a copy cannot be made, a listing of the exact sensor implant locations and any notes relative to those locations.

2. Sensor Emplacement Tags

a. Description. A sensor emplacement tag is a tag attached to each sensor prior to the sensor being turned over to a unit tasked with emplacing that sensor. The tag pro-

b. Purpose. Sensor emplacement tags are used to supplement the sketch diagrams, aid in recovery of implanted sensors, and provide accountability for sensor equipment.

c. Responsibility. SCAMP personnel prepare the sensor emplacement tags and attach them to the sensors prior to issuing them to the implant units. The unit performing the implant mission is responsible for completing the tag once the sensor is emplaced and returning it to the SCAMP/SCAMP det upon conclusion of the mission.

d. Preparation

(1) The remote sensor operator who prepares the sensor for implant will fill out the top portion of the tag, listing string number, sensor type, channel and ID number.

(2) During the emplacement of the sensor, the implant unit will detach the tag from the sensor and fill the emplacement location, date, time, and unit performing the implant.

(3) The tag will be turned in with the sketch diagram upon completion of the mission.

(4) If it is necessary to recover the sensor, the tag will be issued to the unit tasked with the recovery mission. Upon recovery, the tag will be reattached to the sensor and the recovery unit noted on the tag.

vides basic data that identifies the sensor and the details of its emplacement. See figure G-2.

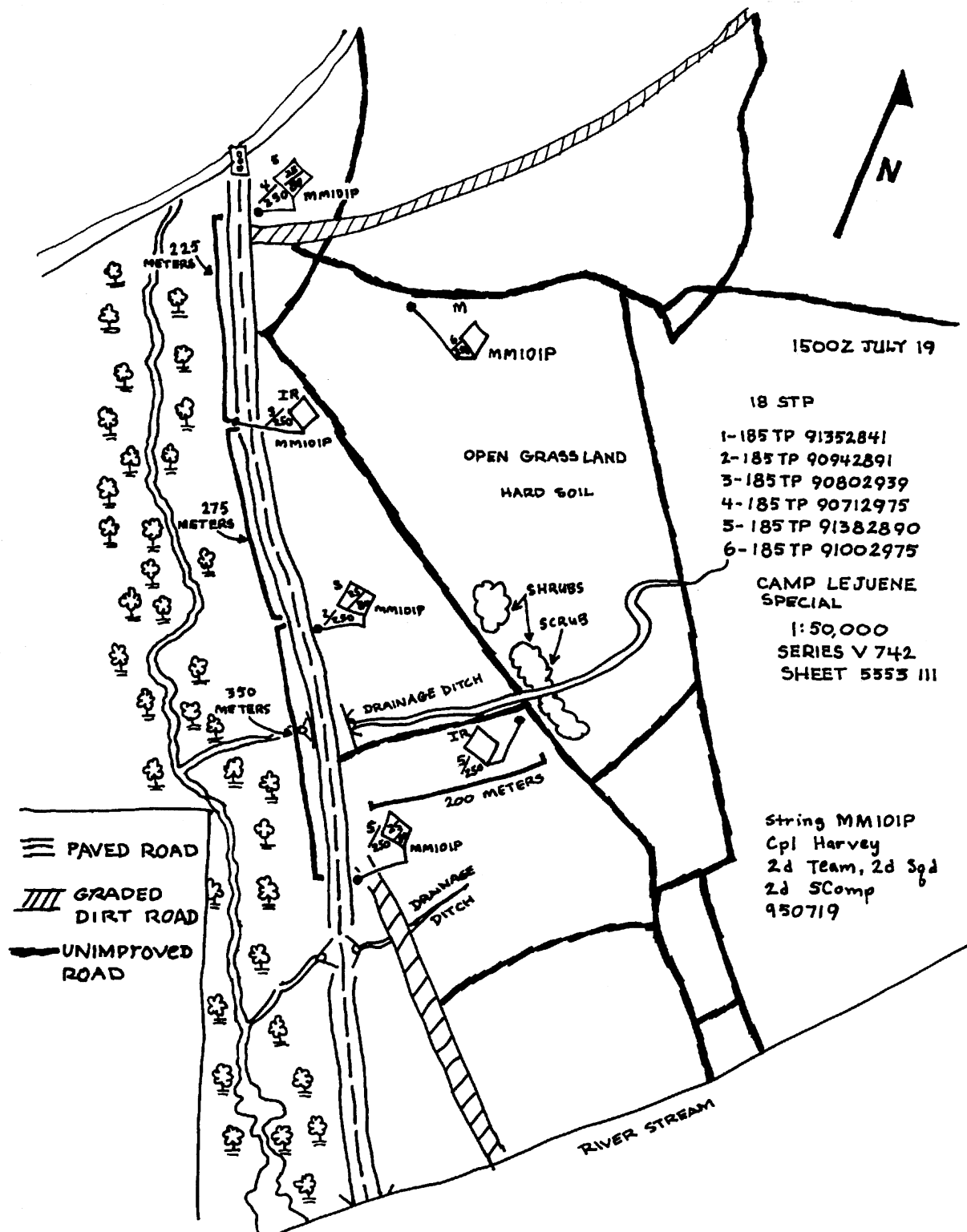


Figure G-1. Example of a Sketch Diagram.

SENSOR EMPLACEMENT TAG	
String # _____	Type Device _____
Channel # _____	ID # _____
Location _____	Date _____
Recovery Code _____	Time _____
Emplaced by (unit) _____	
Recovered by (unit) _____	
AIR EMPLACED SENSORS	
Drop Sequence # _____	

Figure G-2. Sensor Emplacement Tag.

Appendix H

Remote Sensor Reports

This appendix describes the following report formats used in sensor operations: Sensor Reports (SENREPs), Sensor Implant Reports, Sensor Status Reports, and Joint Remote Sensor Reports/Requests (JRSR/R).

1. Sensor Report (SENREP). The SENREP is a four-line USMTF report used to report the activity detected by the emplaced sensor network.

2. Sensor Implant Report. The Sensor Implant Report is a free-text report used by the implant unit to report the results of an implant mission to the SARC, SCAMP/SCAMP det, and monitoring site. Sensor implant reports relate critical information on the location and operational status of emplaced sensors or relays. This information is crucial to providing accurate sensor reports and maintaining the status of the sensor network.

3. Sensor Status Report. The Sensor Status Report is a free-text report used by the SCAMP/SCAMP det to report the current status of the sensor net. Sensor Status Reports will be filed when directed by the MAGTF G-2/S-2; they should **only** be used when the requirement exists to keep the entire force appraised of the status of an extensive sensor net. When used, the normal reporting period is 24 hours.

4. Joint Remote Sensor Report/Request (JRSR/R). The JRSR/R format is a ten-line USMTF report used to report sensor deployment and recovery. The JRSR/R is primarily used to exchange **technical data between sensor units**. The MAGTF headquarters and supported units do not use JRSR/Ss; they receive information contained in JRSR/SS directly from their SCAMP dets or from the Sensor Status Reports. The JRSR/S will be utilized **only** when directed by higher headquarters or when the SCAMP commander determines there is need for the exchange of data in this format between SCAMP elements.

a. Notification Report (NOTREP). The NOTREP is used to notify units of planned sensor emplacement operations. It identifies what sensor assets are to be used for a particular operation, the sensor locations, modes, relay requirements and comments.

b. Implant Report (IMPREP). The IMPREP is used to report the results of the implant/emplacement process vice the proposed actions listed in the NOTREP. This report is prepared and transmitted by the SCAMP element responsible for the sensor network after receiving a Sensor Implant Report from the implant unit.

c. Support Request (SUPREQ). The SUPREQ is used by one sensor unit to request support from another.

d. Monitoring Change Report (MONCHGREP). The MONCHGREP is submitted by a monitoring site when partial or complete control of monitoring responsibilities is transferred to another monitoring site.

e. Monitoring Termination Report (MON-TERMREP). The MONTERMREP is submitted when information or data from a remote sensor string is no longer required.

f. Removal Report (REMREP). The REMREP is submitted when remote sensors have been recovered, destroyed, or rendered inoperable.

By using a different subset of lines from a single, generic JRSR/R format, each of the following report formats can be defined:

5. Sensor Report Format

This section details the four-line SENREP format. The following paragraphs explain the data fields that are required to be filled in by the operator. Figure H-1 provides an overview of the SENREP format. Figure H-2 provides an example of completed SENREP.

Line 1, Title (TITLE). This field is a literal string field which always contains the word “SENREP”.

Line 1, Sender Identification (SENDER-ID). This field, which can be up to ten alphanumeric characters, denotes the sender of the report. For example 1STSCAMPHQ would identify the sender as the platoon headquarters of 1STSCAMP. For SCAMP originated messages, this SENDER-ID should contain the following components:

- a. A three character alphanumeric field containing the numerical identification of the SCAMP (1ST, 2ND, 3RD, or 4TH).
- b. The acronym “SCAMP”.
- c. A two character alphanumeric field containing a reference to one of the following subcomponents of the SCAMP: Platoon Headquarters (HQ), First Squad Headquarters Element (10), First Squad, First Team (11), First Squad, Second Team (12), Second Squad Headquarters Element (20), Second Squad, First Team (21), Second Squad, Second Team (22), Third Squad Headquarters Element (30), Third Squad, First Team (31), or Third Squad, Second Team (32).

Line 1, Sequence Number (SEQ-NO). This field, which consists of three numeric characters, denotes the sequence number of this report. This allows for up to 999 reports/requests each day. Sequence numbers always return to 001 at midnight local time. Each sequence number can only be used by a single sensor report for a given day.

Line 1, Classification (CLASS). This field, which can be either one or two alphabetic characters, denotes the classification of the report. Allowable abbreviations include: Unclassified (U), Confidential (C), Secret (S), and Top Secret (TS).

Line 1, Releasability (RELEASABLY). This field, which consists of two alphabetic characters, denotes the re-

leasability of the report. Examples of this field include: Germany (GE), United Kingdom (UK).

Line 1, Date of Release (DOR). This field, which consists of six numeric characters, denotes the date of release for the report. The first two digits represent the year, the next two represent the month, and the last two digits represent the day of the month (YYMMDD). For example, 930301 represents 01 MAR 93.

Line 1, Environment/Operation Name (ENVIR/OPNAME). This field, which can be up to 13 characters, denotes the name of the operation or environment (theater) that the report supports. Examples of this include: DESERTSTORM and RESTOREHOPE.

Line 2, String Number (STR-NO). This field, which consists of six alphanumeric characters, identifies the string that detected the activity. This field must contain the following components:

- a. A single alphabetic character to indicate the monitoring component. The following character values are allowed: Air Force (T), Army (A), Navy (N), and Marine (M).
- b. A single alphabetic character to indicate the planning or emplacement/implant component. The following character values are allowed: Air Force (T), Army (A), Navy (N), and Marine (M).
- c. A single numeric character to denote the sensor field. This allows up to nine fields (1-9) to be active in any sensor operation.
- d. Two numeric characters to denote the sensor string number. This allows up to ninety-nine sensor strings (01-99) per sensor field.
- e. A single alphabetic character to indicate the status of the string. The following character values are allowed: Active (A), Abandoned (D), Planned (P), and Simulated (S). For example, string MM101A would represent an active string, planned and monitored by the Marine Corps, which is the first string in the first sensor field of the operation.

Line 2, Time (TIME). This field, which contains four numeric characters and an alphabetic character, denotes the time that the reported activity started. The first two digits represent the hour, the next two digits represent the minutes, and the last character is a time zone indicator (HHMMA). For example, 1200Z represents 12:00 Zulu (Greenwich Mean) Time.

Line 2, Quantity (QTY). This field, which contains up to three numeric characters, denotes the approximate number of vehicles/personnel detected.

Line 2, Target Type (TGT-TYP). This field, which contains up to six characters, denotes the type of target detected. Examples of this field include: Personnel (PERSON) and Vehicular (VEHICL).

Line 2, Target Subtype (SUB-TYP). This field, which contains up to six characters, denotes the sub-type of target detected. Examples include: "TRACK" and "WHEEL".

Line 2, Target Speed (SPD). This field, which contains up to three numeric characters and up to three alphabetic characters, denotes the speed of target. This field is usually entered using kilometers per hour (KPH). An example of this field would be 50KPH.

Line 2, Direction (DIR). This field, which contains up to three alphabetic characters, denotes the direction of movement of target detected. Allowable values include: "N", "NNE", "NE", "ENE", "E", "ESE", "SE", "SSE", "S", "SSW", "SW", "WSW", "W", "WNW", "NW", and "NNW".

Line 2, Column Length (COL-LGTH). This field, which contains up to three numeric characters and up to three alphabetic characters, denotes the approximate column length of target detected. The numeric characters indicate the magnitude of the column length and the three alphabetic characters indicate the units used (e.g. 10KM).

Line 3, Estimated Time of Arrival Location (ETA-LOC). Used only when a sensor string is emplaced/implanted for the sole purpose of target acquisition. This field, which contains up to 16 alphanumeric characters, denotes the pre-planned target coordinates agreed upon. This field accommodates latitude/longitude coordinates or UTM coordinates. For example, the White House is located at 385351N0770211W (latitude/longitude coordinates) and at 18SUJ2337707452 (UTM coordinates).

Line 3, Estimated Time of Arrival (ETA). ETA is used only when a sensor string is emplaced/implanted for target acquisition. This field, which contains four numeric characters and one alphabetic character, denotes the time which the target will arrive at the pre-planned target coordinates agreed upon. The first two digits of this field represent the hour, the next two digits represent the minutes, and the last character is a time zone indicator (HHMMA). For example, 1200Z represents 12:00 Zulu (Greenwich Mean) Time.

Line 4, Comments (COMMENTS). This line, which contains up to 60 characters per line, allows textual comments, up to 13 lines, as needed.

TITLE	SENDER ID		SEQ NO	CLASS	RELEASABLY		DOR	ENVIR/OPNAME
1.SENREP	<u>BBBBBBBBBB</u>		<u>NNN</u>	<u>AA</u>	<u>AA</u>		<u>NNNNNN</u>	<u>CCCCCCCC</u>
STR-NO	TIME	QTY	TGT-TYP	SUB-TYP	SPD	DIR	COL-LGTH	
2. <u>AANNNA</u>	<u>NNNA</u>	<u>NNN</u>	<u>CCCCC</u>	<u>CCCCC</u>	<u>NNN</u>	<u>AAA</u>	<u>NNNAAA</u>	
ETA-LOC		ETA						
3.	<u>BBBBBBBBBBBBBB</u>		<u>NNNA</u>					
COMMENTS								
4.	<u>CCC</u> @							

Drafter Must Fill In All Underlined Fields of Message Template.

Key:

A = Alphabetic character C = ASCII (any typed) character

B = Alphanumeric character N = Numeric character

* Field may be repeated as necessary

Figure H-1. Sensor Report Format.

TITLE	SENDER ID		SEQ NO	CLASS	RELEASABLY		DOR	ENVIR/OPNAME
1.SENREP	1STSCAMPHQ		016	U	UK		941117	TANDEMIST
STR-NO	TIME	QTY	TGT-TYP	SUB-TYP	SPD	DIR	COL-LGTH	
2.MM114A	1411Z	004	VEHICL	WHEEL	030	SE	300M	
ETA-LOC		ETA						
3.								
COMMENTS								
4.	CONT OF ACTIVITY RPTD SENREPS 013-15/MAJ ACTIVITY NOTED MOVING SE ALONG HWY 101 THRGHOUT AM HOURS//							

Figure H-2. Sample Sensor Report Format.

6. Sensor Implant Report Format

From:

To:

Subj: **Sensor Implant Report**

1. Implant Unit:

2. String #1

a. String Number:

b. Time of Implant:

c. Type and Location of Sensors in String:

	<u>Sensor Type</u>	<u>Location</u>
(1)		
(2)		
(3)		
(4)		

d. Remarks:

3. String #2 (Repeat this paragraph for each string implanted)

4. Relay #1

a. Relay Number:

b. Time of Implant:

c. Location:

d. Remarks:

5. Relay #2 (Repeat this paragraph for each relay emplaced)

6. Comments on Mission:

7. Sensor Status Report Format

From:

To:

Subj: **Sensor Status Report**

1. Period Covered:
2. Summary of Daily Sensor Activity
3. Status of Sensor Network
4. New sensors/strings emplaced
5. Sensors/strings no longer operational
6. Relay status
7. Activity planned for next reporting period
8. Remarks

8. Joint Remote Sensor Report/Request

This section details the JRSR/R format which consists of the NOTREP, IMPREP, SUPREQ, MONCHGREP, MONTERMREP, and REMREP. Each of these reports is a subset of a generic ten-line JRSR/R format. The subset of the ten-line JRSR/R format that comprises each individual report is provided in table H-1. Figure H-3 provides an overview of this ten-line report format and the fields depicted in that figure are defined as follows:

Line 1, Title (TITLE). This field is a literal string field which always contains the acronym “JRSR/R”.

Line 1, Sender Identification (SENDER-ID).

This field, which can be up to ten alphanumeric characters, denotes the sender of the report. For example, 1STSCAMPHQ would identify the sender as the platoon headquarters of 1STSCAMP. For SCAMP originated messages, this SENDER-ID should contain the following components:

- a. A three character alphanumeric field containing the numerical identification of the SCAMP (1ST, 2ND, 3RD, or 4TH).
- b. The acronym “SCAMP”.
- c. A two character alphanumeric field containing a reference to one of the following subcomponents of the SCAMP: Platoon Headquarters (HQ), First Squad Headquarters Element (10), First Squad, First Team (11), First Squad, Second Team (12), Second Squad Headquarters Element (20), Second Squad, First Team (21), Second Squad, Second Team (22), Third Squad Headquarters Element (30), Third Squad, First Team (31), or Third Squad, Second Team (32).

Line 1, Sequence Number (SEQ-NO). This field, which consists of four numeric characters, denotes the sequence number of this report. This allows for up to 9999 reports/requests each day. Sequence numbers always return to 0001 at midnight local time. Each sequence number can only be used by a single JRSR/R for a given day.

Line 1, Classification (CLASS). This field, which can be either one or two alphabetic characters, denotes the classification of the report. Allowable abbreviations include: Unclassified (U), Confidential (C), Secret (S), and Top Secret (TS).

Line 1, Releasability (RELEASABLY). This field, which consists of two alphabetic characters, denotes the releasability of the report. Examples of this field include: Germany (GE), United Kingdom (UK).

Line 1, Date of Release (DOR). This field, which consists of six numeric characters, denotes the date of release for the report. The first two digits represent the year, the next two represent the month, and the last two represent the day of the month (YYMMDD). For example, 930301 represents 01 MAR 93.

Line 1, Environment/Operation Name (ENVIR/OPNAME). This field, which can be up to thirteen characters, denotes the name of the operation or environment (theater) that the report supports. Examples of this include: DESERTSTORM and RESTOREHOPE.

Line 2, Type of Report/Request (TYPE-REP/REQ). This field, which can be up to ten alphabetic characters, denotes the type of JRSR/R report, which can be one of the following: NOTREP, IMPREP, SUPREQ, MONTERMREP, MONCHGREP, or REMREP.

Line 2, Map Reference (MAP-REFERENCE). This field, which can be up to twenty characters, lists up to four map references pertaining to the sensor assets used in the operation. An example of a map reference would be: CAYEY SHEET 1322 II.

Line 3, Message Reference (MSG-REFERENCE). This field is a literal field which always contains the words “MSG-REFERENCE”.

Line 4, Title (TITLE). This field, which can be up to twelve characters and can reference up to five messages per report, denotes the type of report(s) being referenced. For a JRSR/R reference, this field may include one of the report types (e.g. NOTREP).

Line 4, Sender Identification (SENDER-ID). This field can be up to ten alphanumeric characters which denotes the sender ID of the referenced message listed under TITLE (item k). This field allows five lines of sender ID information. This field has the same format as the SENDER-ID field on line one. Examples of this include 1STSCAMPHQ and 2NDSCAMP11

Line 4, Sequence Number (SEQ-NO). This field, which consists of four numeric characters, denotes the

sequence number of the referenced message listed under TITLE (item k). This field has the same format as the SEQ-NO field in line one and allows five lines of sequence numbers.

Line 4, Date of Release (DOR). This field, which consists of six numeric characters, denotes the date of release for the referenced message listed under TITLE (item k). This date field has the same format as the DOR field in line one and allows five lines of DOR information. For example, 930301 represents 01 MAR 93.

Line 5, Sensor String Data (SENSOR-STRING-DATA). This field is a literal field which always contains the words "SENSOR-STRING-DATA".

Line 5, Data Element (DE). This field, which consists of two numeric characters, denotes the line number for the corresponding data element and is used to correlate information between line five and line six. This field allows for 99 lines of sensor asset information.

Line 5, String Number (STR-NO). This field, which consists of six alphanumeric characters, identifies the string to which the sensor asset is assigned. This field allows 99 lines of string number information and must contain the following components:

- a.** A single alphabetic character to indicate the monitoring component. The following character values are allowed: Air Force (T), Army (A), Navy (N), and Marine (M).
- b.** A single alphabetic character to indicate the planning or emplacement/implant component. The following character values are allowed: Air Force (T), Army (A), Navy (N), and Marine (M).
- c.** A single numeric character to denote the sensor field. This allows up to nine fields (1-9) to be active in any sensor operation.
- d.** Two numeric characters to denote the sensor string number. This allows up to 99 sensor strings (01-99) per sensor field.
- e.** A single alphabetic character to indicate the status of the string. The following character values are allowed: Active (A), Abandoned (D), Planned (P), and Simulated (S).

For example, string MM101A would represent an active string, planned and monitored by the Marine Corps, which is the first string in the first sensor field of the operation.

Line 5, Sensor Type (TYP-SEN). This field, which can be up to two alphabetic characters, is used to denote the type of sensor or sensors being emplaced or requested. The following character values are allowed: Seismic (S), Magnetic (M), Infrared (I), Imager/Graphic (G). For an ETU with multiple sensors attached, these characters may be combined. For example, SG would represent an imager sensor which uses a seismic sensor as a triggering device and SM would indicate a magnetic and seismic sensor attached to the same ETU. The standard values for this field include: S, M, I, G, SM, SI, SG, MG, and IG. For the special case of an air delivered seismic sensor, the abbreviation (AS) will be used. This field allows for 99 lines of sensor information.

Line 5, Sensor Channel/Identification (CHAN-ID). This field, which contains six numeric characters, denotes the channel and identification code of the referenced sensor or sensors. This field allows for 99 lines of sensor channel/identification information and must contain the following components:

- a.** A four digit number indicating the channel of the transmitting unit. This value can range from 0001 to 0599.
- b.** A two digit number indicating the identification code of the transmitting unit. This value can range from 01 to 63.

For example, 012554 would represent an ETU transmitting an ID of 54 on channel 125 (141.125 Megahertz (MHz)).

Line 5, Sensor Location (STR-LOC). This field, which contains up to sixteen alphanumeric characters, denotes the exact location of the sensor asset. This field will accommodate latitude/longitude coordinates or Universal Transverse Mercator (UTM) coordinates. For example, the White House is located at 385351N0770211W (latitude/longitude coordinates) and at 18SUJ2337707452 (UTM coordinates). This field allows for 99 lines of sensor location information.

Line 5, Sensor Implant Date (IMPLDAT). This field, which contains six numeric characters, denotes the implant date of the sensor asset. This date field has the same format as the DOR field in line one. For example 930301 represents 01 MAR 93. This field allows for 99 lines of sensor implant dates.

Line 6, Data Element (DE). This field, which consists of two numeric characters, denotes the line number for the corresponding data element and is used to correlate information between line five and line six. This field allows for 99 lines of sensor asset information.

Line 6, Sensor Battery Life (BATLIF). This field, which contains up to three numeric characters, denotes the programmed battery life of the sensor. Normally this is listed as 30 days unless the sensor was purposely programmed for a different life-span. This field allows for 99 lines of battery life information.

Line 6, Recovery Code (RCVRY). This field consists of a single alphabetic character and a single alphanumeric character. This field should always be NA for TRSS Phase V reports. (This field is used for TRSS Phase III JRSR/R formats only and allows for 99 lines of recovery code information.)

Line 6, Sensor Removal Date (REMDAT). This field, which contains six numeric characters, denotes the removal date of the sensor asset. This date field has the same format as the DOR field in line one. For example, 930301 represents 01 MAR 93. In a NOTREP or IMPREP, this field would only be used when a removal date is pre-established. This field allows for 99 lines of sensor removal dates.

Line 6, Relay Required (RLY-REQ). This field, which contains one alphabetic character indicates whether a relay is required to monitor this sensor at the Sensor Monitoring System (SMS). The following character values are allowed: Yes (Y) and No (N). This field allows for 99 lines of relay required information.

Line 6, Sensor String Data Remarks (SENSOR-STRING-DATA-REMARKS). This field, which contains up to twenty-six characters, denotes any specific comments pertaining to the sensor asset. This field allows for 99 lines of sensor remarks, one line for each sensor entry.

Line 7, Relay Data (RELAY-DATA). This field is a literal field which always contains the words "RELAY-DATA".

Line 7, Data Element (DE). This field, which consists of two numeric characters, denotes the line number for the corresponding data element and is used to correlate information between line seven and line eight. This field allows for 25 lines of relay asset information.

Line 7, Relay Type (TYPE). This field, which contains four alphabetic character, denotes the type of relay unit. There are two types of Relays; Hand Emplaced (HAND) and Air Delivered (AIR). The following values are allowed in the field: HAND and AIR. This field allows for 25 lines of relay type information.

Line 7, Relay Identification (ID). This field, which consist of two numeric characters, denotes the identification code associated with the relay unit. This value can range between 01 and 63. This field allows for 25 lines of relay identification information.

Line 7, Home Channel (HOME). This field, which consists of three numeric characters, denotes the Very High Frequency (VHF) channel designator of the frequency to use when externally tuning a relay unit. This value can range between 001 and 599. This field allows for 25 lines of home channel information.

Line 7, Relay VHF Receiver 1 (REC1). This field, which consists of three numeric characters, denotes the primary VHF receiver channel designator of the relay unit. This value can range between 001 and 599. This field allows for 25 lines of relay receiver information.

Line 7, Relay VHF Receiver 2 (REC2). This field, which consists of three numeric characters, denotes the secondary VHF receiver channel designator of the relay unit. This value can range between 001 and 599. This field allows for 25 lines of relay receiver information.

Line 7, Relay VHF Transmitter 1 (XTR1). This field, which consists of three numeric characters, denotes the primary VHF transmitter channel designator of the relay unit. This value can range between 001 and 599. This field allows for 25 lines of relay transmitter information.

Line 7, Relay VHF Transmitter 2 (XTR2). This field, which consists of three numeric characters, denotes the secondary VHF transmitter channel designator of the relay unit. This value can range between 001 and 599. This field allows for 25 lines of relay transmitter information.

Line 7, Relay Ultra High Frequency (UHF) Transmitter 3 (XTR3). This field, which consists of one numeric character, denotes the UHF transmitter channel designator of the relay unit. This value can range between 0 and 3, where a value of 0 indicates that no storage unit is attached to the relay unit. This field allows for 25 lines of relay transmitter information.

Line 8, Data Element (DE). This field, which consists of two numeric characters, denotes the line number for the corresponding data element and is used to correlate information between line seven and line eight. This field allows for 25 lines of relay asset information.

Line 8, Relay Location (RLY-LOC). This field, which contains up to sixteen alphanumeric characters, denotes the exact location of the relay unit. This field will accommodate latitude/longitude coordinates or UTM coordinates. For example, the White House is located at 385351N0770211W (latitude/longitude coordinates) and at 18SUJ2337707452 (UTM coordinates). This field allows for 25 lines of relay location information.

Line 8, Relay Initial Mode of Operation (INIT-MODE). This field, which contains up to twelve characters, denotes the mode of operation for the relay. The Relay modes of operation with the corresponding values allowed in the field are as follows: Relay, Store, Relay-Store, and Standby. This field allows for 25 lines of relay initial mode information.

Line 8, Relay Data Remarks (RELAY-DATA-REMARKS). This field, which contains up to twenty-six characters, denotes any specific comments pertaining to

the relay unit. This field allows for 25 lines of relay data remarks.

Line 9, Support Requirements (SUPPORT-REQUIREMENTS). This field is a literal field which

always contains the words "SUPPORT-REQUIREMENTS".

Line 9, Target Type (TGT-TYP). This field, which contains up to six characters, denotes the type of target that is expected to be detected as a result of the requested support being given (this field only appears in the SUPREQ). Examples of this field include: Personnel (PERSON) and Vehicular (VEHICL). This field allows for 10 lines of target type information.

Line 9, Target Location (TGT-LOC). This field, which contains up to sixteen alphanumeric characters, denotes the location of the target that is expected to be detected as a result of the requested support being given (this field only appears in the SUPREQ). This field will accommodate latitude/longitude coordinates or UTM coordinates. For example, the White House is located at 385351N0770211W (latitude/longitude coordinates) and at 18SUJ2337707452 (UTM coordinates). This field allows for 10 lines of target location information.

Line 9, Destination Date (DES-DT). This field, which contains six numeric characters, denotes the date the support is requested (this field only appears in the SUPREQ). This date field has the same format as the DOR field in line one. For example, 930301 represents 01 MAR 93. This field allows for 10 lines of destination dates.

Line 10, Comments (COMMENTS). This line, which contains up to 60 characters per line, allows textual comments as needed. This field allows for 13 lines of comments.

TITLE	SENDER-ID	SEQ-NO	CLASS	RELEASABLY	DOR	ENVIR/OPN	AM	
1. <u>JRSR/R</u>	<u>BBBBBBBBBB</u>	<u>NNNN</u>	<u>AA</u>	<u>AA</u>	<u>NNNNNN</u>	<u>CCCCCCCC</u>	<u>CC</u>	
TYP-REP/REQ		MAP-REFERENCE						
2. <u>AAAAAAAAAA</u>		<u>CCCCCCCCCCCCCCCCCCCC</u>						
3.MSG-REFERENCE								
TITLE	SENDER-ID	SEQ-NO	DOR					
4. <u>CCCCCCCCCCCC</u> *	<u>BBBBBBBBBB</u> *	<u>NNNN</u> *	<u>NNNNNN</u> *					
5.SENSOR-STRING-DATA								
DE	STR-NO	TYP-SEN	CHAN-ID	STR-LOC		IMPLDAT		
<u>NN</u> *	<u>AANNNA</u> *	<u>AA</u> *	<u>NNNNNN</u> *	<u>BBBBBBBBBBBBBBBB</u> *		<u>NNNNNN</u> *		
DE	BATLIF	RCVRY	REMDAT	RLY-REQ	SENSOR-STRING-DATA-REMARKS			
6. <u>NN</u> *	<u>NNN</u> *	<u>NA</u> *	<u>NNNNNN</u> *	<u>A</u> *	<u>CCCCCCCCCCCCCCCCCCCCCCCC</u>			
7.RELAY-DATA								
DE	TYPE	ID	HOME	REC1	REC2	XTR1	XTR2	XTR3
<u>NN</u> *	<u>AAAA</u> *	<u>NN</u> *	<u>NNN</u> *	<u>NNN</u> *	<u>NNN</u> *	<u>NNN</u> *	<u>NNN</u> *	<u>N</u> *
DE	RLY-LOC		INIT-MODE		RELAY-DATA-REMARKS			
8. <u>NN</u> *	<u>BBBBBBBBBBBBBBBB</u> *		<u>CCCCCCCCCCCC</u> *		<u>CCCCCCCCCCCCCCCC</u> *			
9.SUPPORT-REQUIREMENTS								
TGT-TYP		TGT-LOC		DES-DT				
<u>CCCCC</u> *		<u>BBBBBBBBBBBBBBBB</u> *		<u>NNNNNN</u> *				
COMMENTS								
10. <u>CC</u>								

Drafter Must Fill In All Underlined Fields of Message Template.

Key:

A = Alphabetic character C = ASCII (any typed) character

B = Alphanumeric character N = Numeric character

* Field may be repeated as necessary

Figure H-3. Joint Remote Sensor Report/Request Format.

Line	Report Field	NOTREP	IMPREP	SUPREQ	MONCHGREP	MONTERMREP	REMREP
1	TITLE	REQ	REQ	REQ	REQ	REQ	REQ
1	SENDER-ID	REQ	REQ	REQ	REQ	REQ	REQ
1	SEQ-NO	REQ	REQ	REQ	REQ	REQ	REQ
1	CLASS	REQ	REQ	REQ	REQ	REQ	REQ
1	RELEASABLY	REQ	REQ	REQ	REQ	REQ	REQ
1	DOR	REQ	REQ	REQ	REQ	REQ	REQ
1	ENVIR/OPNAME	REQ	REQ	REQ	REQ	REQ	REQ
2	TYP-REP/REQ	REQ	REQ	REQ	REQ	REQ	REQ
2	MAP-REF	REQ	REQ	REQ	REQ	REQ	REQ
3	MSG-REF	REQ	REQ	REQ	N/A	N/A	N/A
4	TITLE	REQ	REQ	REQ	N/A	N/A	N/A
4	SENDER-ID	REQ	REQ	REQ	N/A	N/A	N/A
4	SEQ-NO	REQ	REQ	REQ	N/A	N/A	N/A
4	DOR	REQ	REQ	REQ	N/A	N/A	N/A
5	SENSOR-STRING-DATA	REQ	REQ	N/A	REQ	REQ	REQ
5	DE	REQ	REQ	N/A	REQ	REQ	REQ
5	STR-NO	REQ	REQ	N/A	REQ	REQ	REQ
5	TYP-SEN	REQ	REQ	N/A	REQ	N/A	REQ
5	CHAN-ID	REQ	REQ	N/A	REQ	N/A	REQ
5	STR-LOC	REQ	REQ	N/A	REQ	N/A	REQ
5	IMPLDAT	REQ	REQ	N/A	REQ	N/A	REQ
6	DE	REQ	REQ	N/A	REQ	N/A	REQ
6	BATLIF	REQ	REQ	N/A	REQ	N/A	REQ
6	RCVRY	REQ	REQ	N/A	REQ	N/A	REQ
6	REMDAT	REQ	REQ	N/A	REQ	N/A	REQ
6	RLY-REQ	REQ	REQ	N/A	REQ	N/A	REQ
6	SENSOR-STRING-DATA-REMARKS	REQ	REQ	N/A	REQ	N/A	REQ
7	RELAY-DATA	REQ	REQ	N/A	REQ	N/A	REQ
7	DE	REQ	REQ	N/A	REQ	N/A	REQ
7	TYPE	REQ	REQ	N/A	REQ	N/A	REQ
7	ID	REQ	REQ	N/A	REQ	N/A	REQ
7	HOME	REQ	REQ	N/A	REQ	N/A	REQ
7	REC1	REQ	REQ	N/A	REQ	N/A	REQ
7	REC2	REQ	REQ	N/A	REQ	N/A	REQ
7	XTR1	REQ	REQ	N/A	REQ	N/A	REQ
7	XTR2	REQ	REQ	N/A	REQ	N/A	REQ
7	XTR3	REQ	REQ	N/A	REQ	N/A	REQ
8	DE	REQ	REQ	N/A	REQ	N/A	REQ
8	RLY-LOC	REQ	REQ	N/A	REQ	N/A	REQ
8	INIT-MODE	REQ	REQ	N/A	REQ	N/A	REQ
8	RELAY-DATA-REMARKS	REQ	REQ	N/A	REQ	N/A	REQ
9	SUPPORT REQUIREMENTS	N/A	N/A	REQ	N/A	N/A	N/A
Line	Report Field	NOTREP	IMPREP	SUPREQ	MONCHGREP	MONTERMREP	REMREP

9	TGT-TYP	N/A	N/A	REQ	N/A	N/A	N/A
9	TGT-LOC	N/A	N/A	REQ	N/A	N/A	N/A
9	DES-DT	N/A	N/A	REQ	N/A	N/A	N/A
10	COMMENTS	REQ	REQ	REQ	REQ	REQ	REQ

**Table H-1. Phase VJoint Remote Sensor
Report/RequestDefinitions.**

Table H-1 identifies how each of the JRSR/R formats are formed from the generic JRSR/R format provided above. For a specific field and a specific report type, the following entries may appear in the table: REQ indicates that the field is present for reports of that type, and N/A indicates that the field is not used in reports of that type.

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Appendix I

Equipment Density List for a Sensor Employment Team and Sensor Employment Squad

TAMCN	NOMENCLATURE	SET QTY	SES QTY
A1221	UN/USQ-121	4	8
A2050	AN/PRC-77	1	3
A2069	AN/PRC-113	0	1
A2296	RE-1162	5	10
A2306	AN/MSC-77	1	2
A3255	AN/GSQ-257	1	2
A8025	TESC/KYK-13	1	2
A8031	TESC/KY-57	1	4
A8050	TESC/Z-AIJ	1	4
C3320	Field Desk	1	2
C4620	Camo Screen	2	6
C4621	Supp	2	6
C6390	CP Tent	1	1
C6410	GP Tent	0	1
D1180	HMMWV	1	2
H3045	RC-292	1	2
H2379	AN/GRA-39A	1	2
H2443	TA-312	1	2

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Appendix J

Glossary

Section I Acronyms

ACE	aviation combat element	EMCON	emissions control
ADCON	administrative control	Envir	environment
ADSID	air-delivered seismic intrusion detector	ETA	estimated time of arrival
AO	area of operations	ETU	encoder transmitter unit
AOA	amphibious objective area	EW	electronic warfare; early warning
AOR	area of responsibility		
ATF	amphibious task force		
		FEBA	forward edge of the battle area
BISS	Base and Information Security System (U.S. Air Force)	FM	frequency modulation
Bn	battalion	FMFM	Fleet Marine Force Manual
		FOC	future operations center
C ²	command and control	FSC	fire support coordinator
Cdr	commander		
CE	command element	GCE	ground combat element
CIC	Combat Intelligence Center	GPS	global positioning system
Class	classification	GS	general support
CLD	critical low density		
COA	course of action	HLZ	helicopter landing zone
COC	combat operations center (sometimes informally referred to as current operations center)	HMMWV	high mobility multipurpose wheeled vehicle
Coll	collection(s)	Hwy	highway
CP	command post		
CPX	command post exercise	IAS	Intelligence Analysis System
CSS	combat service support	IDS	intrusion detection system
CSSE	combat service support element	IMPLDAT	implant date
		IMPREP	implant report
DE	data element	IPB	intelligence preparation of the battlespace (or battlefield)
det	detachment	I-REMBASS	Improved Remotely Monitored Battlefield Sensor
Dir	direction		
DOR	date of release	System	
DS	direct support	Info	information
		Intel	intelligence
		IR	infrared
		IRID	infrared intrusion detector

ISR intelligence, surveillance and reconnaissance	RA relay assembly
ITU image transmitter unit	Recon reconnaissance
JRSR/R Joint Remote Sensor Report/Request	REMBASS remotely monitored battlefield sensor
LAN local area network	system
LAR light armored reconnaissance	REMDAT removal date
LAV light armored vehicle	REMREP removal report
Ln liaison	Rep representative
LOC line(s) of communications	Reqmt requirement
LOS line of sight	Rly relay
MAFC MAGTF all-source fusion center	RF radio frequency
MAGID magnetic intrusion detector	SARC surveillance and reconnaissance center
MAGTF Marine air-ground task force	SCAMP sensor control and management platoon
MCDP Marine Corps Doctrinal Publication	SENREP sensor report
MCRP Marine Corps Reference Publication	Seq sequence
MCWP Marine Corps Warfighting Publication	SES sensor employment squad
MEF Marine expeditionary force	SET sensor employment team
MEU Marine expeditionary unit	SID seismic intrusion detector
MIDS Miniature Intrusion Detection System	SMMS sensor mobile monitoring system
M-IRSS Mobile Individual Resource Security System	SOP standing operating procedure
MONCHGREP monitoring change report	Spd speed
MONTERMREP monitoring termination report	Sqd squadron; squad
MOOTW military operations other than war	Staffex staff exercise
MOS military occupational specialty	Str string
Msg message	SUPREQ support request
NAI named area(s) of interest	TA target acquisition
NOTREP notification report	T/E table of equipment
NRT near real time	T/O table of organization
Obj objective	Tgt target
OIC officer in charge	TRSS tactical remote sensor system
OPCON operational control	TTP tactics, techniques, and procedures
OPFOR opposing force	UAV unmanned aerial vehicle
OPSEC operations security	UGS unattended ground sensor
PM portable monitor	UGSS unattended ground sensor set
PME professional military education	UHF ultrahigh frequency
Qty quantity	USMTF United States message text format
	VHF very high frequency

Section II Definitions

WAN wide area network
Xtr transmitter

A

area of influence - A geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. (Joint Pub 1-02)

area of interest (AI) - That area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission. (Joint Pub 1-02)

area of operations (AO) - An operational area defined by the joint force commander for land and naval forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. (Joint Pub 1-02)

avenue of approach (AA) - An air or ground route of an attacking force of a given size leading to its objective or to key terrain in its path. (Joint Pub 1-02) AAs are based upon the capabilities and opportunities offered by the battlefield environment and may not necessarily form part of a course of action. (FM 34-130/FMFRP 3-23-2)

B

battlespace - All aspects of air, surface, subsurface, land, space, and the electromagnetic spectrum that encompasses the area of influence and area of interest. (NDP-1)

broadcast - A communications or dissemination mode for the simultaneous transmission of information or intelligence to a broad audience of units affected by it. (MCWP 2-1*)

* Definition effective upon approval of MCWP 2-1 *Intelligence Operations* (under development)

C

collection - Acquisition of information and the provision of this information to processing and/or production elements. (Joint Pub 1-02) The gathering of

intelligence data and information to satisfy the identified requirements. (MCWP 2-1*)

command and control (C2)

- The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. C2 functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. (Joint Pub 1-02)

- The means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken. (MCDP 6)

course of action (COA) - 1. A plan that would accomplish, or is related to, the accomplishment of a mission. 2. The scheme adopted to accomplish a task or mission. (Joint Pub 1-02)

D

direct support (DS) - A mission requiring a force to support another specific force and authorizing it to answer directly the supported force's request for assistance. (Joint Pub 1-02)

dissemination - Conveyance of intelligence to users in a suitable form. (Joint Pub 1-02)

E

emission control (EMCON) - The selective and controlled use of electromagnetic, acoustic, or other emitters to optimize command and control capabilities while minimizing, for operations security: a. detection by enemy sensors; b. minimize mutual interference among friendly systems; and/or c. execute a military deception plan. (Joint Pub 1-02)

G

general support (GS) - That support which is given to the supported force as a whole and not to any particular subdivision thereof. (Joint Pub 1-02)

I

indications and warning - Those intelligence activities intended to detect and report time-sensitive intelligence information on foreign developments that could involve a threat to the U.S. or allied military, political, or economic interests or to U.S. citizens abroad. It includes forewarning of enemy actions or intentions; the imminence of hostilities; insurgency; nuclear/non-nuclear attack on the United States, its overseas forces, or allied nations; hostile reactions to United States reconnaissance activities; terrorists' attacks; and other similar events. (Joint Pub 1-02)

intelligence preparation of the battlespace (IPB) - An analytical methodology employed to reduce uncertainties concerning the enemy, environment, and terrain for all types of operations. Intelligence preparation of the battlespace builds an extensive data base for each potential area in which a unit may be required to operate. The data base is then analyzed in detail to determine the impact of the enemy, environment, and terrain on operations and presents it in graphic form. Intelligence preparation of the battlespace is a continuing process. (Joint Pub 1-02) The systematic, continuous process of analyzing the threat and environment is a specific geographic area. IPB is designed to support the staff estimate and military decisionmaking process. Most intelligence requirements are generated as a result of the IPB process and its interrelation with the decisionmaking process. (FM 34-1; FM 34-130/FMFRP 3-23-2)

intelligence requirement (IR) - Any subject, general or specific, upon which there is a need for the collection of information, or the production of intelligence. (Joint Pub 1-02) A requirement for intelligence to fill a gap in the commander's knowledge and understanding of the battlespace or enemy forces. (FM 34-1; MCWP 2-1*)

intrusion detection system (IDS) - Consists of sensors and monitoring equipment intended to support local security requirements. IDSs are distinguished from remote sensors systems by their short range and the absence of the requirement to establish a special monitoring site. (MCWP 2-2.3)

M

military operations other than war (MOOTW) - Operations that encompass the use of military capabilities across the range of military operations short of war. These military actions can be applied to complement any combination of the other instruments of national power and occur before, during, and after war. (Joint Pub 1-02)

N

named area of interest (NAI) - The geographical area where information that will satisfy a specific information requirement can be collected. NAIs are usually selected to capture indications of threat courses of action, but also may be related to conditions of the battlefield. (FM 34-1; FM 34-130/FMFRP 3-23-2)

near real time (NRT) - Pertaining to the timeliness of data or information which has been delayed by the time required for electronic communication and automatic data processing. This implies that there are no significant delays. (Joint Pub 1-02)

O

operational control (OPCON) - Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of

administration, discipline, internal organization, or unit training. (Joint Pub 1-02)

operations security (OPSEC) - A process of identifying critical information and subsequently analyzing friendly actions attendant to military operations and other activities to: a. Identify those actions that can be observed by adversary intelligence systems; b. determine indicators hostile intelligence systems might obtain that could be interpreted or pieced together to derive critical information in time to be useful to adversaries; and c. select and execute measures that eliminate or reduce to an acceptable level the

vulnerabilities of friendly actions to adversary exploitation. (Joint Pub 1-02)

P

priority intelligence requirements (PIR) - Those intelligence requirements for which a commander has an anticipated and stated priority in his task of planning and decisionmaking. (Joint Pub 1-02) An intelligence requirement associated with a decision that will critically affect the overall success of the command's mission. PIR is used in place of the term essential elements of information (EEI). (FM 34-1; MCWP 2-1*)

processing - Conversion of collected information into a form suitable to the production of intelligence. (Joint Pub 1-02) Processing is largely a technical function which does not add meaning to the data, but is necessary to convert the data into a form which people can understand. (MCWP 2-1*)

production - The conversion of raw materials into products and/or components thereof, through a series of manufacturing processes. It includes functions of production engineering, controlling, quality assurance, and the determination of resources requirements. (Joint Pub 1-02)

R

reconnaissance - A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. (Joint Pub 1-02)

remote sensor - Device that detects the physical presence of an object by means of energy reflected or emitted by the object, and then transmits information derived from the detection to a specially equipped monitoring site located beyond visual observation range of the sensor. (MCWP 2-2.3)

remote sensor system - Integrated system of sensors, relays and monitoring equipment which provides a sensor surveillance capability. (MCWP 2-2.3)

S

sensor - An equipment which detects, and may indicate, and/or record objects and activities by means of energy or particles emitted, reflected, or modified by objects. (Joint Pub 1-02)

sensor net (or network) - An integrated system of sensor strings, relays and monitoring sites established to provide sensor surveillance over all or part of the area of operations. (MCWP 2-2.3)

sensor string - A grouping of two or more remote sensors emplaced within the same area to provide cover-

age of a specific surveillance target such as a road intersection, choke point or objective. (MCWP 2-2.3)

surveillance - The systematic observation of aerospace, surface or subsurface areas, places, persons, or things by visual, aural, electronic, photographic, or other means. (Joint Pub 1-02)

T

target - 1. A geographical area, complex, or installation planned for capture or destruction by military forces. 2. In intelligence usage, a country, area, installation, agency, or person against which intelligence operations are directed. 3. An area designated and numbered for future firing. (Joint Pub 1-02)

target acquisition - The detection, identification, and location of a target in sufficient detail to permit the effective employment of weapons. (Joint Pub 1-02)

targeting - 1. The process of selecting targets and matching the appropriate response to them, taking account of operational requirements and capabilities. 2. The analysis of enemy situations relative to the commander's mission, objectives, and capabilities at the commander's disposal, to identify and nominate specific vulnerabilities that, if exploited, will accomplish the commander's purpose through delaying, disrupting, disabling, or destroying enemy forces or resources critical to the enemy. (Joint Pub 1-02)

task organization - In the Marine Corps, a temporary grouping of forces designed to accomplish a particular mission. Task organization involves the distribution of available assets to subordinate control headquarters by attachment or by placing assets in direct support or under the operational control of the subordinate. (FMFRP 0-14)