VIATICUM 2

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EUROPEAN VOLUNTEER RESCUERS MANUAL

An expanded manual for **volunteer rescuers**

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SECTION 1
Team Scouting & Camp Setup

1.1 Purpose and Scope

This chapter provides comprehensive guidance on team scouting and camp setup operations for first responders and rescue teams engaged in civil protection activities. It addresses the critical operational phase between arrival at a disaster site and the commencement of active rescue operations. Effective team scouting and proper Base of Operations (BoO) establishment are fundamental to successful disaster response. These activities directly impact team safety and operational sustainability, the speed and efficiency of rescue operations, coordination with other responding teams and local authorities, resource management and logistical effectiveness, as well as mission duration and personnel welfare.

This guidance applies to all disaster types covered in the VIATICUM rescue disciplines: collapsed structures (earthquakes), water and flood rescue, wildfire response, rope rescue operations, cave rescue, and search operations. While specific considerations vary by disaster type, the fundamental principles of scouting and camp establishment remain consistent.

The chapter covers pre-deployment and on-site reconnaissance procedures, Base of Operations (BoO) site

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selection and layout, temporary shelter establishment for rescue teams, logistics and resource management in emergency settings, safety and security protocols, and demobilization procedures. Disaster-specific considerations are integrated throughout, with dedicated subsections addressing unique requirements for each hazard type.

1.2 Integration with VIATICUM Rescue Disciplines

Team scouting and camp setup form the operational foundation upon which all technical rescue activities are built. This chapter integrates with and supports all existing VIATICUM rescue disciplines, providing the logistical and organizational framework necessary for effective deployment.
The table below identifies how this chapter supports each VIATICUM rescue discipline with specific scouting and camp setup considerations:

Rescue Discipline	Key Scouting Focus	Camp Setup Priority
Collapsed Structures	Structural stability, aftershock risk, void identification, falling debris zones	Distance from structures, heavy equipment staging, dust/debris protection
Water and Flood	Water levels, current patterns, contamination, access points, forecast monitoring	Elevated positioning, boat staging, drying facilities, waterproof storage

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Rescue Discipline	Key Scouting Focus	Camp Setup Priority
Wildfire Response	Fire perimeter, wind patterns, escape routes, air quality, fuel load assessment	Defensible space, evacuation routes, respiratory protection, hydration stations
Rope Rescue	Anchor points, fall zones, access/egress routes, terrain stability	Equipment inspection area, rope storage (UV protection), staging platforms
Cave Rescue	Entry/exit points, air quality, water levels, terrain mapping, communication zones	Cave mouth staging, weather protection, lighting equipment, communication relay
Search Techniques	Search area boundaries, terrain assessment, hazard mapping, grid establishment	K9 rest areas, technical search equipment storage, mapping/coordination

Table 1.1: Rescue Discipline Integration Matrix

1.3 Learning Objectives

Upon completing this chapter, rescue team members will be able to conduct systematic pre-deployment intelligence gathering using available resources and perform on-site hazard assessments specific to each disaster type. They will complete standardized reconnaissance reports and coordinate effectively with local emergency management authorities and other

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responding teams.

In terms of camp establishment, team members will learn to select appropriate Base of Operations (BoO) sites based on disaster-specific criteria and design functional BoO layouts with proper zoning for operations, rest, medical, and logistics areas. They will be capable of deploying and maintaining temporary shelters appropriate to environmental conditions and establishing essential utilities including power, water, sanitation, and communications.

For logistics and resource management, team members will implement effective inventory management systems for rescue operations, allocate resources appropriately based on disaster type and operational requirements, and manage personnel through effective shift planning and welfare considerations. They will also coordinate with external agencies and national civil protection authorities.

Finally, regarding safety and demobilization, team members will maintain camp security and protect personnel and equipment, monitor and respond to secondary hazards and environmental changes, execute proper demobilization procedures including handover and site restoration, and conduct thorough after-action reviews and documentation.

1.4 Chapter Overview

This chapter is organized into sections designed to guide rescue teams through the complete cycle of operational base establishment.

Section 2: Team Scouting covers pre-deployment

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reconnaissance, on-site assessment, resource and needs analysis, communication protocols, and disaster-specific considerations for effective site evaluation.

Section 3: Camp Setup and Temporary Shelter Establishment addresses site selection criteria, BoO layout design principles, various shelter types and their deployment, utilities and essential services, and climate adaptation strategies.

Section 4: Logistics and Resource Management provides guidance on supply chain fundamentals, resource allocation by disaster type, personnel management including shift planning and welfare, and coordination with external agencies.

Section 5: Safety and Security details camp security protocols, health and hygiene requirements, secondary hazard monitoring, and evacuation planning for the operational base itself.

Section 6: Demobilization and Exit outlines withdrawal planning, handover procedures to local authorities or follow-on teams, site restoration principles, and after-action review processes.

Section 7: Checklists and Quick Reference provides operational checklists for scouting, camp setup, resource management, and demobilization that can be used directly in the field.

The chapter concludes with two annexes: Annex A provides sample Base of Operations layout diagrams for different disaster scenarios, while Annex B contains comprehensive equipment lists organized by disaster type.

Each section builds upon the previous, following the natural progression of disaster response operations. Users are encouraged to read the chapter in its entirety before deployment, then reference specific sections and checklists as needed during operations.

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SECTION 2
Team Scouting

Team scouting is the systematic process of gathering information about a disaster site before and during deployment. Effective scouting enables informed decision-making, enhances team safety, and optimizes resource allocation. This section provides guidance on conducting thorough reconnaissance operations across all disaster types covered by the VIATICUM rescue disciplines.

2.1 Pre-Deployment Reconnaissance

Pre-deployment reconnaissance begins the moment a team receives notification of a potential deployment. The goal is to gather as much relevant information as possible before arriving at the disaster site, enabling better planning and faster operational readiness upon arrival.

2.1.1 Intelligence Gathering Before Arrival

Before deployment, teams should collect information from multiple sources to build a comprehensive picture of the situation. National civil protection authorities and emergency management agencies provide critical official intelligence including situation reports, damage assessments, and

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coordination information.
Key information sources include official situation reports from responding agencies, satellite imagery and aerial photographs when available, weather forecasts and meteorological data, news media for general situational awareness, and communication with teams already on site. Social media can provide real-time information but should be verified against official sources before being relied upon for operational decisions.
Teams should designate a specific team member to compile and organize intelligence during the mobilization phase. This person should create a briefing document that summarizes all gathered information, identifies gaps in knowledge, and highlights critical factors that will affect operations. The intelligence summary should be updated as new information becomes available and shared with all team members before departure.

2.1.2 Coordination with Local Authorities

Early contact with local authorities is essential for effective deployment. Local emergency management officials possess detailed knowledge of the affected area, including geography, infrastructure, population distribution, and available resources. They can provide guidance on priority areas, access routes, and coordination requirements.
During pre-deployment coordination, teams should identify the lead coordinating authority and establish points of contact, confirm reporting procedures and communication protocols, determine registration and check-in requirements upon arrival, request information on assigned work areas or sectors, and

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clarify any legal or administrative requirements for operating in the jurisdiction. This coordination should continue throughout deployment, with regular communication to ensure alignment with local priorities and procedures.

2.1.3 Use of Remote Sensing, Drones, and Mapping Tools

Remote sensing technologies provide valuable situational awareness before teams arrive on site. Satellite imagery can reveal the extent of damage, identify access routes, and show changes in landscape features such as flooding or fire spread. Many agencies make disaster-related satellite imagery available to responding teams through established sharing mechanisms. Digital mapping tools enable teams to prepare navigation routes, identify geographic features, and begin preliminary operational planning. Teams should download offline maps of the affected area before departure, as internet connectivity may be limited or unavailable at the disaster site. GPS coordinates for key locations such as coordination centers, hospitals, and staging areas should be programmed into navigation devices.

If the team possesses drone capabilities, pre-deployment planning should include checking local regulations for unmanned aerial vehicle (UAV) operations, ensuring batteries are charged and equipment is serviceable, and identifying priority areas for aerial reconnaissance upon arrival. Coordination with aviation authorities and other aerial operations is essential to avoid conflicts and ensure safety.

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2.2 On-Site Assessment

Upon arrival at the disaster site, teams must conduct systematic on-site assessments to verify pre-deployment intelligence, identify new hazards, and determine operational priorities. The on-site assessment process should be thorough yet efficient, as time is critical in disaster response.

2.2.1 Initial Site Survey Protocols

The initial site survey provides a rapid overview of the operational area. This survey should be conducted immediately upon arrival and before committing resources to specific tasks. The survey team should include experienced personnel capable of identifying hazards and assessing operational requirements.

A systematic approach to initial survey includes establishing the boundaries of the affected area, conducting a 360-degree assessment of the immediate environment, identifying immediate life-safety hazards that require action or avoidance, locating potential Base of Operations sites with appropriate characteristics, assessing access routes for vehicles and equipment, making initial contact with local authorities and other responding teams, and documenting observations with photographs, GPS coordinates, and written notes.

The survey team should maintain constant communication with the team leader and report significant findings immediately. The initial survey should result in a preliminary situation report that guides subsequent operational decisions.

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2.2.2 Hazard Identification by Disaster Type

Hazard identification is a continuous process that begins with the initial survey and continues throughout the operation. All team members should be trained to recognize and report hazards. While many hazards are common across disaster types, each type presents specific risks that require focused attention.

Collapsed Structures (Earthquake)
In earthquake-affected areas, structural stability is the primary concern. Buildings may appear stable but have hidden damage that makes them dangerous to enter or work near. Key hazards to identify include unstable structures at risk of secondary collapse, falling debris from damaged facades, parapets, and chimneys, damaged utilities including gas leaks, electrical hazards, and broken water mains, and aftershock risk that may cause additional damage to weakened structures. Assessment should note building construction types (reinforced concrete, masonry, wood frame) as this affects collapse patterns and survivor viability. Identify potential void spaces where survivors may be trapped. Maintain safe distances from unstable walls and establish exclusion zones around structures at high risk of collapse.

Water and Flood
Flood environments are dynamic and conditions can change rapidly. Scout teams should never enter floodwaters of unknown depth or current strength. Key hazards to identify include water depth, velocity, and current patterns, contamination from sewage, chemicals, fuel, or debris,

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submerged hazards including vehicles, open manholes, and debris, compromised structural integrity of bridges, roads, and embankments, and electrical hazards from submerged power lines or equipment.
Weather monitoring is critical as upstream rainfall can cause sudden water level increases. Identify high-water marks, safe access points for boat operations, and elevated areas suitable for staging and evacuation. Document locations of stranded individuals, particularly those in immediate danger from rising water.

Wildfire Response

Wildfire environments are inherently dangerous due to unpredictable fire behavior. Scout teams must maintain constant awareness of fire location and movement. Key hazards to identify include current fire perimeter and direction of spread, fuel types and density that may accelerate fire spread, terrain features such as slopes and canyons that influence fire behavior, wind speed, direction, and forecast changes, air quality and visibility conditions, and compromised structures including burned buildings and damaged utilities. Always identify safety zones and escape routes before entering any area near active fire. Communicate with fire suppression teams to receive current information on fire behavior and avoid conflicting operations. Be prepared to withdraw immediately if conditions change.

Rope Rescue

Rope rescue scouting focuses on terrain assessment and anchor point identification. This applies to operations in urban environments, natural terrain, and industrial settings. Key hazards to identify include unstable terrain including loose rock, soil instability, and erosion, edge conditions and fall zones, anchor point suitability and load-bearing capacity,

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overhead hazards such as power lines, falling debris, and unstable overhangs, and environmental factors including weather, temperature, and wind conditions.
Document measurements of key features including distances, angles, and heights. Photograph potential anchor points and access routes. For urban environments, assess building structural integrity and identify available access points to elevated positions.

Cave Rescue

Cave environments present unique hazards due to confined spaces and potential for rapidly changing conditions. Scout teams should include personnel with cave experience. Key hazards to identify include entrance stability and access requirements, passage dimensions and restrictions, air quality and ventilation patterns, water presence including pools, streams, and potential for flooding, rockfall hazards and unstable formations, and communication limitations within the cave system.
Weather monitoring is critical as surface rainfall can cause rapid water level increases underground. Seek local knowledge from cavers familiar with the system. Establish communication relay points if radio signals cannot penetrate the cave environment. Note areas of particular difficulty that will affect rescue operations and evacuation routes.

Search Operations

Search operation scouting establishes parameters for systematic search activities in urban rubble, wilderness, or water environments. Key hazards vary by environment but commonly include terrain hazards affecting searcher movement, environmental exposure risks (heat, cold, weather), wildlife hazards in wilderness settings, and structural hazards in urban search environments.

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Assessment should determine the total area requiring search, terrain characteristics and accessibility, last known position of missing persons, and environmental conditions affecting search operations. Identify reference points for establishing search grids and note any factors that may affect detection capability for canine or technical search equipment.

2.3 Resource and Needs Assessment

The resource and needs assessment determine what capabilities are required for effective response and what resources are available locally. This assessment informs requests for additional support and helps prioritize the team's activities.

2.3.1 Survivor Estimation and Triage Zones

Estimating the number and location of potential survivors is essential for prioritizing rescue efforts. This estimation should consider building occupancy at the time of the disaster, known reports of missing or trapped persons, structural conditions indicating survivable void spaces, and time elapsed since the disaster event.
Triage zones should be identified and established to manage casualty flow. These zones should be located in safe areas with adequate space, accessible to rescue operations and evacuation routes, protected from environmental hazards, and clearly marked and communicated to all responders.

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Coordination with medical teams is essential to ensure appropriate medical resources are available at triage points.

2.3.2 Critical Infrastructure Status

Assessment of critical infrastructure informs both rescue operations and the team's own logistical needs. Key infrastructure to assess includes hospitals and medical facilities (operational status, capacity, access), utilities including power, water, gas, and telecommunications, transportation networks including roads, bridges, airports, and ports, fuel availability and distribution points, and emergency services including fire, police, and ambulance capacity.
Document the status of each infrastructure element, noting any limitations or damage that affects operations. This information helps identify alternative resources and informs decisions about team self-sufficiency requirements.

2.3.3 Local Resource Availability

Identifying locally available resources can significantly enhance operational capability. Resources to identify include heavy machinery and vehicles (excavators, cranes, trucks), construction materials for shoring and stabilization, warehouse or storage facilities for logistics, food, water, and fuel sources, local personnel with relevant skills (construction workers, equipment operators), and accommodation facilities for team rest.
Local businesses, construction companies, and community organizations may be willing to provide resources to support

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rescue operations. Establish relationships with local contacts who can facilitate access to resources. Document contact information and resource availability for ongoing operations.

2.4 Communication and Reporting

Effective communication is essential for coordinating scouting activities and sharing critical information. Teams must establish reliable communication systems and follow standardized reporting procedures to ensure information reaches decision-makers in a timely manner.

2.4.1 Standardized Reporting Formats

Scout teams should use standardized reporting formats to ensure consistent and complete information transfer. Reports should be clear, concise, and factual, avoiding speculation or assumptions. A standard scouting report should include the following elements:

Report Element	Content
Date/Time	Date and time of observation or report
Location	GPS coordinates, address, or clear description of location
Situation	Description of conditions observed, damage assessment, hazards identified
Survivors/Victims	Number of confirmed or suspected survivors, casualties, or missing persons

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Report Element	Content
Resources Needed	Specific personnel, equipment, or support required
Priority	Assessment of urgency (immediate, urgent, routine)
Access	Routes to location, obstacles, vehicle accessibility
Reporting Team	Team identification and contact information

Table 2.1: Standard Scouting Report Elements

2.4.2 Establishing Communication with Command Structures

Scout teams must establish reliable communication with the team's command structure and, where applicable, with the overall incident command. Before beginning scouting operations, teams should confirm communication equipment is functional, establish designated frequencies or channels for team communication, exchange contact information with coordination centers and other teams, agree on check-in schedules and emergency communication procedures, and test communication systems to verify coverage in the operational area.

Multiple communication systems provide redundancy in case of equipment failure or coverage gaps. Primary systems typically include handheld radios for team communication and mobile phones when cellular networks are operational. Backup systems may include satellite phones for areas without cellular coverage and physical messenger systems when electronic communication fails.

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2.4.3 Information Flow Between Scouting Teams and Base

Information from scouting activities must flow efficiently to decision-makers while also being shared with other team elements. Scout teams should report directly to their team leader or designated operations officer. Critical information requiring immediate action should be communicated without delay using the fastest available means. Routine reports can follow scheduled reporting cycles, typically at regular intervals and at the completion of each scouting task.

All reports should be logged at the Base of Operations with date, time, source, and content recorded. This log provides a record of information received and decisions made, supporting operational continuity during shift changes and providing documentation for after-action review. Information relevant to other teams or agencies should be shared through established coordination mechanisms.

Visual information including photographs and video should be transmitted to base when communication bandwidth permits, or physically transported if electronic transfer is not possible. Mapping data and GPS coordinates should be compiled into a common operational picture that is accessible to all team members and updated as new information becomes available.

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SECTION 3
Camp Setup & Temporary Shelter Establishment

The establishment of a well-organized Base of Operations (BoO) is essential for sustained rescue operations. A properly designed and equipped camp provides the foundation for team effectiveness, ensuring personnel can rest, resupply, and maintain operational readiness throughout the mission. This section provides guidance on selecting appropriate sites, designing functional layouts, deploying shelters, and establishing essential services across all disaster environments. The Base of Operations serves multiple critical functions. It provides a secure location for personnel to rest and recover between operational periods. It houses the command and coordination elements that direct rescue activities. It stores and maintains the equipment and supplies needed for operations. It provides medical support for team members and, in some cases, for rescued survivors. A well functioning base enables teams to maintain operational tempo over extended periods, which is often essential for successful rescue outcomes.

3.1 Site Selection Criteria

Site selection is one of the most critical decisions in establishing a Base of Operations. A poor site selection can compromise team safety, reduce operational efficiency, and create ongoing problems throughout the mission. Site selection should begin during the scouting phase and should involve input from

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experienced team members. Once established, relocating a base is time consuming and disruptive, so careful initial selection is essential.

3.1.1 General Principles

Regardless of disaster type, several fundamental principles guide site selection for a Base of Operations.

Safety is the primary consideration and must never be compromised for convenience. The site must be located away from hazards that could threaten personnel or equipment. This includes maintaining safe distances from unstable structures, flood zones, fire risks, and areas with ongoing rescue operations that could create secondary hazards. Consider both immediate hazards and those that might develop over time as conditions change.

Accessibility ensures that vehicles and equipment can reach the site and that team members can travel efficiently between the base and work sites. The site should have multiple access routes when possible, reducing vulnerability to road closures or blockages. Consider the types of vehicles that will need access, including heavy equipment transporters if applicable. Evaluate road conditions, bridge weight limits, and clearance heights along access routes.

Proximity to the operational area reduces travel time and enables rapid response to changing situations. However, proximity must be balanced against safety considerations. The site should be close enough for efficient operations but far enough from active hazards to ensure team safety. Consider that the optimal location may change as operations progress and the focus of rescue activities shifts.

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Adequate space is necessary to accommodate all required functional areas including sleeping quarters, operations center, equipment storage, vehicle parking, and support facilities. The site should have room for expansion if additional resources arrive during the operation. A general guideline is to plan for at least 50% more space than the minimum required to allow for flexibility and growth.

Ground conditions affect the ability to set up shelters and park vehicles. The site should have firm, level ground that drains well. Avoid areas prone to flooding, mud, or dust that will create ongoing maintenance problems. Consider how ground conditions may change with weather a site that is firm when dry may become impassable when wet.

Infrastructure availability can significantly reduce logistical burden. Sites with existing water supply, electrical connections, or sanitation facilities may reduce the need for self-contained resources. However, infrastructure should be verified as functional and safe before relying on it, and backup plans should exist in case infrastructure fails.

3.1.2 Disaster-Specific Considerations

Beyond general principles, each disaster type presents specific factors that must be considered in site selection. Understanding these factors helps teams identify appropriate locations and avoid sites that may appear suitable but contain hidden risks.

Earthquake Zones

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In earthquake-affected areas, the primary concern is maintaining safe distance from damaged structures that could collapse during aftershocks. Select sites in open areas away from buildings, walls, and other structures that could fall. Avoid areas beneath power lines, near elevated roadways, or adjacent to structures with heavy facades or parapets. A general rule is to maintain a distance from structures equal to at least 1.5 times the building height.
Consider the risk of ground failure including liquefaction, landslides, and ground cracking. Areas with recent fill, near waterways, or on steep slopes may be particularly vulnerable. Check for visible ground cracks or displacement that may indicate underlying instability. Monitor seismological information and be prepared to evacuate the site if aftershock risk increases significantly or if aftershocks cause visible changes in nearby structures.
Sports fields, large parking areas, parks, and agricultural land often provide suitable sites in earthquake zones. These open areas minimize collapse risk while typically offering level ground and reasonable access. However, verify that such sites are not built on fill or over buried utilities that may have been damaged.

Flood Areas

For flood response operations, site selection must account for current water levels and potential for rising water. Select elevated ground that is clearly above the current flood level with margin for safety. Consider historical flood levels if information is available, and monitor weather forecasts for rainfall that could cause water levels to rise. Water levels can change rapidly, so continuous monitoring is essential.
Ensure adequate drainage at the site to prevent ponding of rainwater. Avoid areas that could become isolated if water levels rise, and identify evacuation routes to higher ground.

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These evacuation routes should be verified as passable and should not cross low-lying areas that might flood before the main site is threatened.
Consider access for boats and water rescue equipment, including launching points and secure mooring locations. The site should allow boats to be launched and recovered efficiently, with consideration for changing water levels. If the site includes a boat launch point, ensure it remains accessible as water levels fluctuate.

Wildfire Zones

In wildfire environments, site selection must prioritize defensible space and evacuation capability. Select sites in areas with minimal fuel load, away from dense vegetation, and with cleared perimeters. Avoid areas in valleys, canyons, or on slopes where fire can spread rapidly uphill. Fire behavior is influenced by terrain, with fires spreading more rapidly uphill than on level ground or downhill.
Identify multiple evacuation routes and ensure they lead away from the fire's potential path of spread. Evacuation routes should be wide enough for vehicles and should not pass through areas with heavy fuel loads. Monitor wind conditions continuously, as wind shifts can rapidly change fire behavior and threaten previously safe locations.
Consider air quality and position the site upwind from fire and smoke when possible. Smoke can reduce visibility and create health hazards for personnel. Coordinate with fire suppression teams to understand fire behavior predictions and ensure the site remains safe. Be prepared to relocate if fire conditions change and the site becomes threatened.

Cave and Mountain Rescue

For cave and mountain rescue operations, site selection must balance proximity to the rescue site with exposure to weather

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and terrain hazards. Select sites that provide protection from wind and precipitation while maintaining access to the rescue location. Natural terrain features such as tree lines, rock outcrops, or terrain depressions can provide wind protection. Consider helicopter landing zones if aerial support is anticipated. Helicopter operations require clear approach and departure paths, firm and level ground, and freedom from overhead obstructions such as power lines or trees. Coordinate with aviation resources to confirm landing zone suitability.
For cave rescue, position the base near the cave entrance to facilitate equipment staging and personnel rotation. Ensure adequate space for rope systems and stretcher handling outside the cave entrance. For mountain operations, consider altitude effects on personnel and select sites that minimize unnecessary elevation gain during the approach to work sites. Higher altitude sites may be colder and more exposed, affecting personnel welfare.

3.2 Base of Operations (BoO) Layout

A well-designed Base of Operations layout enhances operational efficiency, supports team welfare, and facilitates coordination. The layout should be planned before setup begins and should account for all required functional areas and their relationships to each other. Taking time to plan the layout before starting construction saves significant time and effort compared to reorganizing after setup.

3.2.1 Functional Zones

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The Base of Operations should be organized into distinct functional zones, each serving specific purposes. Clear zone separation improves workflow, reduces noise disturbance to resting personnel, and enhances safety. The following zones should be considered for most operations:

Command and Coordination Area serves as the operational hub of the base. This area houses the leadership and planning functions that direct rescue activities. It should include space for briefings and planning sessions, communication equipment and operators, mapping tables and documentation, visitor reception and coordination with other teams and authorities, and information displays showing operational status. Position this area centrally for easy access but away from noisy activities such as generators and vehicle movements. Ensure adequate lighting for 24-hour operations and protection from weather for sensitive equipment. The command area should be clearly identifiable to visitors and team members.

Rest and Accommodation Area provides sleeping quarters for team members. Adequate rest is essential for maintaining team effectiveness and safety over extended operations. Position this area away from noise sources including generators, vehicle movements, and operational activities. Sleeping areas should be protected from weather and environmental hazards, with adequate ventilation and temperature control as conditions require.
Consider separate areas for personnel coming off shift (who need immediate rest without disturbance) and those preparing for shift (who may be conducting equipment checks, eating, and preparing). This separation allows shift changes to occur without disrupting sleeping personnel. Provide individual sleeping spaces where possible to allow rest regardless of others' schedules.

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Medical and First Aid Station provides for treatment of team member injuries and illnesses, and may also support initial treatment of rescued survivors before transfer to medical facilities. Position this area with good access from the operational area and vehicle access for potential evacuation. The medical station should be clearly marked with appropriate signage, well-lit, and protected from contamination.
Stock appropriate supplies based on team size, anticipated hazards, and expected types of injuries. Include provisions for managing environmental injuries such as heat illness or hypothermia as conditions dictate. Ensure medical personnel have adequate space to examine and treat patients with appropriate privacy.

Equipment Storage and Maintenance Area provides secure, organized storage for rescue equipment and tools. This area should be accessible to the operational area for rapid equipment deployment. Organize the equipment logically by type and frequency of use , items needed frequently should be most accessible. Protect sensitive equipment from weather, dust, and contamination.
Include space for equipment inspection, cleaning, and minor repairs. Equipment returning from operations should be inspected, cleaned, and returned to storage ready for immediate reuse. Maintain an inventory system to track equipment location and condition. Secure high value and critical equipment against theft or unauthorized use.

Logistics and Supply Area handles consumable supplies including food, water, fuel, and operational consumables. Position this area with vehicle access for resupply deliveries. Maintain inventory control systems to track consumption and trigger resupply requests before stocks are depleted. Ensure

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proper storage conditions for perishable items including temperature control where necessary.
Separate fuel storage from other supplies and position away from sleeping and cooking areas due to fire risk and fumes. Establish clear procedures for fuel handling and dispensing. Include space for receiving, checking, and organizing incoming supplies.

Decontamination Area may be required depending on the disaster type and associated hazards. For operations involving contaminated water, hazardous materials, or biological hazards, establish a decontamination station at the entry to the base. Personnel and equipment returning from operations should pass through decontamination before entering clean areas of the base.
The decontamination area should include facilities for washing personnel and equipment, with appropriate containment and disposal of contaminated water. Provide clean clothing and equipment for personnel who have completed decontamination. The area should be positioned to prevent contaminated runoff from affecting other parts of the base.

3.2.2 Traffic Flow and Security

Plan vehicle and pedestrian traffic flow to minimize conflicts and enhance safety. Establish designated vehicle routes and parking areas separate from pedestrian zones. Create one way traffic patterns where space permits to reduce congestion and collision risk. Ensure emergency vehicles can access and exit the base without obstruction at all times.
Mark traffic routes and pedestrian areas clearly, particularly for night operations. Use barriers or marking to separate vehicle

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and pedestrian areas. Position parking to allow vehicles to exit without reversing where possible. Designate specific areas for loading and unloading to prevent congestion in main traffic routes.
Security considerations include controlling access to the base, protecting equipment from theft or tampering, and ensuring team safety. Establish a clear perimeter for the base and control entry points. All visitors should check in at a designated point and be escorted while in the base. In situations with security concerns, coordinate with local authorities and implement appropriate measures such as perimeter lighting, fencing, and watch schedules.

3.2.3 Sample Base of Operations Layout

The following diagram illustrates a typical Base of Operations layout showing the relationship between functional zones. Actual layouts should be adapted to the specific site, team size, and operational requirements. The diagram shows recommended positioning of zones to optimize workflow and minimize conflicts.

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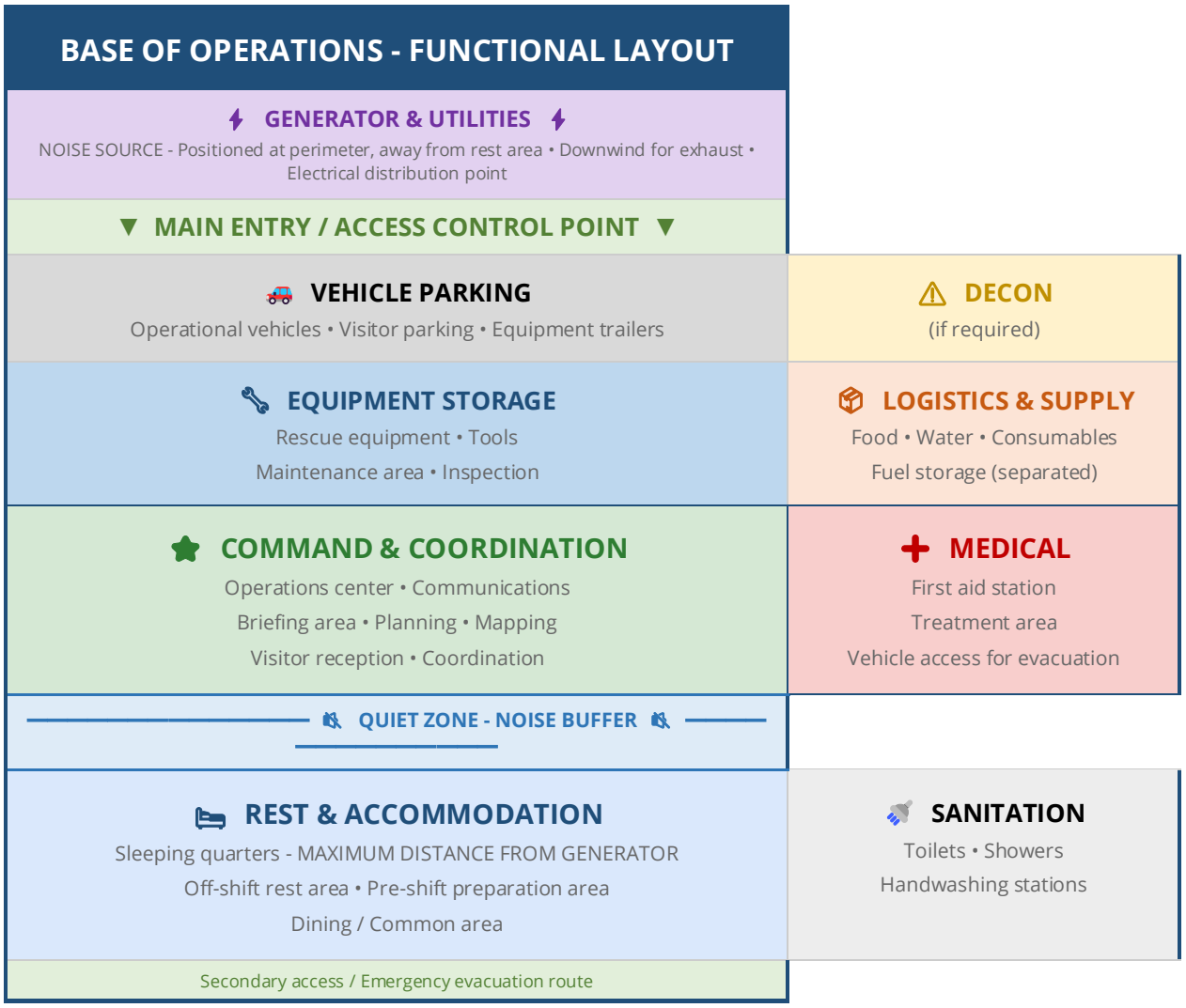

Layout Principles: Generator/noise sources at perimeter, OPPOSITE from rest area • Quiet zone buffer between operational and rest areas • Command central for accessibility • Medical with vehicle access • Decon at entry

Figure 3.1: Sample Base of Operations Functional Layout

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3.3 Shelter Types and Deployment

The type of shelter used at the Base of Operations depends on the expected duration of operations, environmental conditions, available resources, and transportation constraints. Teams should be proficient in deploying multiple shelter types to adapt to varying conditions. The shelter system should provide adequate protection for personnel welfare while being practical to transport and erect.

3.3.1 Tents and Modular Structures

Tents are the most common shelter type for field operations due to their portability, rapid deployment, and adaptability. Selection of tent types should consider the number of personnel to be accommodated, expected weather conditions including wind, rain, and temperature extremes, duration of deployment, and transport capacity available.

Personal tents provide individual sleeping quarters and offer flexibility in placement. They are quick to deploy and allow personnel to rest independently of others' schedules. Personal tents are particularly useful when team members have varying shift patterns. However, they provide limited space and may be inadequate in extreme weather conditions. Quality sleeping bags and insulated sleeping mats are essential complements to personal tents.

Team tents accommodate multiple personnel and are suitable

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for sleeping quarters, briefing areas, or equipment storage. Larger tents provide more usable space per unit of transport weight but require more setup time and personnel. Consider tents with vestibules or extensions for equipment storage and transition space between inside and outside. Frame-supported tents offer more headroom and usable space than dome tents of similar floor area.

Modular shelter systems offer expandable configurations and can be connected to create larger covered areas. These systems are particularly useful for command posts, medical stations, and equipment maintenance areas where larger working spaces are beneficial. They typically require more setup time but provide superior weather protection, better climate control options, and more professional working environments. Some modular systems include integrated flooring, lighting, and climate control.

When deploying tents, ensure proper anchoring appropriate to ground conditions and expected wind loads. Use stakes, deadman anchors, or weighted anchors depending on ground type. Use ground sheets to protect against moisture and improve insulation. Establish drainage channels around tents to divert rainwater away from entrances. In hot conditions, provide shade structures and ensure ventilation; in cold conditions, consider insulated inner linings and safe heating options.

3.3.2 Vehicle-Based Setups

Vehicles can serve as integral components of the Base of Operations, providing ready-made shelter, storage, and operational capability. Vehicle-based setups offer rapid

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deployment with minimal setup time, integrated equipment storage and organization, mobility for rapid relocation if conditions change, and climate control using vehicle heating and air conditioning systems.
Command vehicles can serve as mobile coordination centers with integrated communication equipment, mapping displays, and briefing space. Purpose built command vehicles may include workstations, communication arrays, and meeting areas. Even standard vehicles can serve command functions with appropriate equipment installation.
Cargo vehicles provide secure equipment storage and can be positioned to create sheltered working areas using awnings or attached tents. Side opening cargo vehicles are particularly useful as they can create covered work areas when opened. Vehicles with lift gates facilitate loading and unloading of heavy equipment.
When incorporating vehicles into the base layout, consider exhaust positioning to avoid fumes entering occupied areas, fuel consumption for climate control and equipment operation, access requirements for loading and unloading, battery maintenance if vehicles are running electrical loads while stationary, and the need to maintain vehicle readiness for operational deployment.

3.3.3 Improvised Shelters in Austere Environments

In some situations, teams may need to establish shelter using locally available materials or structures. This may occur when deployment outpaces logistics support, in remote locations with limited transport access, when primary shelter equipment is damaged or insufficient, or when extending operations

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beyond planned duration.

Existing structures such as warehouses, schools, community buildings, or industrial facilities may be suitable for use as a Base of Operations if they are structurally sound and available. Conduct a thorough safety assessment before occupying any structure, particularly in earthquake affected areas where damage may not be immediately visible. Obtain appropriate authorization from local authorities or property owners. Document the condition of the structure before occupation to facilitate restoration upon departure.

Improvised shelters can be constructed using tarps, plastic sheeting, rope, and locally available materials such as timber, poles, or branches. While not ideal for extended operations, such shelters can provide adequate protection in emergencies. Prioritize protection from precipitation and wind, insulation from ground cold or heat, and ventilation to prevent condensation and maintain air quality. Frame structures with local materials and cover with waterproof sheeting.

3.3.4 Climate Considerations

Shelter selection and configuration must account for environmental conditions to ensure personnel welfare and operational effectiveness. Climate affects not only comfort but also health and safety, making appropriate shelter configuration essential.

In hot conditions, prioritize shade and ventilation. Position shelters to take advantage of prevailing breezes and orient openings to maximize airflow. Use reflective materials or shade structures on sun exposed surfaces. Light colored shelters

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absorb less heat than dark colors. Provide adequate hydration stations throughout the base and establish shaded rest areas where personnel can recover from heat exposure. Consider scheduling intensive work during cooler parts of the day and adjusting shift patterns accordingly.

In cold conditions, prioritize insulation and wind protection. Use insulated ground cover to reduce heat loss to the ground, which can be substantial. Close openings and use vestibules to create airlocks that reduce heat loss when entering and exiting. Provide safe heating systems with adequate ventilation to prevent carbon monoxide buildup, never use unvented combustion heaters in enclosed spaces. Ensure personnel have appropriate cold weather gear and establish warming areas where they can recover from cold exposure between activities.

In wet conditions, prioritize waterproofing and drainage. Establish shelters on elevated ground or platforms where possible to avoid ground water. Ensure all seams and joints are properly sealed. Create covered walkways between functional areas to reduce exposure during movement around the base. Establish drainage channels to direct water away from shelters. Provide drying facilities for wet clothing and equipment, and establish procedures for managing wet gear to prevent mildew and deterioration.

In windy conditions, ensure all shelters are adequately anchored using appropriate methods for the ground conditions. Position shelters to minimize wind exposure where terrain or structures can provide windbreaks. Secure all loose materials and equipment that could become projectiles in high winds. Consider wind chill effects in cold weather operations, as wind significantly increases effective heat loss. Establish wind barriers using vehicles, equipment containers, or purpose

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built screens.

3.4 Utilities and Essential Services

A functioning Base of Operations requires reliable utilities and services to support personnel and operations. Planning for these requirements should begin before deployment and should account for the expected duration of operations, team size, and level of self-sufficiency required. In many disaster situations, local infrastructure will be damaged or unavailable, requiring teams to be largely self-sufficient.

3.4.1 Power Generation and Distribution

Electrical power supports lighting, communication equipment, battery charging, climate control, medical equipment, and other operational needs. Teams should calculate power requirements before deployment by listing all electrical equipment and its power consumption. Include margin for unexpected needs and simultaneous operation of multiple high draw devices. Consider both continuous loads and peak loads that occur when equipment starts.

Generators are the primary power source for field operations. Select generators with adequate capacity for calculated needs plus reserve. Position generators away from sleeping and working areas to reduce noise and exhaust exposure should typically be located at least 10-15 meters from occupied areas

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and downwind when possible. Ensure adequate fuel supply for the expected operation duration and establish refueling procedures that minimize fire risk. Implement a maintenance schedule including regular oil checks, filter inspection, and operational testing to prevent failures during operations. Consider backup generation for critical systems such as communications and medical equipment. If using multiple generators, configure systems to allow switching between units for maintenance and in case of failure. Some operations may benefit from having a smaller generator for overnight/low-demand periods to reduce fuel consumption and noise.

Power distribution should use appropriate cables and connectors rated for outdoor use and the conditions expected. Protect electrical connections from moisture, physical damage, and trip hazards. Use cable ramps or bury cables where they cross traffic routes. Establish clear procedures for electrical safety including lockout/tagout for maintenance. Ground all generators and electrical equipment appropriately. Consider solar panels or other renewable sources to supplement generators and reduce fuel consumption for extended operations.

3.4.2 Water Supply and Purification

Adequate water supply is essential for drinking, cooking, hygiene, equipment decontamination, and medical purposes. Calculate water requirements based on team size, climate conditions, and operational activities. As a planning guide, allow at least 10-15 liters per person per day for drinking and cooking, with additional water for hygiene and operational

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needs. In hot conditions or with heavy physical work, drinking water needs alone may exceed 10 liters per person per day. Water may be obtained from bottled supplies (most reliable but logistics-intensive), bulk delivery by tanker (efficient for larger operations), local sources with appropriate treatment (requires purification capability), or existing infrastructure if functional and verified safe. If using local water sources, implement appropriate purification measures including filtration, chemical treatment, or UV sterilization. Test water quality if testing capability is available and treat all water of uncertain quality before consumption.

Establish clear procedures for water storage and distribution to prevent contamination. Position water storage in shaded areas to maintain quality and palatability. Ensure containers are clearly labeled and distinguished from containers used for non-potable water. Provide convenient access points for drinking water throughout the base to encourage hydration. Clean and sanitize water containers regularly.

3.4.3 Sanitation and Waste Management

Proper sanitation is essential for team health and environmental protection. Poor sanitation can lead to disease outbreaks that compromise team effectiveness and create additional burdens on already stressed local health systems. Plan sanitation facilities appropriate to the team size and expected duration of operations.

Position toilet facilities away from food preparation and water storage areas but accessible from all parts of the base typically

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30-50 meters from kitchen and water storage areas but within reasonable walking distance of rest and work areas. Provide adequate facilities based on team size; as a guide, one toilet per 10-15 personnel is minimum, with more needed for larger teams or extended operations.

Options for sanitation include portable chemical toilets (self-contained, require servicing), pit latrines for extended operations in remote areas (require appropriate site selection and construction), and connection to existing sewage systems where available and functional. Establish cleaning and servicing schedules to maintain hygiene ,chemical toilets typically require servicing every 2-3 days for normal use. Provide handwashing facilities with soap immediately adjacent to toilet facilities and enforce hand hygiene practices.

Waste management should address general refuse, food waste, hazardous materials, and medical waste. Establish segregated collection points for different waste types with clear labeling. Arrange for regular waste removal through local services if available, or establish appropriate disposal methods for remote locations. Medical waste requires special handling and disposal according to applicable regulations. In remote locations, pack out all waste that cannot be safely disposed of locally.

3.4.4 Lighting

Adequate lighting enables 24-hour operations and enhances safety and security. Plan lighting for all functional areas, pathways between areas, and entry points to the base. Use a combination of area lighting for general illumination and task lighting for specific work areas requiring higher light levels.

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Consider the impact of lighting on sleep areas and minimize light spillage into rest zones. Personnel sleeping during daylight hours may need eye masks or blackout materials, while night lighting near rest areas should be minimized. Use red or amber lighting in areas where personnel may be preparing for sleep or waking for night shifts to minimize disruption to circadian rhythms and dark adaptation.

Ensure emergency lighting is available in case of primary power failure. Battery-powered emergency lights should be positioned in critical areas including the command post, medical station, and main pathways. Individual personnel should have personal flashlights or headlamps readily available. Solar-powered pathway lights can provide basic illumination without depending on generator power.

3.4.5 Heating and Cooling

Climate control may be necessary to maintain personnel welfare, ensure adequate rest, and protect temperature sensitive equipment and supplies. The level of climate control required depends on environmental conditions, duration of operations, and available resources.

In cold environments, heating options include diesel or kerosene heaters (efficient but require fuel and produce some fumes), propane heaters (clean burning but require propane supply), wood stoves where appropriate and permitted (effective but require fuel supply and safe installation), and electric heaters where power capacity permits (safe but high power consumption). Ensure adequate ventilation with any combustion heating to prevent carbon monoxide accumulation , this is critical and has caused fatalities in field operations.

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Never leave combustion heating equipment unattended in tent shelters, and install carbon monoxide detectors in heated enclosed spaces.

In hot environments, cooling options include electric fans (low power, provide air movement but limited cooling), evaporative coolers (effective in dry climates, use water and minimal power), and air conditioning units for critical areas where power permits (effective but high power consumption). Passive cooling through shade, ventilation and reflective materials may provide adequate cooling in moderate conditions. Ensure personnel have access to cooled rest areas during breaks from work in hot conditions. Establish hydration protocols and monitor personnel for signs of heat illness.

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SECTION 4
Logistics & Resource Management

Effective logistics and resource management are essential for sustaining rescue operations over time. Even the most skilled rescue team cannot operate effectively without adequate supplies, properly maintained equipment, and well-managed personnel. This section provides guidance on establishing and maintaining the logistical systems necessary to support rescue operations across all disaster types.

Logistics in disaster response encompasses the planning, implementation, and control of the flow of resources from source to point of use. This includes not only physical supplies and equipment but also the management of personnel, information, and coordination with external organizations. Successful logistics requires anticipating needs, maintaining adequate stocks, and adapting to changing operational requirements.

Resource management extends beyond simple supply management to include the optimal allocation and utilization of all available resources, equipment, supplies, personnel, and time. Effective resource management ensures that the right resources are available at the right place and time, maximizing operational effectiveness while minimizing waste and inefficiency.

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4.1 Supply Chain Fundamentals

A functioning supply chain ensures that necessary materials flow from their sources to the point of use in a timely and efficient manner. In disaster response, supply chains must often be established rapidly in challenging environments with damaged infrastructure. Understanding supply chain fundamentals enables teams to establish effective logistics systems even under difficult conditions.

4.1.1 Inventory Management Systems

Inventory management tracks what supplies and equipment are available, where they are located, and when replenishment is needed. An effective inventory system provides visibility into current stock levels, enables accurate forecasting of needs, and triggers timely resupply actions.

Before deployment, teams should prepare a comprehensive inventory of all equipment and supplies being transported. This baseline inventory should include item descriptions, quantities, serial numbers for tracked equipment, and condition assessments. The pre-deployment inventory serves as the reference point for tracking consumption and planning resupply.

During operations, inventory should be updated regularly to reflect consumption, damage, and resupply. Designate a logistics officer or team member responsible for maintaining inventory records. Establish clear procedures for issuing

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supplies and equipment, with documentation of what was issued, to whom, and when. This documentation supports accountability and enables accurate consumption tracking.

Inventory systems can range from simple paper-based logs to sophisticated electronic tracking systems. The appropriate system depends on team size, operation duration, and available resources. Regardless of the system used, key principles include consistency in recording, regular physical verification, and clear responsibility for inventory management. Even simple systems are effective if used consistently.

4.1.2 Categorization of Supplies

Organizing supplies into logical categories improves storage efficiency, simplifies inventory management, and speeds retrieval during operations. A consistent categorization system should be established before deployment and maintained throughout the operation.

Rescue equipment includes the specialized tools and devices used directly in rescue operations. This category encompasses cutting and breaching tools, lifting and stabilization equipment, rope rescue systems, search equipment, and discipline-specific items such as water rescue gear or wildfire equipment. Rescue equipment is typically high-value, requires regular inspection and maintenance, and must be readily accessible for rapid deployment.

Consumables are items that are used up during operations and require regular replenishment. This includes fuel, batteries, marking materials, disposable protective equipment, tape, and similar items. Consumables should be monitored closely as

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their depletion directly affects operational capability. Establish reorder points that trigger resupply before stocks are exhausted.

Medical supplies support first aid and medical treatment for team members and, in some cases, rescued persons. This includes bandages, medications, splints, airway management devices, and other medical materials. Medical supplies require careful inventory management due to expiration dates and the critical nature of medical care. Store medical supplies in a designated area with controlled access and environmental protection.

Personal equipment includes items issued to individual team members for their use during operations. This encompasses personal protective equipment (PPE), uniforms, personal tools, and individual gear. While personal equipment is typically assigned to individuals, logistics systems should track overall quantities and condition to support replacement and resupply.

Camp and support supplies sustain the Base of Operations and team welfare. This includes food, water, shelter materials, bedding, hygiene supplies, and administrative materials. These supplies are essential for maintaining team effectiveness over extended operations and should receive the same management attention as operational equipment.

4.1.3 Stock Rotation and Replenishment Cycles

Effective stock management ensures that supplies are used

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before they expire or deteriorate, and that replenishment occurs before stocks are exhausted. This requires establishing consumption tracking, reorder points, and rotation procedures.

Stock rotation follows the principle of first-in, first-out (FIFO)—older stock should be used before newer stock to minimize waste from expiration or deterioration. When new supplies arrive, they should be placed behind or below existing stock so that older items are used first. This is particularly important for items with expiration dates such as medical supplies, batteries, and food.

Replenishment cycles should be planned based on consumption rates and resupply lead times. Calculate the average daily consumption for key supplies and determine how long current stocks will last at that rate. Establish reorder points that provide sufficient buffer to receive resupply before stocks are exhausted, accounting for potential delays in disaster environments.

For critical supplies where stockout would severely impact operations, maintain safety stock levels that provide additional buffer beyond normal reorder points. The appropriate safety stock level depends on the criticality of the item, variability in consumption, and reliability of resupply. Items that are difficult to obtain locally or have long lead times require higher safety stock levels.

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4.2 Resource Allocation by Disaster Type

Different disaster types require different resource profiles. Understanding these differences enables teams to prioritize resources appropriately for each operational context. While some resources are common across all disaster types, each type has specific requirements that should be anticipated and planned for.

4.2.1 Collapsed Structures

Operations in collapsed structure environments require resources focused on accessing trapped victims, stabilizing unstable debris, and sustaining extended rescue efforts. The resource profile emphasizes heavy and powered equipment, shoring materials, and supplies to support prolonged operations.

Key equipment requirements include cutting tools (concrete saws, rotary hammers, reciprocating saws), lifting equipment (air bags, hydraulic jacks, cribbing), shoring materials (timber, struts, adjustable shores), search equipment (acoustic sensors, cameras, search dogs), and lighting for work in dark confined spaces. Heavy equipment such as excavators and cranes may be required for larger debris removal and should be sourced locally when possible.

Consumable requirements include fuel for powered equipment (often in large quantities), cutting blades and drill bits (high consumption in concrete work), dust masks and respiratory protection, marking materials for structure assessment, and

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batteries for search equipment and communications. Plan for higher than normal fuel consumption due to the power demands of breaching and cutting operations.

Personnel considerations include the need for rest rotation due to the physically demanding nature of the work. Adequate water and food supplies are essential, along with facilities for dust removal and personal hygiene. Medical supplies should include provisions for crush injury treatment and traumatic injuries.

4.2.2 Water and Flood

Flood response operations require resources for water-based rescue, contamination protection, and operations in wet environments. The resource profile emphasizes watercraft, personal flotation devices, and equipment protection.

Key equipment requirements include watercraft (inflatable boats, rigid-hull boats, personal watercraft) with appropriate propulsion, personal flotation devices (PFDs) for all personnel, throw bags and water rescue lines, dry suits or wetsuits depending on water temperature, and waterproof communications equipment. Boat motors require fuel and maintenance supplies.

Contamination protection is essential as floodwaters typically contain sewage, chemicals, and debris. Supplies should include waterproof protective clothing, decontamination materials, water purification capability for drinking water, and first aid supplies appropriate for waterborne illness and wound contamination.

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Camp requirements include elevated or waterproof storage for equipment and supplies, drying facilities for wet gear, and enhanced hygiene facilities due to contamination exposure. Plan for higher consumption of personal protective equipment and cleaning supplies.

4.2.3 Wildfire Response

Wildfire operations require resources for operating in smoky, hot environments with rapidly changing conditions. The resource profile emphasizes respiratory protection, hydration, and heat-related safety equipment.

Key equipment requirements include fire-resistant personal protective equipment, respiratory protection (masks rated for smoke particulates), eye protection, fire shelters for emergency use, and communications equipment suitable for fire environments. Hand tools for fire line work may be needed if supporting suppression activities.

Hydration and nutrition are critical concerns in wildfire environments. Plan for significantly increased water consumption, personnel may require 8-10 liters or more per day in hot, active conditions. Electrolyte replacement supplies, high-energy foods, and cooling equipment support personnel welfare.

Camp requirements include air quality protection (sealed shelters or filtered air when possible), decontamination from soot and ash, and enhanced medical supplies for heat illness and respiratory issues. Position supply caches to support rapid relocation if fire conditions change.

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4.2.4 Cave Rescue

Cave rescue operations require specialized equipment for vertical access, confined space work, and extended underground operations. The resource profile emphasizes rope systems, lighting, and self-sufficiency for teams operating out of surface contact.

Key equipment requirements include extensive rope systems and anchoring equipment, specialized stretchers for confined space evacuation (such as SKED stretchers), multiple lighting sources per person with abundant spare batteries, underground communication systems, and air quality monitoring equipment. Hauling systems and mechanical advantage equipment support patient movement through difficult passages.

Underground operations require teams to carry supplies with them as surface resupply is not possible. Personnel should carry food, water, and personal equipment sufficient for extended operations. Plan quantities based on anticipated duration underground plus safety margin for delays.

Surface support requirements include staging areas for equipment, communication relay stations, and welfare facilities for teams exiting the cave. Medical capabilities should include hypothermia treatment as underground temperatures are often low regardless of surface conditions.

4.2.5 Rope Rescue

Rope rescue operations require equipment for safe access to

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elevated or below-grade locations, patient packaging and movement, and anchor systems. The resource profile emphasizes rope and hardware, patient packaging devices, and personal protective equipment for work at height.

Key equipment requirements include static and dynamic ropes in various lengths, a comprehensive hardware selection (carabiners, pulleys, ascenders, descenders), anchor building equipment, rescue stretchers appropriate for vertical environments, and personal equipment including harnesses, helmets, and gloves. All rope rescue equipment requires regular inspection and careful documentation of use history. Rope care is essential in the field. Provide rope bags or tarps to protect ropes from ground contamination, UV protection for ropes stored during operations, and inspection capability to identify damage. Damaged ropes must be immediately retired from life-safety use.

Support requirements include edge protection materials, communication systems for dispersed team positions, and equipment staging near the rescue site. Weather monitoring is important as rain, wind, or temperature changes can significantly affect rope rescue operations.

4.2.6 Search Operations

Search operations require resources for systematic area coverage, victim detection, and support of specialized search assets such as canine teams. The resource profile emphasizes navigation equipment, marking systems, and sustainability for extended area searches.

Key equipment requirements include GPS devices and

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mapping materials, marking tape and flags for search documentation, acoustic detection devices and search cameras for technical search, and canine support equipment if K9 teams are deployed. Communication equipment must provide coverage across the search area.

For canine search teams, additional requirements include dog food and water, rest areas protected from environmental extremes, veterinary first aid supplies, and transport arrangements that accommodate working dogs. Canine teams have specific operational requirements that must be understood and supported.

Extended search operations require provisions for field sustainability including water, food, and weather protection for search teams. Consider pre-positioning supply caches if search areas are remote from the Base of Operations.

4.3 Personnel Management

Personnel are the most valuable resource in any rescue operation. Effective personnel management ensures that team members can perform at their best while maintaining health, safety, and morale. This includes planning work schedules, ensuring adequate rest and recovery, and supporting team welfare throughout the operation.

4.3.1 Shift Planning and Rotation

Effective shift planning balances operational tempo with the need for rest and recovery. Fatigued personnel are less effective, more prone to errors, and at greater risk of injury.

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Sustainable operations require structured work-rest cycles that maintain team capability over the duration of the mission.

Shift duration should account for the intensity of work, environmental conditions, and travel time to and from work sites. For intensive rescue operations, shifts of 8-12 hours are typical, with shorter shifts appropriate for extremely demanding or hazardous work. Night operations may require adjusted shift patterns to ensure adequate personnel are available while allowing for circadian rhythm considerations. Rest periods between shifts should provide adequate time for sleep, meals, personal hygiene, and recovery. A minimum of 8 hours between shifts is recommended, with longer periods preferable if operational tempo permits. During rest periods, personnel should be protected from disturbance and not tasked with additional duties except in emergencies.

Rotation schedules should be published in advance when possible, allowing personnel to plan their rest and personal time. Changes to schedules should be communicated clearly with as much notice as practical. Consider individual needs and capabilities when assigning shifts, some personnel perform better on night shifts while others are more effective during day hours.

4.3.2 Rest and Recovery Protocols

Quality rest is essential for maintaining performance and health over extended operations. Rest protocols should address both the physical environment for rest and the management practices that protect rest time.

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The physical rest environment should provide adequate space for comfortable sleep, protection from noise, light, and environmental extremes, comfortable sleeping surfaces and bedding appropriate to conditions, and privacy where possible. Rest areas should be positioned away from operational activities, generators, and traffic areas as discussed in camp layout.

Recovery activities beyond sleep include adequate nutrition with regular meals of sufficient quality and quantity, hydration with accessible water throughout the rest period, opportunities for personal hygiene including showering where facilities permit, time for personal communication with family and friends where possible, and access to recreational activities or materials during off-duty time.

Management practices that support rest include limiting interruptions to rest periods for only genuine emergencies, providing advance notice of shift starts so personnel can prepare without rushing, staggering shift changes so that not all personnel are transitioning simultaneously, and monitoring for signs of fatigue and adjusting workload as needed.

4.3.3 Team Welfare and Psychological Support

Rescue operations, particularly those involving casualties, can have significant psychological impacts on team members. Supporting team welfare includes both preventive measures and response capabilities for those experiencing stress reactions.
Preventive measures include team briefings that prepare

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personnel for potentially distressing situations, buddy systems that ensure personnel are not working alone and can support each other, regular check-ins to monitor wellbeing, rotation of personnel exposed to particularly distressing tasks, and maintaining team cohesion through shared meals and group activities during rest periods.

Leaders should monitor for signs of stress reactions including changes in behavior or mood, withdrawal from team activities, sleep disturbances, increased irritability, or expressions of hopelessness or guilt. Early recognition allows for supportive intervention before reactions become severe.

Response capabilities should include access to trained peer supporters or mental health professionals, procedures for removing personnel from operational duties if needed, end-of-mission debriefing processes, and referral pathways for ongoing support after deployment. Team leaders should ensure that seeking support is normalized and does not carry stigma.

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4.4 Coordination with External Agencies

Rescue operations rarely occur in isolation. Effective coordination with other responding organizations, local authorities, and support agencies enhances operational effectiveness and avoids duplication or gaps in the response. This section addresses coordination principles and mechanisms relevant to logistics and resource management.

4.4.1 Integration with National Civil Protection

National civil protection authorities typically lead disaster response within their country, and international or volunteer teams operate under their coordination. Understanding this framework and integrating effectively is essential for successful operations.

Upon arrival, teams should register with the responsible coordination authority and receive any required accreditation or authorization. This registration typically includes providing information on team capabilities, equipment, self-sufficiency duration, and personnel qualifications. Comply with any national requirements for operating in the affected area.

National authorities may provide logistical support including accommodation, fuel, food, and other supplies. Understand what support is available and what teams must provide for themselves. Where national systems provide support, integrate with these systems rather than establishing parallel

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arrangements. Where teams must be self-sufficient, ensure logistics plans account for the full duration of operations. Regular reporting to national coordination structures keeps authorities informed of team activities, resource status, and any support needs. Follow established reporting formats and schedules. Promptly communicate any significant findings, requests for assistance, or changes in team status.

4.4.2 Coordination with Other Rescue Teams

Large disasters often attract multiple rescue teams, both national and international. Coordination among teams prevents duplication of effort, enables mutual support, and ensures comprehensive coverage of affected areas.

Coordination mechanisms may include coordination meetings where teams share information and align plans, sectoring of the affected area with different teams assigned to different sectors, shared information systems for tracking search coverage and findings, mutual aid arrangements for sharing specialized equipment or expertise, and combined operations where multiple teams work together on complex rescues. Resource sharing among teams can enhance overall response effectiveness. This may include lending specialized equipment not available to other teams, providing expertise or personnel to support specific technical operations, sharing consumables when one team's supplies are low, and coordinating vehicle use to reduce transport requirements. Establish clear terms for any resource sharing, including expectations for return or replacement.

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Communication among teams requires establishing common channels or liaison arrangements. Exchange contact information and establish protocols for routine communication and urgent requests. Where teams are from different countries, language differences may require interpretation support, identify personnel who can bridge language gaps.

4.4.3 Handover Procedures

As operations progress, responsibility for continuing activities may transition between teams or to local authorities. Effective handover ensures continuity of operations and transfers essential information to those assuming responsibility. Handover documentation should include records of work completed including areas searched and results, status of ongoing operations and any recommendations for continuing work, known hazards and safety information, contacts and relationships established with local authorities and communities, and inventory of any equipment or supplies being transferred.

Direct communication with receiving teams or authorities should accompany written handover documentation. Walk the incoming team through current operations, introduce key contacts, and brief on any sensitive issues. Provide opportunity for questions and clarification. Where possible, allow overlap time for the incoming team to observe operations before assuming full responsibility.

When transferring resources to local authorities or other organizations, ensure clear documentation of what is transferred, its condition, and any limitations on use. Obtain acknowledgment of the transfer. For equipment on loan,

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establish clear terms for return including timelines and condition expectations.

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SECTION 5
Safety & Security

Safety and security are critical for effective rescue missions. The Base of Operations must provide a secure setting where team members can rest, recover, and prepare without concerns about their safety or equipment security. This section covers essential aspects of camp security, health and hygiene, and readiness against environmental and secondary threats that could endanger the base.

Disaster settings pose unique safety risks, social order may collapse, infrastructure can be damaged, and environments unstable. Teams must secure their own safety, enforce strict health practices, and stay alert for emerging hazards. Taking a proactive safety approach helps protect personnel and preserve mission integrity.

5.1 Camp security

Camp security involves controlling access, safeguarding equipment and supplies, and ensuring personnel safety. Security measures should be tailored to the context but always include basic protections suited to the environment.

5.1.1 Access Control

Access control establishes who may enter the Base of Operations and under what conditions. Effective access control

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prevents unauthorized entry, enables accountability for persons on site, and provides a first layer of security for personnel and resources.

- **Perimeter**: Clearly define and, if possible, physically mark base boundaries using fences, barriers, natural features, or signs. The perimeter should cover all functional areas and remain manageable to monitor.
- **Entry Points**: Limit and clearly identify entry points to facilitate monitoring. A single main entrance is ideal, though multiple points may be controlled individually. Emergency exits should be secured against unauthorized entry.
- **Entry Procedures**: Require identification for all personnel (uniforms, badges) and register visitors with documented purpose and accompaniment unless authorized for unescorted access. Keep a log of arrivals and departures.
- **Monitoring:** Staff or oversee entry points during the day; enhance night-time security with patrols, lighting, or dedicated personnel based on threat level.
- **Vehicle Access:** Separate vehicle access from pedestrian entry when possible. Verify vehicle occupants and reason for entry. Inspect vehicles if threat conditions warrant.

5.1.2 Protection of Equipment and Supplies

Rescue equipment and supplies represent significant value and are essential for mission success. Loss through theft or damage can severely impact operational capability. Protecting these resources requires physical security measures, inventory control, and vigilant management.

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- Secure valuable equipment in lockable containers or structures, prioritizing generators, power tools, communications gear, medical supplies, and fuel.
- Mark equipment permanently with team identifiers to deter theft and to aid recovery.
- Conduct regular inventories and maintain issue logs to quickly detect losses and assign accountability.
- At work sites, do not leave equipment unattended when theft risk exists; consolidate or station personnel with it.
- Organize and monitor consumables (fuel, food, water, medical supplies) with controlled access and issue tracking to identify irregularities.

5.1.3 Personal Safety of Team Members

The safety of team members is the highest security priority. While the focus of rescue operations is on helping others, team members must also be protected from threats that exist in disaster environments

- **Situational Awareness**: All personnel must be briefed on local threats and stay alert to suspicious activity both inside and outside the base.
- **Buddy System**: Personnel should operate in pairs or small groups for mutual safety during travel, night operations, and in higher-risk zones. Solo movement should be prohibited when risks warrant.
- **Communication**: Everyone leaving base should carry communication devices and maintain scheduled check-ins, with procedures to react if a check-in is missed. Personnel must know how to call for help.
- **Movement Protocols**: Define safe routes, restricted

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areas, and require notification of departure, destination, and return times. Authorization and extra precautions may be needed in dangerous zones.

- **Rest Area Security**: Locate rest zones away from perimeter threats, ensure lighting and security watches, and enable personnel to safeguard valuables.
- **Response to Threats**: Prioritize personnel safety over property. Avoid confrontations and retreat from danger. Report all incidents promptly. Do not resist theft if it jeopardizes personal safety—equipment is replaceable; people are not.

5.2 Health and Hygiene

Maintaining health and hygiene in field conditions is vital to prevent illness that could incapacitate personnel or spread within the team. Disaster zones often amplify health risks such as contaminated water, broken sanitation, disease vectors, and exposure to hazardous substances. Strict hygiene practices protect individual health and sustain the team's operational capability.

5.2.1 Disease Prevention in Camp Settings

Close-quarters living promotes rapid spread of infections; preventive measures are essential.

- Pre-deployment health screening ensures personnel are fit and vaccinated for the deployment area; symptomatic individuals should delay deployment.
- Hand hygiene is the most effective defense against

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disease transmission. Provide handwashing stations with soap and water near toilets, food prep, dining, and medical areas. Alcohol-based sanitizers can supplement where water is scarce.

- Respiratory hygiene involves covering coughs, using and disposing of tissues properly, and mask use if necessary. Early attention to respiratory symptoms prevents outbreaks in shared spaces.
- Vector control: Use repellents, protective clothing, and bed nets to prevent insect-borne diseases. Eliminate standing water near camp to reduce mosquito breeding. Follow local guidance for other vectors.
- Isolation: Designate areas to separate sick personnel to prevent transmission, with enhanced hygiene for caregivers. Severe cases may require medical evacuation.
- Health monitoring: Encourage prompt symptom reporting. Leaders should watch for illness signs. In outbreaks, implement systematic symptom checks.

5.2.2 Food Safety

Foodborne illnesses can rapidly disable team members. Ensuring food safety involves careful sourcing, storage, preparation, and handling.

- **Sourcing**: Prefer verified safe food supplies. Assess local vendors carefully. Avoid high-risk foods like unpasteurized dairy, raw or undercooked meats, eggs, and unwashed uncooked foods. Commercially sealed packages are safest when local safety is uncertain.
- **Storage**: Keep perishables refrigerated or limit quantities to what will be consumed promptly. Store dry goods in sealed, pest-proof containers. Prevent cross-

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contamination by separating raw and ready-to-eat foods and monitor temperatures closely.

- **Preparation**: Use clean, dedicated food prep areas. Food handlers must maintain strict personal hygiene and avoid handling food if ill with gastrointestinal symptoms. Cook foods thoroughly and use clean utensils to avoid contamination.
- **Service**: Minimize time food spends at unsafe temperatures. Serve hot foods hot, cold foods cold, and do not keep prepared food at room temperature for long. Use clean utensils and dispose of leftovers rather than returning them to storage.
- **Water safety**: Use only water from safe sources. If uncertain, treat water by boiling, filtration, chemicals, or UV sterilization. Bottled water from sealed containers is preferred. Store water in clean containers and protect from contamination. Ensure sufficient water for handwashing and cleaning food areas.

5.2.3 Personal Hygiene Facilities

Good hygiene facilities are essential for health and morale during extended operations.

- **Toilet facilities:** Provide at least one toilet per 15 personnel, more for larger or longer missions. Locate toilets away from food and water sources but accessible to living areas. Maintain chemical toilets regularly and supply toilet paper. Ensure lighting for nighttime use.
- **Handwashing stations:** Place adjacent to toilets for convenience. Provide running water or basins with water and rinse methods along with soap. Alcohol-based sanitizers can supplement but not replace handwashing where water is limited.

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- **Shower facilities:** Offer showers with privacy and drainage if possible. If unavailable, provide facilities for sponge bathing at a minimum. Hot water is preferred but cold water is acceptable for hygiene and morale.
- **Laundry:** Enable personnel to wash and dry clothes to maintain cleanliness and reduce skin issues. This may include laundry services, machines, or manual washing setups with drying areas.
- **Waste disposal:** Manage wastewater and solid waste carefully to avoid health hazards or contamination. Wastewater discharge practices should fit the local environmental context. Regular collection or treatment of solid waste is necessary to maintain hygiene standards.

5.3 Environmental and Secondary Hazards

Disaster environments are inherently unstable, and conditions that threaten the Base of Operations may develop during the course of operations. Teams must monitor for environmental and secondary hazards and be prepared to protect the base or evacuate if necessary. The types of hazards vary by disaster type, but the principles of monitoring, warning, and response apply universally.

5.3.1 Monitoring for Evolving Hazards

Continuous monitoring enables early warning of developing threats. Different disaster types require monitoring for

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different hazards, but systematic observation and information gathering are common requirements.

- **Aftershocks** following earthquakes can cause additional structural collapse and ground failure. Monitor seismological information from local authorities or international sources. Be aware that aftershocks may occur without warning, and significant aftershocks can occur days or weeks after the initial earthquake. Observe structures near the base for signs of progressive damage. Review and reinforce camp setup after significant aftershocks.
- **Rising waters** can threaten flood-zone bases due to continued precipitation, upstream events, dam releases, or tidal influences. Monitor water levels near the base continuously, establish markers and check them regularly. Track weather forecasts for precipitation in the entire watershed, not just the immediate area. Maintain communication with authorities monitoring water levels. Be aware that water levels can rise rapidly with little warning.
- **Fire spread** in wildfire environments can threaten bases due to wind shifts, spot fires, or changing fire behavior. Monitor fire location and behavior through coordination with fire suppression authorities and direct observation. Track weather conditions, particularly wind speed and direction. Be aware that fire behavior can change rapidly, especially with wind shifts or during peak burning conditions in afternoon hours. Maintain awareness of defensible space around the base.
- **Weather conditions** can develop that threaten camp integrity or safety. Severe storms, high winds, extreme temperatures, and other weather events may require protective action. Monitor weather forecasts regularly and

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establish communication channels for weather warnings. Recognize early signs of developing severe weather.

- **Structural instability** near the base may develop progressively. If the base is near damaged structures, monitor them for signs of progressive deterioration or movement. This includes cracking sounds, visible movement, falling debris, or changes in structural alignment. Changes following aftershocks or heavy rain warrant particular attention.
- **Hazardous materials** may be released by damaged infrastructure or industrial facilities. Monitor for unusual odors, discoloration, or reports of chemical releases. If the base is near potential hazmat sources, understand what materials might be involved and their hazard characteristics. Coordinate with authorities monitoring environmental hazards.

5.3.2 Evacuation Planning for the Camp

Despite best efforts in site selection, circumstances may require evacuation of the Base of Operations. Having a pre-established evacuation plan enables rapid, organized response when time may be critical.

Evacuation triggers should be defined in advance so that the decision to evacuate can be made quickly. Triggers should be specific and observable—for example, water reaching a defined level, fire within a specified distance, or official evacuation order. Both automatic triggers (requiring immediate evacuation without further decision) and warning triggers (requiring heightened readiness and preparation to evacuate)

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should be established.

Evacuation routes should be identified and verified before they are needed. Primary routes should lead away from identified hazards to safe locations. Alternative routes should be identified in case primary routes become blocked. All personnel should be briefed on routes and should know how to reach safe locations independently if separated from the group. Verify that routes remain passable throughout operations, conditions may change.

Safe destinations should be identified where the team can regroup if evacuation is required. These may include pre-identified rally points, alternative base locations, or coordination centers. Destinations should be clearly communicated to all personnel. If possible, verify in advance that the destination can accommodate the team.

Evacuation priorities determine what is taken if time permits. Personnel safety is always the first priority, if evacuation must be immediate, personnel leave without equipment. If time permits, establish priority lists for equipment and supplies to be taken. Critical items typically include personnel documents and identification, communication equipment, medical supplies, essential records and data, and high-value equipment. Have critical items pre-positioned or packed for rapid removal.

Accountability during evacuation ensures all personnel are safely evacuated. Establish procedures for accounting for all personnel at rally points. Designate personnel responsible for checking areas of the base before final departure. Have a current roster available showing who should be present. If personnel are away from base when evacuation is ordered,

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have procedures for contacting them and directing them to safe locations.

Communication during evacuation requires reliable methods to alert all personnel, coordinate movement, and confirm arrival at safe locations. Test communication systems to ensure they will function under evacuation conditions. Establish backup communication methods in case primary systems fail. Include procedures for communicating with personnel away from base and with external coordination authorities.

Drills and briefings ensure personnel know what to do if evacuation is required. Brief all personnel on evacuation procedures upon arrival at the base. If time permits during extended operations, conduct evacuation drills to verify procedures and identify problems. Update briefings and drills if evacuation plans change due to evolving conditions.

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SECTION 6
Demobilization and Exit

Demobilization is the organized process of ending rescue operations, transferring responsibilities, and withdrawing the team from the disaster area. Proper demobilization preserves operational achievements, ensures smooth handovers, and accounts for all personnel and equipment. Planning for demobilization should begin well before departure to avoid rushed or incomplete closures.
Demobilization is more than simply reversing mobilization; it needs careful planning, coordination with authorities and partners, and management of operational and administrative tasks. Poorly managed demobilization risks abandoned duties, lost equipment, and missed lessons learned.

6.1 Criteria for Mission Completion

Deciding when to end operations depends on balancing operational progress, team capability, and coordination needs. Defined completion criteria help guide timely and effective withdrawal.

6.1.1 Operational Indicators

- **Task Completion:** Verify with authorities that all assigned areas or tasks are finished satisfactorily.

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- **Shift from Rescue to Recovery:** When chances of finding live survivors are minimal and focus shifts to recovery and debris clearing, specialized rescue teams may no longer be required.
- **Diminished Operational Tempo:** Fewer assignments or low-priority tasks may indicate the rescue phase is nearing conclusion, but always confirm with coordinating bodies.
- **Arrival of Relief Teams:** Incoming teams ready to take over support orderly handover and allow initial teams to demobilize.

6.1.2 Resource and Capability Considerations

- **Supplies:** Monitor consumable reserves; demobilize if resupply is unavailable and supplies run low.
- **Equipment:** Assess if remaining equipment is functional to maintain operations. Severe damage may necessitate withdrawal.
- **Personnel Fatigue:** Extended deployment causes fatigue, reducing performance and increasing risks. Consider demobilization if effectiveness declines despite rest cycles.
- **Health:** Illness or injuries that reduce operational personnel below effective levels may require mission end.

6.1.3 Coordination Requirements

- **Advance Notification:** Inform coordinating authorities early about demobilization plans so they can arrange replacements and set requirements.

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- **Team Coordination:** Communicate with other organizations involved to prevent gaps. Complete joint tasks or transfer responsibilities before leaving.
- **Administrative Clearance:** Complete necessary formalities like release approvals, return of borrowed resources, settlement of obligations, and compliance with local exit procedures. Begin early as these steps may take time.

6.2 Handover to Local Authorities

Ensuring a smooth handover guarantees that all operational knowledge and responsibilities are transferred effectively to those continuing the response. The process should be documented and confirmed by the receiving parties.

6.2.1 Information Transfer

- Share operational records detailing work completed, locations, search results, structure statuses, rescue outcomes, and identified hazards.
- Provide copies of logs, maps, and reports to local authorities.
- Communicate hazard details including unstable structures, contamination, unexploded ordnance, and other risks. Confirm physical hazard markings are visible and understood.
- Highlight outstanding issues requiring follow-up, such as unsearched areas or ongoing rescue cases, with clear recommendations.
- Share key local contacts, community leader engagements,

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resources identified, and any sensitive local considerations.

6.2.2 Resource Transfer

- Transfer equipment deliberately and only if authorized. Document condition, recipient, and obtain formal acknowledgment.
- Donate consumable supplies (food, water, fuel) if appropriate, but transfer medical supplies only to capable parties.
- Ensure all borrowed equipment or resources are returned in good condition with acknowledgment from owners. Address any damages according to agreements.

6.2.3 Formal Handover Process

- Hold a formal handover meeting with local authorities to review operations, share documentation, discuss pending issues, and transfer resources.
- Document the meeting and obtain signatures from all parties for acknowledgment.
- If a meeting isn't feasible, communicate essential information through other channels and secure confirmation of receipt before leaving.

6.3 Camp Breakdown Procedures

Breaking down the Base of Operations is the reverse of setup but requires equal care to ensure all equipment is recovered,

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the site is left in acceptable condition, and nothing is overlooked.

6.3.1 Systematic Breakdown Sequence

Follow a planned sequence that maintains essential services until the last possible moment while gradually reducing the camp footprint:

- **Early Phase:** Begin packing non-essential equipment and supplies, dispose of waste, clean and organize storage areas, and start equipment inspection and maintenance for transport. Start these tasks early to reduce the final workload.
- **Intermediate Phase:** As operations wind down, consolidate functional areas into a smaller footprint. Pack logistics and storage areas as contents are cleared. Reduce sleeping capacity as departure nears. Keep command, medical, and essential services until the end.
- **Final Phase:** Dismantle remaining infrastructure last. Keep sleeping areas until departure for shelter. Remove command facilities when no longer needed. Properly dispose of sanitation facilities and waste. Pack generators and utilities last to maintain power. Conduct a final site inspection after all equipment is loaded.

6.3.2 Equipment Accounting and Packing

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Account for all equipment before departure. Reconcile post-mission inventory with pre-deployment records and explain discrepancies. Inspect items during packing, document condition, and tag those needing repair or replacement. Clean equipment to prevent contamination and damage during storage. Dry items when possible and disinfect medical gear per protocol. Pack securely using proper containers and padding, considering weight distribution and hazardous material regulations.

6.3.3 Site Restoration

Leave the site in acceptable condition. Remove all team-generated waste, including general refuse, food waste, human waste, and hazardous materials—do not leave waste for local communities. Remove temporary structures, fencing, signage, and fill any holes. Document any structures retained by local authorities. Address environmental impacts such as fuel spills or wastewater disposal. Conduct a final inspection to confirm nothing is left behind, all waste is removed, and the site meets standards. Photograph the site if appropriate.

6.4 After-Action Review

The After-Action Review (AAR) captures lessons learned to improve future operations. Conduct an initial review before team dispersal to ensure observations are recorded while fresh.

6.4.1 Conducting the Review

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Structure the review to identify both successes and areas for improvement. Ensure all team members can contribute.

- **Timing:** Hold an initial review during demobilization for immediate feedback, followed by a comprehensive review after return for deeper analysis.
- **Format:** Encourage open, constructive discussion. Use facilitated sessions for small teams; for larger teams, break into functional groups before consolidating findings.
- **Key Questions:**
  - Was the mission accomplished?
  - What worked well and should be sustained?
  - What needs improvement?
  - What problems occurred and how were they resolved?
  - What lessons should be shared?
  - What changes to equipment, training, or procedures are recommended?

6.4.2 Documenting Lessons Learned

Document lessons to ensure they are retained and acted upon.

- **Report Content:** Include mission summary, key events, successes, areas for improvement, recommendations, and recognition of effective performance.
- **Distribution:** Share findings with the parent organization, training programs, other teams, and relevant coordination bodies.
- **Follow-Up:** Assign responsibility for implementing recommendations, track progress, and integrate lessons

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into training and future planning.

6.4.3 Personnel Debriefing and Support

Address team wellbeing alongside operational lessons.

- **Psychological Debriefing:** Provide a supportive environment for personnel to process experiences, facilitated by trained professionals.
- **Ongoing Support:** Inform team members about stress responses and available resources. Maintain follow-up contact and ensure access to mental health support.
- **Recognition:** Acknowledge contributions through informal or formal recognition programs.
- **Transition Support:** Allow time for decompression, encourage reconnection with family, and monitor for adjustment challenges.

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SECTION 7
Checklists and Quick Reference

This section provides practical checklists and quick reference materials for use during scouting and camp operations. These tools are designed to be used in the field, either printed for physical reference or accessed electronically. They consolidate key information from throughout this chapter into actionable formats.

The checklists are not exhaustive but cover critical items that should not be overlooked. Teams should adapt these checklists to their specific equipment, procedures, and operational context. Space is provided for notes and additions.

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7.1 Scouting Mission Checklist

Use this checklist before, during, and after scouting missions to ensure comprehensive information gathering and proper procedures.

✓	SCOUTING MISSION CHECKLIST
PRE-MISSION PREPARATION	
☐	Receive and confirm mission assignment and objectives
☐	Review available intelligence on target area
☐	Check maps and GPS coordinates for destination
☐	Verify communication equipment is functional
☐	Confirm radio frequencies and call signs
☐	Pack documentation equipment (camera, notebook, GPS)
☐	Ensure personal protective equipment is complete
☐	Carry water, food, and first aid supplies
☐	Brief team members on mission and safety procedures
☐	Establish check-in schedule with base
☐	Confirm expected return time
DURING MISSION	
☐	Conduct 360-degree assessment upon arrival
☐	Identify and document immediate hazards
☐	Assess structural conditions (if applicable)
☐	Note access routes and obstacles
☐	Identify potential Base of Operations sites
☐	Document survivor/victim information
☐	Photograph key features and conditions
☐	Record GPS coordinates of significant locations
☐	Assess local resource availability
☐	Maintain scheduled check-ins with base
☐	Report critical findings immediately
POST-MISSION	
☐	Report return to base

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✓	SCOUTING MISSION CHECKLIST
☐	Deliver comprehensive verbal briefing
☐	Submit written scouting report
☐	Transfer photos and GPS data
☐	Update maps with new information
☐	Recharge/replace batteries and consumables
☐	Note any equipment issues or losses

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7.2 Camp Setup Checklist

Use this checklist when establishing a Base of Operations to ensure all essential elements are addressed.

✓	CAMP SETUP CHECKLIST
SITE SELECTION	
☐	Confirm site is safe from identified hazards
☐	Verify adequate distance from unstable structures
☐	Check ground conditions (firm, level, draining)
☐	Confirm adequate space for all functional areas
☐	Verify access routes for vehicles
☐	Identify evacuation routes from site
☐	Obtain necessary permissions/authorizations
LAYOUT AND ZONES	
☐	Plan layout before beginning setup
☐	Position generator away from rest area (noise/exhaust)
☐	Establish command/coordination area
☐	Set up rest/accommodation area in quiet zone
☐	Establish medical station with vehicle access
☐	Organize equipment storage area
☐	Set up logistics/supply area
☐	Position sanitation facilities appropriately
☐	Establish decontamination area if required
☐	Define vehicle parking and traffic routes
☐	Mark camp perimeter and entry points
UTILITIES AND SERVICES	
☐	Set up and test generator(s)
☐	Establish electrical distribution safely
☐	Set up lighting for all areas
☐	Establish water storage and distribution
☐	Set up toilet facilities
☐	Establish handwashing stations

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✓	CAMP SETUP CHECKLIST
☐	Set up food preparation/eating area
☐	Establish waste collection points
COMMUNICATIONS	
☐	Set up communication equipment
☐	Test radio communications
☐	Establish contact with coordination authorities
☐	Post emergency contact information
SAFETY AND SECURITY	
☐	Position fire extinguishers throughout camp
☐	Brief all personnel on camp layout
☐	Brief personnel on emergency procedures
☐	Establish access control procedures
☐	Set up secure storage for valuables
☐	Identify and brief on evacuation routes

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7.3 Daily Operations Checklist

Use this checklist daily to maintain camp operations and ensure ongoing safety and functionality.

✓	DAILY OPERATIONS CHECKLIST
MORNING / SHIFT START	
☐	Conduct personnel accountability check
☐	Review operational assignments for the day
☐	Check weather forecast and conditions
☐	Conduct safety briefing for assigned tasks
☐	Verify communication equipment status
☐	Check fuel levels (generator, vehicles)
☐	Verify water supply status
☐	Review inventory for critical supplies
THROUGHOUT THE DAY	
☐	Monitor personnel welfare and fatigue
☐	Ensure adequate hydration and nutrition
☐	Maintain communication schedule
☐	Monitor environmental conditions/hazards
☐	Update operational logs and records
☐	Address equipment issues promptly
☐	Manage waste disposal
☐	Maintain camp cleanliness and organization
EVENING / SHIFT END	
☐	Conduct personnel accountability check
☐	Debrief on day's activities
☐	Clean and inspect equipment used
☐	Return equipment to storage
☐	Refuel generator(s)
☐	Recharge batteries and devices
☐	Submit required reports
☐	Brief night watch if applicable

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✓	DAILY OPERATIONS CHECKLIST
☐	Secure camp for night
☐	Plan for next day's operations

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7.4 Demobilization Checklist

Use this checklist when concluding operations to ensure complete and orderly departure.

✓	DEMOBILIZATION CHECKLIST
	COORDINATION AND HANDOVER
☐	Notify coordinating authorities of demobilization
☐	Obtain release/clearance from authorities
☐	Complete handover briefing with receiving parties
☐	Transfer operational records and documentation
☐	Communicate hazard information
☐	Hand over any outstanding tasks/issues
☐	Return borrowed equipment/resources
☐	Document any resource donations
☐	Obtain handover acknowledgment
	EQUIPMENT AND SUPPLIES
☐	Conduct full equipment inventory
☐	Account for all items against pre-deployment list
☐	Document missing or damaged items
☐	Clean equipment before packing
☐	Tag items requiring repair/replacement
☐	Pack equipment securely for transport
☐	Properly dispose of remaining consumables/hazmat
☐	Drain fuel from equipment if required for transport
	CAMP BREAKDOWN
☐	Break down shelters and structures
☐	Remove all infrastructure (fencing, signs, stakes)
☐	Properly dispose of/remove sanitation waste
☐	Remove all general waste from site
☐	Address any environmental contamination
☐	Restore site to acceptable condition
☐	Conduct final site walkthrough
☐	Document site condition (photos)

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✓	DEMOBILIZATION CHECKLIST
PERSONNEL	
☐	Account for all personnel
☐	Conduct after-action review/debrief
☐	Provide psychological debriefing opportunity
☐	Confirm return transport arrangements
☐	Communicate ongoing support availability
☐	Collect contact information for follow-up
FINAL DEPARTURE	
☐	Load all equipment and personnel
☐	Final accountability check
☐	Report departure to coordination authorities
☐	Document departure time

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7.5 Quick Reference: Scouting Report Format

Use this format for standardized scouting reports to ensure consistent and complete information.

ELEMENT	INFORMATION TO INCLUDE
DATE/TIME	Date and time of observation (use 24-hour format)
LOCATION	GPS coordinates, address, or clear description with reference points
SITUATION	Description of conditions: damage level, hazards present, access conditions
SURVIVORS/VICTIMS	Number confirmed/suspected, locations, conditions, immediate needs
HAZARDS	Specific hazards identified: structural, fire, water, hazmat, other
RESOURCES NEEDED	Personnel, equipment, and support required for operations
ACCESS	Routes to location, road conditions, vehicle types able to access
PRIORITY	IMMEDIATE / URGENT / ROUTINE - with justification
REPORTING TEAM	Team name/ID, reporter name, contact method

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7.6 Quick Reference: Emergency Contacts Template

Complete this template upon arrival and post in visible locations throughout the camp.

CONTACT	NAME/ID	PHONE/RADIO
Team Leader		
Deputy Team Leader		
Medical Officer		
Logistics Officer		
Coordination Authority		
Local Emergency Services		
Nearest Hospital		
Home Base Contact		
Other: _____		
Other: _____		

Radio Frequencies / Channels:

Team Internal: _____	Coordination: _____
Emergency: _____	Other: _____

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ANNEX A
Sample BoO Layout Diagrams

Visual References for Base of Operations Configuration

This annex provides sample layout diagrams for Base of Operations configurations in different operational contexts. These diagrams illustrate the principles discussed in Section 3 and can be adapted to specific site conditions and team requirements.

Key principles reflected in all layouts:

- Generator and noise sources positioned at perimeter, away from rest areas
- Rest and accommodation in quiet zone with maximum separation from noise
- Command and medical centrally located for accessibility
- Clear traffic flow separating vehicles from pedestrian areas
- Sanitation positioned for access but away from food and water

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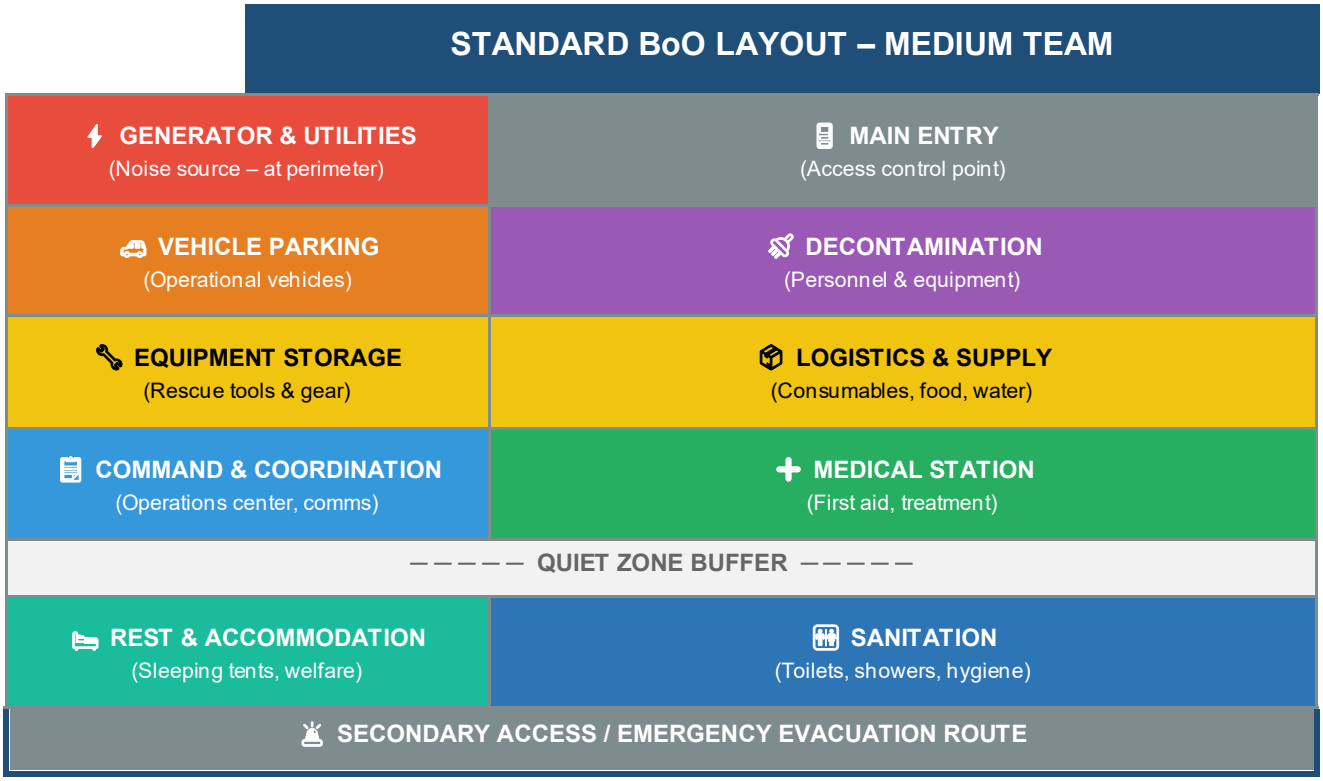
A.1 Standard Layout – Medium Team (20-35 personnel)

This layout is suitable for a medium-sized team operating from an open area such as a parking lot, field, or cleared space. The layout assumes vehicle access from one side.



Legend:

- Generator/noise sources at perimeter, OPPOSITE from rest area
- Traffic flow: Entry → Parking → Equipment → Operations → Rest
- Minimum 30m separation recommended between generator and sleeping area

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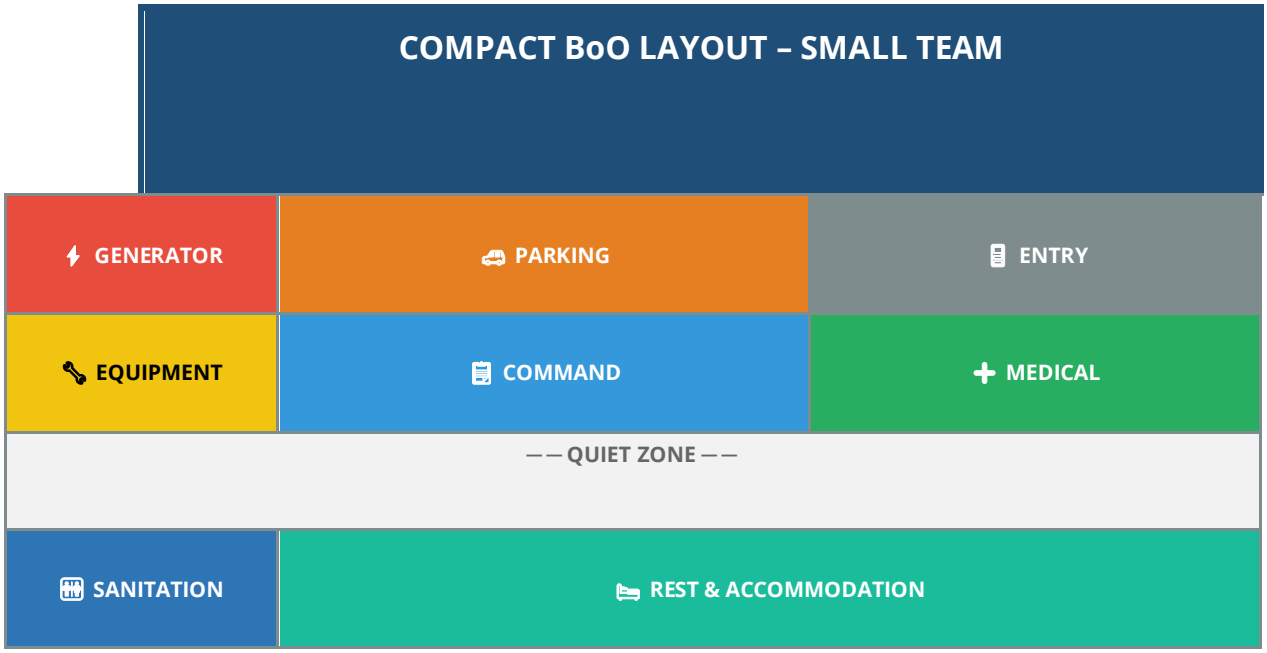
A.2 Compact Layout – Small Team (10-20 personnel)

This layout is suitable for smaller teams or constrained spaces. Functional areas are consolidated while maintaining separation of incompatible functions.



Notes:

- In compact layouts, use terrain or barriers to separate generator noise from rest area
- Consider vehicle positioning as additional noise barrier if needed

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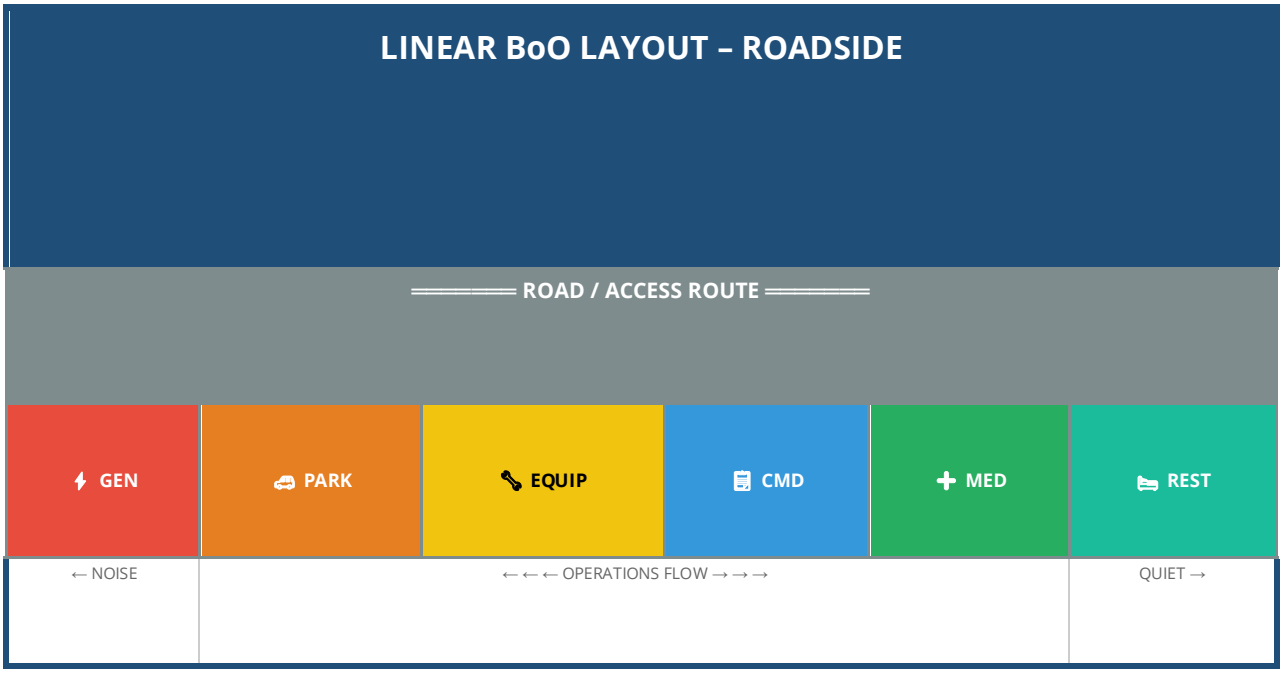
A.3 Linear Layout – Roadside Operations

This layout is suitable when operating along a road or in a narrow space. Functions are arranged linearly with traffic flow along the road.



Notes:

- Position rest area at far end from generator and main traffic
- Sanitation facilities positioned behind main line (not shown)
- Consider wind direction when positioning generator exhaust

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ANNEX B
Equipment Lists by Disaster Type

Specialized Equipment Requirements for Different Operations

This annex provides equipment lists tailored to specific disaster types. These lists supplement the standard team equipment and focus on specialized items required for each operational context. Teams should adapt quantities based on team size and expected operation duration.

Note: Standard camp equipment (shelters, generators, sanitation, etc.) is assumed and not repeated in these lists.

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B.1 Collapsed Structure Operations

EQUIPMENT ITEM	QTY (20-person team)	NOTES
SEARCH EQUIPMENT		
Acoustic/seismic listening devices	2-4 units	With spare sensors
Search cameras (articulating)	2-3 units	Various lengths
Thermal imaging camera	1-2 units	Spare batteries
Search dog teams (if applicable)	As available	With handler supplies
CUTTING AND BREACHING		
Concrete saw (gas/electric)	2-3 units	Diamond blades x10+
Rotary hammer drill	2-3 units	Bits assortment
Reciprocating saw	2-4 units	Metal/wood blades
Angle grinder	2-3 units	Cutting/grinding discs
Hydraulic rescue tools (spreader/cutter)	1-2 sets	With power unit
Oxy-fuel cutting equipment	1 set	If certified operators
LIFTING AND STABILIZATION		
Air lifting bags (high/low pressure)	2-4 sets	Various capacities
Hydraulic jacks	4-6 units	Various tonnage
Cribbing (wood blocks, wedges)	2-4 sets	Hardwood
Shoring struts (adjustable)	8-12 units	Various lengths
Shoring timber	Assortment	4x4, 2x4 lumber
PERSONAL PROTECTIVE EQUIPMENT		
Structural rescue helmet	Per person	With headlamp
Eye protection (goggles)	Per person + spares	Dust/impact rated
Respiratory protection (P100/N95)	100+ masks	High consumption
Leather work gloves	2 pair/person	
Steel-toe boots	Per person	
Hearing protection	Per person	For power tool use
CONSUMABLES		
Fuel (for equipment and generator)	Calculate per day	High consumption
Marking paint/tape	20+ cans/rolls	Multiple colors
Batteries (various sizes)	Large quantity	Lights, radios, tools

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B.2 Flood/Water Rescue Operations

EQUIPMENT ITEM	QTY (20-person team)	NOTES
WATERCRAFT		
Inflatable rescue boats	2-4 boats	With repair kits
Outboard motors	Per boat + spare	With fuel tanks
Paddles/oars	2-4 per boat	Backup propulsion
Boat pump/bailers	Per boat	
Anchor and line	Per boat	
PERSONAL WATER SAFETY		
Personal flotation devices (PFDs)	Per person + 20%	Rescue-rated
Rescue helmets (water)	Per person	Drainage holes
Drysuits or wetsuits	Per water team member	Based on water temp
Water rescue boots/fins	Per water team member	
Rescue knives	Per person	Blunt tip
RESCUE EQUIPMENT		
Throw bags	10-20 bags	Various lengths
Rescue rope (water-specific)	200-400m total	Floating rope
Rescue tubes/torpedo buoys	4-8 units	
Victim flotation devices	10-20 units	For rescued persons
Tag lines and tethers	100-200m	
CONTAMINATION PROTECTION		
Waterproof protective suits	Per person + spares	Sewage protection
Waterproof gloves	3+ pair/person	Chemical resistant
Eye wash stations	2-4 units	At decon area
Decontamination supplies	As needed	Disinfectant, brushes
Clean water for decon	High quantity	Separate from drinking
CAMP CONSIDERATIONS		
Elevated/waterproof storage	As needed	Protect equipment
Drying racks/facilities	Adequate capacity	For wet gear
Extra clothing sets	2+ per person	Complete sets

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B.3 Wildfire Operations

EQUIPMENT ITEM	QTY (20-person team)	NOTES
PERSONAL PROTECTIVE EQUIPMENT		
Fire-resistant clothing (Nomex/similar)	2 sets/person	Pants, shirt, jacket
Fire helmet with shroud	Per person	Neck protection
Fire boots (leather)	Per person	8"+ height
Fire gloves	2 pair/person	Leather/Nomex
Fire shelter	Per person	Emergency only
Eye protection (goggles)	2+ per person	Smoke rated
RESPIRATORY PROTECTION		
Smoke particulate masks (N95/P100)	High quantity	Very high consumption
Half-face respirators	Per person	With spare cartridges
Bandanas/neck gaiters	3+ per person	For light smoke
HYDRATION AND COOLING		
Hydration packs	Per person	2-3L capacity
Drinking water	8-10L/person/day	Very high consumption
Electrolyte supplements	Sufficient stock	Powder/tablets
Cooling towels	2+ per person	
Portable shade structures	2-4 units	For rest areas
HAND TOOLS (IF SUPPORTING SUPPRESSION)		
Pulaski (combination tool)	As needed	Axe/grub hoe
McLeod (fire rake)	As needed	
Fire shovel	As needed	
Chainsaw	1-2 units	With certified operators
CAMP CONSIDERATIONS		
Air filtration for shelters	As available	Smoke protection
Vehicle air filters (spare)	Per vehicle	Smoke clogs filters
Weather monitoring equipment	1-2 units	Wind speed/direction
Maps with escape routes	Multiple copies	Pre-identified routes

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B.4 Cave Rescue Operations

EQUIPMENT ITEM	QTY (20-person team)	NOTES
ROPE AND RIGGING		
Static rope (11mm)	500-1000m+	Based on cave depth
Rigging rope/accessory cord	200-400m	Various diameters
Carabiners (locking)	100+ units	Steel preferred
Pulleys (rescue rated)	20-30 units	Various sizes
Ascenders	2+ per person	
Descenders/rappel devices	Per person + spares	
Anchor building equipment	Comprehensive kit	Bolts, hangers, etc.
PATIENT PACKAGING		
SKED stretcher (or similar)	2-3 units	Confined space rated
Patient harness systems	2-3 sets	
Hypothermia wrap/blankets	4-6 units	Critical underground
Patient drag sheet	2-3 units	For tight passages
LIGHTING		
Primary headlamp	Per person	High output
Backup headlamp	Per person	Independent system
Spare batteries	3+ sets/person	Very high quantity
Chemical light sticks	50+ units	Route marking
Area lights	4-6 units	For work areas
COMMUNICATION		
Cave radio/through-earth system	As available	Specialized equipment
Wired communication system	Sufficient length	Phone wire + handsets
Written message system	Waterproof paper	Backup method
PERSONAL EQUIPMENT		
Cave helmet	Per person	With lamp bracket
Cave suit/overalls	Per person	Durable material
Knee/elbow pads	Per person	
Sit harness + chest harness	Per person	
Personal food/water	Per underground trip	8-12 hours supply
ATMOSPHERE MONITORING		
Multi-gas detector	2-3 units	O2, CO, H2S minimum

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EQUIPMENT ITEM	QTY (20-person team)	NOTES
Spare sensors/calibration gas	As needed	

B.5 Rope Rescue Operations

EQUIPMENT ITEM	QTY (20-person team)	NOTES
ROPE SYSTEMS		
Static rescue rope (11-13mm)	600-1000m	Various lengths
Dynamic rope	100-200m	For lead climbing
Accessory cord (various)	200-300m	Prusik, rigging
Webbing/slings	50+ units	Various lengths
HARDWARE		
Locking carabiners	80-120 units	HMS, D, oval
Rescue pulleys	15-25 units	Various types
Rope grabs/ascenders	20-30 units	
Descenders (various types)	15-20 units	Figure 8, rack, etc.
Belay devices	10-15 units	
Haul system components	2-3 complete sets	MA systems
ANCHORS		
Anchor straps/slings	30-50 units	Various lengths
Anchor plates	6-10 units	
Pickets/stakes	10-20 units	For ground anchors
Rock protection (if applicable)	Comprehensive rack	Cams, nuts, etc.
PATIENT HANDLING		
Rescue stretcher (vertical capable)	2-3 units	Stokes, SKED, etc.
Stretcher rigging equipment	Per stretcher	Bridles, haul points
Patient tie-in straps	Per stretcher	
Attendant attachment system	2-3 sets	
PERSONAL EQUIPMENT		
Rescue helmet	Per person	EN 12492 or equiv
Full body or sit harness	Per person	
Work gloves (leather)	2 pair/person	

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EQUIPMENT ITEM	QTY (20-person team)	NOTES
Personal anchor system	Per person	
EDGE PROTECTION		
Edge rollers	4-8 units	
Edge pads	6-10 units	Canvas/rubber
Rope protectors	10-15 units	Various types

Notes on Equipment Lists:

- Quantities are guidelines for a 20-person team on a 7-10 day deployment. Adjust based on actual team size and expected duration.
- All equipment should be inspected before deployment and regularly during operations.
- Consumable quantities should be calculated based on actual consumption rates from previous operations.
- Consider local procurement possibilities to reduce transport requirements.
- Maintain equipment logs documenting use, inspection, and maintenance.

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