

## CAVE SEARCH AND RESCUE TEAM

<b>DESCRIPTION</b>	A Cave Search and Rescue (SAR) Team conducts search, rescue, and recovery in naturally formed caves.
<b>RESOURCE CATEGORY</b>	Search and Rescue
<b>RESOURCE KIND</b>	Team
<b>OVERALL FUNCTION</b>	<p>The Cave SAR Team:</p> <ol style="list-style-type: none"> <li>1. Conducts search, rescue, and recovery in horizontal and vertical cave environments</li> <li>2. Provides for primary rescue of humans to the nearest location for secondary air or land transport, care, and sheltering</li> <li>3. Provides first aid, or more advanced medical care consistent with level of training. May include CPR when appropriate to patient condition and limitations of cave environment</li> <li>4. Operates within the Incident Command System (ICS)</li> <li>5. Operates in environments with and without infrastructure, including those with compromised access to roadways, utilities, and transportation, or medical facilities; and those with limited availability of shelter, food, and water</li> </ol>
<b>COMPOSITION AND ORDERING SPECIFICATIONS</b>	<ol style="list-style-type: none"> <li>1. Discuss the following items prior to deployment: <ol style="list-style-type: none"> <li>a. Intra-team communications, such as wired cave communication equipment and or cave radio communications with Command, General Staff, and other supporting resources</li> <li>b. Presence of contaminated environments and need for related personal protective equipment (PPE), respiratory protection, clothing, and equipment</li> <li>c. Security and force protection needs upon arrival</li> <li>d. Logistics support, such as working conditions, length of deployment, security, lodging, transportation, and meals</li> </ol> </li> <li>2. The requestor should specify additional specialized equipment, such as hardware, software, ropes, or evacuation devices</li> <li>3. The requestor should specify the mission location and operational environment, such as land, wilderness, or hazardous materials contamination</li> <li>4. The requestor should specify additional skills needed for deep or rapidly moving water, sumps, completely water-filled passages, or hazardous atmospheres</li> <li>5. The requestor should acquire additional specialized personnel separately, such as advanced medical, Emergency Medical Technician (EMT), paramedic, or canine SAR specialist</li> <li>6. The requestor should acquire secondary land or air transport of rescues separately</li> <li>7. The requestor should specify or separately acquire additional vehicles, trailers, equipment, or supplies such as fuel</li> <li>8. The requestor should consider the need for additional capabilities or endorsements to address hazards that the team may encounter during operations in SAR environments, which may be immediately dangerous to life and health (IDLH), as defined by ASTM International (ASTM) F2890 Standard Guide for Hazard Awareness for Search and Rescue Personnel</li> </ol>

Each type of resource builds on the qualifications of the type below it. For example, Type 1 qualifications include the qualifications in Type 2, plus an increase in capability. Type 1 is the highest qualification level.

COMPONENT	TYPE 1	TYPE 2	NOTES
<b>MINIMUM PERSONNEL PER TEAM</b>	7	7	Not Specified
<b>MANAGEMENT AND OVERSIGHT PERSONNEL PER TEAM</b>	1 - NIMS Type 1 Cave SAR Team Leader	1 - National Incident Management System (NIMS) Type 2 Cave SAR Team Leader	Not Specified



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COMPONENT	TYPE 1	TYPE 2	NOTES
<b>SUPPORT PERSONNEL PER TEAM</b>	6 - NIMS Typed Cave SAR Technicians, at least 4 with Type 2 or higher qualifications	6 - NIMS Typed Cave SAR Technicians, at least 2 with Type 2 or higher qualifications	Providing rapid intervention and logistical support, such as surface operations and communications, may require additional teams.
<b>SEARCH AND RESCUE CAPABILITY PER TEAM</b>	Same as Type 2, PLUS: Conduct search, rescue, and recovery in caves with swiftwater	Conduct search, rescue, and recovery in horizontal and vertical caves	All teams are capable of working around a cave with a NIMS Type 1 Canine Search Team - Land Live.
<b>GENERAL EQUIPMENT PER TEAM</b>	Same as Type 2	<ol style="list-style-type: none"> <li>1. Technical rope rescue equipment</li> <li>2. Additional equipment to respond to simultaneous extraction</li> <li>3. Personnel accountability system for surface and entry</li> <li>4. Base and spike camp</li> <li>5. Patient tie-in system</li> <li>6. Litter wheel</li> <li>7. Patient packaging materials such as vapor barriers and hypothermia protection</li> <li>8. Litter bridles</li> <li>9. Appropriate flotation equipment for extrication</li> <li>10. Evacuation equipment including: at least one flexible plastic conformable stretcher designed for patient extrication through a variety of horizontal and vertical cave passages; and at least one basket litter</li> </ol>	<ol style="list-style-type: none"> <li>1. Each team should have equipment necessary for access, search, rescue, and recovery; patient assessment, treatment, and evacuation.</li> <li>2. Most current, commonly used example of a flexible plastic conformable stretcher used in Cave SAR is the SKED.</li> </ol>
<b>PERSONAL PROTECTIVE EQUIPMENT (PPE) EQUIPMENT PER TEAM MEMBER</b>	Same as Type 2, PLUS: Personal flotation device, wetsuit or drysuit as appropriate	<p>Minimum PPE consistent with this resource's capabilities and needs, including:</p> <ol style="list-style-type: none"> <li>1. Footwear, underwear, and outerwear suited to the particular cave environment</li> <li>2. Commercially Sewn seat harness</li> <li>3. Personal descending and ascending equipment with 2 points of attachment above the waist</li> <li>4. Helmet (with 3- or 4-point chinstrap suspension system)</li> <li>5. Gloves with leather palms or heavy duty synthetic</li> <li>6. 3 - Independent sources of light, each capable of exiting the cave; 2 of which are helmet-mountable</li> <li>7. Batteries (carbide if appropriate)</li> <li>8. Quantity of water appropriate for the conditions</li> <li>9. Knife/multi-tool</li> <li>10. Personal first aid kit</li> </ol>	National Fire Protection Association (NFPA) 1983: Standard on Life Safety Rope and Equipment for Emergency Services (2017) addresses PPE.



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COMPONENT	TYPE 1	TYPE 2	NOTES
<b>COMMUNICATIONS EQUIPMENT PER TEAM</b>	Same as Type 2	1. Wired communications suitable to in-cave operations, and/or radio systems built for or specially adapted to caves 2. Equipment to patch wired systems into wireless systems for command interface 3. Personal communication devices (such as radios and/or cell phones) for above ground communication 4. GPS units to assist in location of above ground locations	1. Intra-team and inter-team communications are consistent with National Interoperability Field Operations Guide (NIFOG). 2. Consider alternate forms of communication, such as satellite phones, based on the mission assignment and team needs.
<b>TRANSPORTATION EQUIPMENT PER TEAM</b>	Same as Type 2	2 - Vehicle	Not Specified



## NOTES

Nationally typed resources represent the minimum criteria for the associated component and capability.

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## REFERENCES

1. FEMA, NIMS 509: Emergency Medical Technician
2. FEMA, NIMS 509: Paramedic
3. FEMA, NIMS 509: Cave Search and Rescue Team Leader
4. FEMA, NIMS 509: Cave Search and Rescue Technician
5. FEMA, NIMS 509: Canine Search Team – Land Live
6. FEMA, National Incident Management System (NIMS), October 2017
7. ASTM International (ASTM) F2890-12 Standard Guide for Hazard Awareness for Search and Rescue Personnel, 2012
8. National Fire Protection Association (NFPA) 1006: Standard for Technical Rescuer Professional Qualifications, 2017
9. NFPA 1670: Standard on Operations and Training for Technical Search and Rescue Incidents, 2017
10. NFPA 1983: Standard on Life Safety Rope and Equipment for Emergency Services, 2017
11. U.S. Department of Homeland Security, Office of Emergency Communications (OEC), National Interoperability Field Guide (NIFOG), version 1.5, January 2014