### MODULE THREE: SEARCH

January 1982  
Copyright © 1982 by Keith Conover

**Note:** A quick reading of the SAROP will make the handout material more comprehensible.

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pretest</td>
<td>2</td>
</tr>
<tr>
<td>2. Authority, Responsibility, and Legal Aspects</td>
<td>4</td>
</tr>
<tr>
<td>2.1 &quot;Legal and Related Aspects&quot; (Ch. 3, GSAR Manual)</td>
<td>4</td>
</tr>
<tr>
<td>2.2 Authority and Responsibility for SAR in Virginia:</td>
<td></td>
</tr>
<tr>
<td>Excerpts from the Va. Emergency Operations Plan</td>
<td>12</td>
</tr>
<tr>
<td>2.3 Authority and Responsibility for SAR in West Va.</td>
<td>reserved</td>
</tr>
<tr>
<td>2.4 Authority and Responsibility for SAR in Maryland</td>
<td>reserved</td>
</tr>
<tr>
<td>3.1 &quot;Lost Person Search&quot; (Sections 5.0 and 5.1, GSAR Manual)</td>
<td>14</td>
</tr>
<tr>
<td>3.2 &quot;Downed Aircraft Search&quot; (Ch. 4, GSAR Manual)</td>
<td>19</td>
</tr>
<tr>
<td>3.3 &quot;Search Tactics&quot; (Ch. 9, GSAR Manual)</td>
<td>24</td>
</tr>
<tr>
<td>3.4 &quot;New Search Methods&quot; -Keith Conover</td>
<td>34</td>
</tr>
<tr>
<td>3.5 &quot;Task Assignment&quot; (Section V, 1976 ASRC Operations Manual Draft, by Yorke Brown and Keith Conover)</td>
<td>38</td>
</tr>
<tr>
<td>3.6 &quot;Extrication&quot; (Sections 15.0 and 15.1, GSAR Manual)</td>
<td>48</td>
</tr>
<tr>
<td>4. Helicopter Operations (Ch. 14, GSAR Manual)</td>
<td>50</td>
</tr>
<tr>
<td>5. Communications</td>
<td></td>
</tr>
<tr>
<td>5.1 &quot;ASRC Communications Policies and Procedures&quot; (Section VII, 1976 ASRC Operations Manual Draft, by Yorke Brown)</td>
<td>55</td>
</tr>
<tr>
<td>5.2 &quot;Radio Communications&quot; -Keith Conover</td>
<td>58</td>
</tr>
<tr>
<td>5.3 ASRC Radio Crib Sheet-Yorke Brown</td>
<td>64</td>
</tr>
<tr>
<td>5.4 ASRC Commo Crib Sheet-Yorke Brown</td>
<td>65</td>
</tr>
<tr>
<td>6. Answers to Pretest</td>
<td>66</td>
</tr>
</tbody>
</table>

**PRIME READING**

ASRC Search and Rescue Operations Plan (SAROP)

**SECONDARY READINGS**

1) Mountain Search for the Lost Victim, Kelley
2) Training Manual, NASAR: Part I, Chapter 1; Part 2, Chapters 1-5
3) Analysis of Lost Person Behavior: an Aid to Search Planning, Syrotuck
4) An Introduction to Land Search Probabilities and Calculations, Syrotuck
5) Some Grid Search Techniques for Locating Lost Individuals in Wilderness Areas, Syrotuck
SHENANDOAH MOUNTAIN RESCUE GROUP
SEARCH PRETEST

Notes

1. After taking this pretest, check your answers against the key in the back of the handout. This pretest is representative of the type of written questions which may be asked about search, but is not comprehensive. Use it, along with the standards, as a guide to your reading.

2. Standard #7 (radios) is not included in this test, but will be tested during the posttest as an oral/practical station.

3. You may use anything you normally carry in your SAR pack in taking both the pre- and post-tests.

Matching (letters are only used once in all matching questions)

1. Search dogs a. clue finders
   2. Trained searchers b. subject finders
   3. Camp-in at a trail junction c. passive search
   4. Sending a team across the subject's route of travel d. cutting for sign

5. Mission Data Form (MDF) a. SAROP Phase 0
   6. Task Assignment Form (TAF) (Alert and Mobilization) b. SAROP Phase 1
   7. Base Officer (BO) c. SAROP Phase 2 (Quick Response)
   8. Searcher Registration Form (SRF) and Searcher Information Sheet (SIS) d. SAROP Phase 3 (Saturation Searching)

9. The Base Officer (BO):
   a. is responsible for direct liaison with members of the Responsible Agency during Phase 1.
   b. need not be field qualified.
   c. serves as a relay between Dispatch Officer (DO) and Radio Operator (RO).
   d. all of the above are true

Matching

10. search of a point or linear feature a. survey task
    11. search of a large area from a single vantage point b. saturation task
    12. wide-spaced line search of a small area by a small team c. scratch task
    13. grid or contour search d. sweep task
    14. patrol of the perimeter of an area e. containment task

15. A downed military aircraft should be approached only:
    a. from the front.
    b. from the left side.
    c. from the rear.

16. Green light (as from a flashlight with a green filter) will not destroy night vision adaptation, as will unfiltered white light.
    a. true
    b. false
17. Wide-spaced line search is more efficient than close-spaced line search, in terms of clues found per searcher-hour.
   a. true
   b. false

18. Which of the following is the best example of good questioning technique?
   a. "Hello. I'm Joe Backpacker from the Shenandoah Mountain Rescue Group. We're looking for a red-and-white plane which has been missing since yesterday. Have you seen or heard anything unusual lately?"
   b. "Hi. We're looking for a plane that crashed yesterday. Do you know anything that could help us find it?"
   c. "Hello. I'm Joe Backpacker from the Shenandoah Mountain Rescue Group. We're searching for a plane believed to be flying low in this area yesterday. Did you see or hear anything about 3 p.m. yesterday afternoon?"
   d. "Hello. I'm Joe Backpacker from the Shenandoah Mountain Rescue Group. We're looking for an airplane which has been reported missing. Have you seen or heard anything unusual the past day or so?"

19. Which air-to-ground signal means "affirmative"?
   a. ![Signal A]
   b. ![Signal B]
   c. ![Signal C]
   d. ![Signal D]

20. Which ground-to-air panel signal means "unable to proceed"?
   a. N
   b. ![Signal E]
   c. ![Signal F]
   d. K

21. An ideal helicopter landing zone in a wooded, mountainous area:
   a. should be on a flat ridge in preference to a narrow valley.
   b. should have a clear take-off lane about 300 feet into the wind.
   c. should have a touchdown pad with a slope less than 50, and all brush should be cleared to less than 1 foot high.
   d. all of the above are true

22. Which of the following is not considered a major danger area near a UH-type ("Huey") helicopter?
   a. uphill from the helicopter
   b. downhill from the helicopter
   c. to the right rear of the helicopter
   d. to the left rear of the helicopter

23. Authority and responsibility for downed aircraft search in Virginia lies with:
   a. the Virginia Wing, Civil Air Patrol.
   b. the Civil Aeronautics Board of the State Corporation Commission.
   c. the Virginia State Police.
   d. the County Sheriff.
Subject: Search and Rescue

IV. ORGANIZATION AND TASKS:
A. Organization:
   1. The State Coordinator of Emergency and Energy Services, by direction of the Governor, is the State SAR Coordinator. Each local government designates a SAR Coordinator. The local SAR Coordinator is responsible for ground and water search and rescue operations within his respective political jurisdiction. State agencies provide SAR resources and conduct SAR operations as a supplement to local efforts. Volunteer SAR organizations participate in SAR operations in accordance with agreements with the State and Local SAR Coordinators. Federal agencies participate in SAR operations within the Commonwealth either because of direct SAR responsibilities or in answer to requests from the State to assist.

B. Tasks:
   1. State Agencies
      a. Office of Emergency and Energy Services
         1. Coordinate overall State SAR effort
         2. Coordinate SAR training
         3. Arrange for SAR resources to assist in SAR operations when requested by local SAR Coordinators, or the AFRCC, or CGRCC.
      b. State Police
         1. Provide personnel and equipment for SAR operations when requested.
      c. Marine Resources Commission
         1. Provide personnel and equipment for tidal waters SAR operations when requested.
      d. Department of Military Affairs
         1. Provide personnel and equipment for air and ground SAR operations when requested.
   2. Local Government
      a. Conduct ground and water search and rescue operations within area of responsibility
      b. Participate in ground portion of air search and rescue as requested.
   3. Civil Air Patrol, Virginia Wing
      In accordance with the joint agreement between Virginia Wing Civil Air Patrol and the Virginia Office of Emergency and Energy Services:
      a. Provide Mission Coordinator for air search and rescue
      b. Conduct air search and rescue; conduct integral ground SAR operations in coordination with local SAR coordinator
      c. Provide personnel for ground search and rescue when requested.
   4. Federal Agencies
      a. The Air Force Rescue Coordination Center (AFRCC) controls search and rescue operations for downed or missing military aircraft, scheduled air carrier aircraft, aircraft carrying persons of national or international importance, and civil aircraft on interstate flights.
      b. The Coast Guard Rescue Coordination Center, Fifth Coast Guard District (CGRCC) controls search and rescue operations in the coastal waters area.
      c. The National Park Service controls search and rescue on lands under its jurisdiction.
   5. Volunteer Search and Rescue Organizations
      Provide SAR resources at the State level in accordance with agreements with the State SAR Coordinator. Provide SAR resources at local level in accordance with agreements with the local SAR Coordinator.
V. CONCEPT OF OPERATIONS

B. Ground Search and Rescue

1. Ground search will be under the control of the local SAR coordinator.
2. State and other assisting agencies will be given mission-type assignments and will remain under the control of the agency on-scene commander. Employment in the search effort will be coordinated by the local SAR Coordinator.
3. Ground search in conjunction with air search will be coordinated with the agency having control of the air search.