Department of Homeland Security

Focus Group Evaluation Criteria Recommendations

Responder Assessment and Validation of User Equipment (RAVUE)

Non-Motorized Extrication Devices

Submitted by:
Center for Domestic Preparedness
Office for Domestic Preparedness
61 Responder Drive, PO Box 5100
Anniston, Alabama 36205

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1. SAVER/ RAVUE Background

During 2002 and 2003 the United States Congress expanded the Homeland Security grant program for emergency responder equipment. This resulted in local jurisdictions having to rapidly obligate funds for equipment never before available to small and medium sized communities. However, this fiscal opportunity also highlighted the need for more information on advantages and disadvantages in using commercial-off-the-shelf responder equipment in mass casualty and counter-terrorism settings and scenarios. As a result, the Office for Domestic Preparedness has developed the Systems Assessment and Validation for Emergency Responders (SAVER) program in response to "user identified" equipment information needs.

As the SAVER program has matured, responders and jurisdictions have identified equipment information needs associated with "first on the scene" operations in weapons of mass (WMD) destruction environments. As a result, the Center for Domestic Preparedness was asked to develop a plan for supporting the SAVER program, while leveraging the unique capabilities, skills, facilities and equipment available at the CDP training center. This has resulted in establishment of the CDP Responder Assessment and Validation for User Equipment (RAVUE) program.

In evaluating responder feedback from the thousands of students trained by the CDP, four areas for initial investigation were identified for comparative field assessment at the CDP. Following the crawl, walk, run philosophy, the CDP has decided to begin the RAVUE assessment process with a straight forward equipment assessment that would allow the evolving assessment process to be implemented while still providing useful responder information on equipment effectiveness in a WMD environment. This response community feedback led ODP to approve and fund the assessment of non-motorized extrication devices.

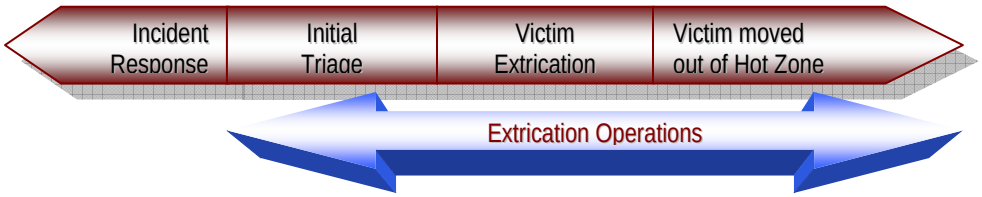
2. Focus Group Deliberations

Prior to the focus group convening convening on April 7, 2004, a brief "read-ahead" package was sent to each focus group member explaining the SAVER equipment assessment program purpose, the types of equipment to be assessed, and the focus group goal of "recommending assessment criteria for responder assessment of non-motorized extrication equipment to be assessed under standardized WMD scenarios." Additionally, responders were advised that their comments and input was to be based on their personal expertise and experience and not bound by local policies or procedures.

Upon convening the focus group, the three law enforcement officers, three emergency medical personnel, and three fire service representatives began to define the types of equipment expected to be nominated in the market survey process. These include drag devices, Stokes baskets, remains bags, rolling stretchers and gurneys, backboards and

litters, straps/body loops, stair chairs, devices for special needs individuals, and improvised wheeled devices.

The group then began "scoping" the tactical environment which might be encountered in a WMD environment, defining the need for extrication devices as beginning after the initial hazard identification and slightly after removal of ambulatory victims from the incident scene.



WMD Extrication Scenario Timeline

Further, the extrication assessment was "bounded" to end when the patient was transferred to the decontamination team at the edge of the hot zone. Thus, the RAVUE assessment process itself was to begin with responders making a hot zone entry to remove victims and ended with the transfer of the victim from the hot zone. This will allow assessment of "responder ingress with the extrication device into the hot zone, loading of the patient on or into the device and transporting the victim from the immediate hazard area."

The focus group also recommended that in order to generate information that would have the widest application across the emergency response community, assessments should be performed in Levels B and C Personal Protective Equipment (PPE). However, upon reviewing this recommendation, the CDP has determined that based upon its charter to assess WMD related equipment, procedures, and techniques for "first on the scene response activities," and based upon the focus group's recommended tactical scenario, responders require Level A PPE for hot zone entry at this early stage of the incident. This decision is compliant with guidance provided in 29 CFR 1910.120, Appendix B which states that until the absence of toxic hazards can be verified, the maximum level of skin and respiratory protection must be maintained.

After also discussing the various types of ancillary equipment that might be used during an extrication, the focus group determined that this assessment should concentrate only on comparative evaluation of the extrication devices. Consequently, required accessories such as straps would be included in the assessment, but items such as medical attachments, communications equipment, or items required for extricating victims with special needs should not be included in the evaluation.

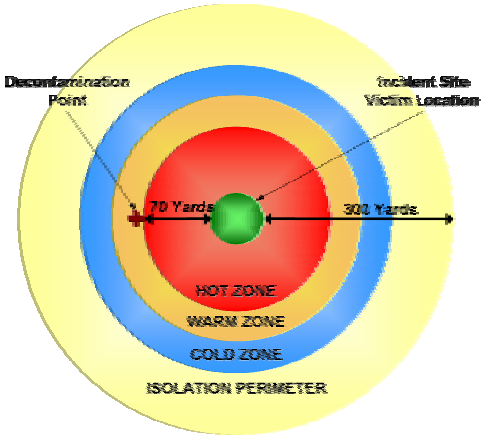
Having reached these decisions, the focus group was then asked to further refine their recommendations in context of the standardized scenario they had identified. For example, "ease of use", was defined as including the ability to securely place the victim on or into the device and secure individual, so that the victim was not subject to further injury or added

pain and suffering during transport from the scene. "Use in multiple environments" was defined by the group as "use in both horizontal and vertical extrications." Thus a device with multiple applications might be more valuable than a single application device.

3. Focus Group Outcomes

After an informative dialog on operational requirements and tactical considerations, the focus group established the following scenario parameters for assessing non-motorized extrication devices in a WMD environment.

1. Only the extrication device itself should be assessed.
2. The assessment should begin with the team's entry into the hot zone carrying, dragging, or rolling the extrication device.
3. The assessment should end with victim transfer at the decontamination point.
4. Extrication should require transporting of the victim over a moderate distance.
5. Only non-ambulatory viable victims should be extricated.
6. Extrication would take place while responders are wearing PPE.
7. Items normally found with emergency response crews at the incident scene should be available for use, but should not be evaluated.



Isolation Perimeter

Upon agreeing to the conditions described above, the group listed all of the applicable assessment criteria which were placed in High, Medium, and Low priority categories. The facilitator then tried to steer the focus group to prioritize the evaluation criteria within the three categories. However, this proved too challenging in the time available as operational considerations within the response disciplines came into play. To overcome this challenge, responders were later individually queried to ascertain the relative importance of the individual evaluation criteria.

High Priority Evaluation Criteria

As a result of the day-long discussions, the focus group determined that the following seven assessment criteria were of greatest importance in the type extrication operations described above.

- Ease of use (including patient packaging and movement)
- Lightweight (relative to the devices rated carrying capacity)
- Portability

- Durability
- Non-reactive to WMD or decontamination products/re-usable during the same incident
- Use in Multiple Environments (potential use in both vertical and horizontal extrications)
- Ease of Decontamination (to limit cross contamination between extrications)

Medium Priority Evaluation Criteria

The following four assessment criteria were judged to be of medium importance and were suggested for assessment, but were not considered critical information requirements:

- Equipment Compatibility (interaction with other types of equipment)
- Cost
- Easy to Assemble (color coded assembly)
- Storage

Low Priority Evaluation Criteria

The following assessment criteria were judged to be low priority evaluation criteria, with insights on theses areas considered to be "nice to know" information:

- Inter-Agency Compatibility
- Sizability (infant/adult)
- Simple/ Clear Instructions or Diagrams (International)
- Recoverability
- Disposability (upon completion of the extrication operations)

4. Evaluation Criteria Weighting Factors

During the focus group's deliberations, it became apparent that some criteria within the high priority category were more important to some disciplines than others, seemingly based upon where the extrication device might be used, e.g., hot, warm, or cool zones. However, without a final scenario to serve as a yardstick, the group did not feel comfortable in further refining their evaluation criteria prioritizations.

To overcome this stalemate, a letter with a rating scale was sent to each focus group participant, requesting each group member rank the importance on each evaluation criteria on a scale of zero to ten. These responses were then totaled for each criteria and divided by the number of responses to derive a weighting for each of the high, medium, and low evaluation criteria listed above. Those factors will be applied to the assessment findings to calculate scores reported in the Extrication Devices Analysis Report.

5. Utilization of Focus Group Recommendations

As mentioned above, focus group weighting factors will be used to score evaluator findings and observations in order to objectively score assessment results.

The scenario framework described above will be utilized to "set the scene" to be used in the extrication devices assessment. CDP analysis of the focus group's recommendations has led to the construction of assessment scenarios based upon the "first on the scene" activities in the hot zone, where local agencies will utilize the equipment "on their vehicles" to initiate extrication operation. Details of these scenarios will be described in the Extrication Devices Assessment Plan.

Finally, all recommended evaluation criteria will be used in developing the assessment questions and data collection tools using accepted test design methods. Although the focus group recommended assessment of only the high priority evaluation criteria, the CDP will structure the assessment and data collection to provide insights on all sixteen recommended evaluation criteria.

6. Conclusions

The Center for Domestic Preparedness wishes to thank the focus group members for their thorough deliberations and recommendations and will use their insights as the azimuth for extrication devices assessment planning and execution. Although this assessment will focus on activities in the hot zone, we also hope to incorporate the group's recommendation to assess response equipment in warm and cool zone operations in the very near future.

The CDP also wishes to thank the focus group's home jurisdictions for allowing their responders the opportunity to participate in the SAVER program. Through their collective assistance, meaningful information will be provided to help local, state, and federal agencies to better equip our nation's emergency responders.