Guidance: Recommendations for Manufacturer- / Vendor-Provided Training

ISSUE

Emergency response organizations have expressed concerns with the content, format and delivery of training programs provided to support the acquisition of equipment. The purpose of this background paper is to provide guidance that assists emergency response and preparedness organizations in becoming better educated and effective purchasers of manufacturer/vendor provided training programs.

GUIDANCE

Emergency response organizations procuring equipment and the training offered with the equipment must first evaluate the appropriateness of the prospective purchase based upon their mission and required target / core capabilities. By performing this comprehensive needs assessment, preparedness agencies can then make the most of their scarce budget resources and procure equipment and training that will effectively meet their needs.

During the selection and procurement process, the buyer should evaluate the true life-cycle cost for both implementing and sustaining the equipment and training program. Life-cycle program costs include vetting, procurement, initial training to develop proficiency, and refresher training for competency maintenance.

Any manufacturer/vendor provided training program should be developed using an established instructional systems design (ISD) process, such as the Analyze, Design, Develop, Implement, and Evaluate (ADDIE) model. Successful training is mission-specific. The training development process should include a thorough understanding of the anticipated mission of the end-user responder. Effective training to meet end user mission requirements must include performance-based evaluations tied to measurable learning objectives.

The purchasing organization (i.e., the customer) is responsible to develop the appropriate guidance governing the usage of purchased equipment and training. This guidance may take the form of department policies establishing the required interval for refresher training, standard operating procedures (SOPs), etc.

CHECKLIST FOR THE EVALUATION OF MANUFACTURER-/ VENDOR-PROVIDED TRAINING PROGRAMS

SUGGESTIONS

Should be completed by a responder in a Leadership position; likely not an instructor. Additional background information can be obtained from https://www.firstrespondertraining.gov/rtdc/state/

QUALIFICATIONS

- What criteria are used to select the instructors for this training program / content?
- Is the training provided by dedicated instructors or manufacturer representatives?
- Is the instructor a subject matter expert (SME) in the training topic?
- Is the training developed by individuals with instructional design experience? Reference the following sources for a more detailed description of instructional systems design)
  - https://www.firstrespondertraining.gov/rtdc/state/
  - http://en.wikipedia.org/wiki/Instructional_Systems_Design
- How do you ensure that the instructor can communicate effectively in visual, oral and written form?
- How does an instructor maintain proficiency in the training topic?
- Are there any standards that govern the training requirements for this equipment? If so, does the manufacturer/vendor stipulate that the training meets the applicable standard?
- Does this training meet applicable regulatory, certification, voluntary consensus standards, or licensure requirements?
- Will the manufacturer/vendor customize the training to include specific response agency requirements, such as compliance with agency standard operating procedures (SOPs)?
- Is the training flexible/customizable enough to meet multi-discipline needs and requirements (e.g., LE, SWAT, Fire, EMS)?

PLANNING AND ANALYSIS

- Has the manufacturer/vendor conducted a learning needs assessment for this training?
- Has the manufacturer/vendor identified performance-based knowledge, skills, and abilities (KSAs) applicable to the specific user needs?
- Does the provided training program meet the identified KSAs?
- Does the training program follow an instructional design model (i.e., Analysis, Design, Development, Implementation, Evaluation - ADDIE)?
- Who/what is the identified target population for the training?
- Has the manufacturer/vendor defined the characteristics of the environment in which the training will be conducted (e.g., student/instructor ratio, training location, equipment needs)?
- Does the training reflect the environment in which the equipment will be employed?
- Does the training address real world applications and risk-based decision making as required?
- Are debriefs or after action reviews executed and followed-up?

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DESIGN AND DEVELOPMENT

- Can the manufacturer/vendor provide a written curriculum or program of instruction for the training?
- Has the manufacturer/vendor identified opportunities to use existing and emerging technologies in delivering the training?
- Do the KSAs lend themselves to using multiple modes of instruction/media delivery? For example, self-paced instruction, instructor-led computer-based training, use of job aids, etc.)
- What are the proposed delivery mode(s) for training? Options can include hands-on, instructor-led classroom, computer-based training, web-based training, simulation, mobile training team, etc.
- Has the manufacturer/vendor identified terminal learning objectives (TLO) for training?
- Has the manufacturer/vendor identified enabling learning objectives (ELO) for training?
- Are the ELOs appropriate to the identified TLOs?
- Are the TLOs and ELOs measurable and tied to the training assessment?
- What are the identified prerequisites for this training?
- Are any pre-existing core competencies required to use this equipment? If so, are both general and equipment-specific prerequisite training clearly identified?
- Does the instruction address a variety of learning styles (i.e., ten ways in which adults learn)?
- Does the manufacturer/vendor specify both initial and sustainment training requirements for the equipment?
- How will mission-specific training be implemented (i.e., hands-on training or simulation for PPE, HazMat, SWAT)?
- Does the manufacturer/vendor offer hands-on demonstration training for this specific make/model of equipment being purchased?
  - If not, are the available reference materials sufficient for an agency to adequately train individual users?
  - If so, does the manufacturer offer a "train the trainer" program with the capability to certify instructors within the agency/organization?
- For equipment, does the training address the information requirements outlined in *Appendix A – Equipment Training Content Elements?*
- For non-equipment training (e.g., ICS), do the training materials address the requirements outlined in *Appendix B – Training Content Elements* of this guidance?

IMPLEMENTATION AND EVALUATION

- What is the process for updating the training curriculum?
- How often is the curriculum evaluated, updated and distributed?
- Will the manufacturer/vendor train the purchaser's trainers? Will they provide the purchasing agency with training support materials?
- What resources does the purchasing agency need to maintain this training?
- Does the training culminate in demonstrated student competency that is documented?

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- Does training evaluation include assessment in both individual and team/group environments (as appropriate)?
- How does the manufacturer/vendor evaluate the instructor?
- How does the manufacturer/vendor evaluate the instructional material?
- Is refresher training available?
- What is the recommended interval for refresher training?
- Is there an additional cost for refresher training?
- How does the manufacturer/vendor incorporate evaluation results into revising and updating training?
- Does the manufacturer/vendor provide job aids as a part of initial training? Are there materials available to help maintain proficiency? (i.e. job aids, web-based training, checklists, etc.)

APPENDIX A – EQUIPMENT TRAINING PROGRAM CONTENT ELEMENTS

The specific content of the equipment training program will vary based upon the type and nature of the equipment being procured and used. The following content elements should be considered by the purchasing agency when reviewing the training program:

- Equipment Performance Specifications
    - Operating principles and warranty specifications
    - Capabilities and limitations, including both normal and advanced modes of operation
    - Real-world experience identified
    - Any existing third party testing or validation of equipment performance
    - Applicable national or consensus standards (i.e., NIOSH CBRN, NFPA, NIJ, etc.).
- Pre-Use Information
    - Core competency requirements
    - Risk-based response application
    - Safety considerations (i.e., fit testing, medical evaluations, voluntary use).
    - Limitations of use (i.e., service life, contaminated use life, duration technology).
- Preparation for Use
    - Sizing and adjustment (where applicable)
    - Recommended storage practices and environmental limits
    - Pre-deployment actions
- Manufacturer User Instructions
- Proper Use (consistent with existing occupational regulations and response industry standards).
  For example:
    - OSHA regulations (1910.132, 1910.134, 1910.120)
    - NFPA 1500, 472, etc.
    - NIJ selection and guidance documents
- Basic and Advanced Inspection and Maintenance Procedures
    - Maintenance, cleaning and upgrading
    - Calibration, testing, and documentation procedures
    - Inspection frequency and details
    - Decontamination procedures (if used in a contaminated environment)
- Retirement and Disposal Considerations
    - Shelf life considerations (i.e., lot numbers, Quality Assurance Plan)
    - Special disposal needs

APPENDIX B – TRAINING CONTENT ELEMENTS

The following content elements should be considered by the purchasing agency when reviewing the training program for non-equipment based training (e.g., ICS, operational practices and procedures). This information is referenced from the FirstResponderTraining.gov course development tool.

CONTENT ELEMENTS

- Acknowledge and account for the target audience's pre-existing knowledge, skills, motivation and sense of receptivity? Does the training cover topics and information that the audience is already familiar with unless required for refresher training purposes?
- Accommodate varying achievement levels and or abilities of learners (i.e., provide advance materials to level the playing field for the varying learning levels)?
- Account for the tools, equipment, and resources which learners will have available to them to apply what they have learned?
- Recognize barriers in the workplace that may prevent learners from applying what they have learned to do and address how these barriers can be overcome?
- Include task statements that are clear, concise, complete and relevant?
- Include properly sequenced subtasks or performance steps and the conditions under which they will be performed? (NOTE: Reference the Analysis Phase document at FirstResponderTraining.gov as an example)
- Account for different types and levels of learning:
  - Cognitive (mental skills or knowledge)
    - *Knowledge* - Recall data or information (facts, theories, etc.) in essentially the same form as taught
    - *Comprehension* - See relationships, concepts, and abstractions beyond simply remembering material. This typically involves translating, interpreting, and estimating future trends.
    - *Application* - Use learned material in new and concrete situations, including the application of rules, methods, concepts, principles, laws, and theories.
    - *Analysis* - Break down material into its component parts so that the organizational structure can be understood. This includes identification of the parts, analysis of the relationships between the parts, and recognition of the organizational principles involved.
    - *Synthesis* - Put parts together to form new patterns or structures, such as a unique communication (a theme or speech), a plan of operation (a research proposal), or a set of abstract relations (schema for classifying information).
  - Psychomotor (manual or physical skills)
    - *Imitation* - Observing and patterning behavior after someone else. Performance may be of low or high quality (e.g., copying artwork).
    - *Manipulation* - Being able to perform certain actions by following instructions and practicing (e.g., creating work on one's own after taking lessons or reading about it).

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- *Precision* - Refining, becoming more exact. Few errors are apparent (e.g., working and reworking something, so it will be "just right").
- *Articulation* - Coordinating a series of actions, achieving harmony and internal consistency (e.g., producing a video that involves music, drama, color, sound, etc.).
- *Naturalization* - Having high-level performance become natural, without needing to think much about it (e.g., using the controls on a video game).
- Affective skills (attitude or growth in feelings or emotional areas)
  - *Receiving* - Be aware that a thing exists and pay particular attention to it.
  - *Responding* - React to a particular phenomenon in some way, such as acquiescing (reading assigned material), willingness to respond (voluntarily reading beyond assignment), or satisfaction in responding (reading for pleasure).
  - *Valuing* - Attach worth or value to any object, phenomenon, or behavior, ranging from accepting a value to commitment.
  - *Organizing* - Bring together different values, including conflicts between them, and then begin to build an internally consistent value system.
  - *Characterizing* - Pervasive, consistent, and predictable behavior (lifestyle) developing from a value system which controls behavior for a significant period of time.

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