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ROBOTICS AND APPLICATION FOR HAZARDOUS MATERIALS INCIDENTS

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OBJECTIVE

- Review how robotics will be applied to Emergency Management.
- Review how cost will affect deployment of the units.
- Review how to provide training to the system in order to incorporate the use of robotics throughout the system.

BENEFITS

- Positively affect prevention, mitigation, rescue and save the lives of responders, handlers of hazardous materials and the general public.
- Augments the National capabilities and means to respond to Hazardous Materials Incidents.
- Timing allows for proper planning for training and introduction into service for the nation.
- Training requires that people have the knowledge of when and how to utilize robotics in order to effective and efficient.

SPECIALIZED EQUIPMENT

- Definition of specialized equipment in this case is equipment that is not standard to emergency response and is another tool that can be utilized for specific tasks.
- Designed for various types of hazardous materials Immediately Dangerous to Life and Health (IDLH) conditions and entries.
- Can be a fixed system in a facility or mobile units utilized by Emergency Responders.

PREPAREDNESS AND RESPONSE

- Preparedness
  - Pre-designed and engineered robotics units that can handle fixed facility hazardous materials as a system.
- Response
  - Robotic units utilized for special conditions encountered by responders
    - Transportation emergencies
    - Facility emergencies
    - Weapons of Mass Destruction (WMD) emergencies
    - Bomb Threats – Currently in use throughout the country
  - Requires the use of responders and equipment

Preparedness

- Robotics can be designed and utilized to handle hazardous materials in order to reduce possible injury and reduce emergencies.
- Utilized for fixed facilities and hazardous materials processes.

Response

- Focus is on Weapons of Mass Destruction incidents or emergencies.
- Can be incorporated for major transportation emergencies.
- Examples of successful robotics devices are for bomb disposal devices.
- Units must be designed to withstand chemical exposure and decontamination processes.

INCLUSION OF ROBOTICS INTO EMERGENCY RESPONSE

- Developers must be cognizant of restrictions and detrimental conditions and plan for implementation of robotics into the national system
  - Cost of Units
  - Level of Implementation
    - Federal, State, Regional Areas, Large Departments
  - Backup Systems
  - Training requirements
  - Decontamination capabilities
  - Deployment issues to incident sites

LEVELS OF TRAINING

- Three Levels
  - Strategic – Incident Commanders/EOC's
  - Tactical – Operations Level
  - Task - Operators and personnel who maintain the units
- Training must incorporate both capabilities of the units, but also deficiencies of the units – Where, when and how to use the equipment and under what conditions.
- Training must be developed by a team of personnel to include subject matter experts, trainers and curriculum developers
  - Marketing for additional products should not be part of the training

CONDITIONS OF RESPONSE

- Should be designed to utilize in Reconnaissance, and Mitigation Phases of an operation.
  - Take readings, camera for direct look at the site or scene.
  - Simple to complex functions within a hot zone.
- Futuristic look
  - Developed for rescue
  - Stop leaks and spills

CONCLUSION

- Robotics is a major development that can provide not only a capability to handle hazardous materials in a preparedness state, but also in assistance in the response to these types of emergencies.
- Proper planning, training and preparations will allow for an easy transition into the response industry.