UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

APR 24 2006

OSWER-**9200.51**

MEMORANDUM

SUBJECT: Storage, Training, Use and Disposal of Mark 1 Kits

FROM: Deborah Y. Dietrich, Director
Office of Emergency Management

TO: Regional Superfund Division Directors
Regions 1 - 10

PURPOSE

This directive initiates guidance concerning the use of Mark 1 ™ Nerve Agent Antidote Kits. These Kits are commonly referred to as atropine, nerve agent antidote Kits, auto-injectors, or any combination of these terms, herein now referred to as "Mark 1 Kits." Mark 1 Kits are used to provide life treatment in response to exposure to nerve agents or organophosphate insecticides.

Effective immediately, this directive pertains to the storage, training, use and disposal of the Mark 1 Kits and is applicable to all persons or individuals that are under EPA authority in responding to emergencies or conducting removal actions.

BACKGROUND

EPA has the authority to respond to real or threatened incidents involving intentional and accidental releases of organophosphate pesticides and other chemicals such as nerve agents. Authority to respond is provided in the Comprehensive Environmental Response, Compensation, and Liability Act as amended, 42 U.S.C. §9601-9675. See also The National Oil and Hazardous Substances Pollution Contingency Plan-NCP-found at 40 C.F.R. Part 300.

Efforts are continuously made by EPA to ensure the safety and proper training of EPA responders. As potentially life saving pharmaceuticals, under certain specific applications, Mark 1 Kits may be appropriate to include with the On-Scene Coordinator's (OSC's) response equipment. The EPA has trained OSCs on the use of auto-injected medicine since the late 1990's; however national guidance has not been in place to ensure continuity of storage, training, use and disposal of the Mark 1 Kits.

Further information can be found at the following website: http://www.epaosc.org/mark1 . The attached guidance will be included in our Health and Safety Manual as part of a chapter on Medical Support/Services

IMPLEMENTATION

Other than the cost of continuing training for our responders and replacing Mark I Kits as their shelf life expires, there are no ancillary costs expected to result from adhering to this directive. Each employee will refresh his or her skills annually though already established training (i.e., HAZWOPER 8 hour refreshers), exercises, and drills.

Priority should immediately be given to Storage, Training, Use and Disposal of Mark 1 Kits. The basic policy assumptions about these Kits are:

I. The Kits will always be stored and maintained in a manner that ensures no individual can be accidentally injected with the antidote and the antidote will not be compromised.

II. EPA employees will be educated on this directive and the best practices of storage, training, use, and disposal of the Kits.

III. Whenever possible, medical support personnel such as Emergency Medical Technicians (EMTs), Registered Nurses (RNs) or Medical Doctors (MDs) will be integrated into our response to provided anticipated administration of the Mark I Kits. This is possible when responding to a known threat situation (i.e., pesticide warehouse fire, nerve agent threat or attack).

IV. In unanticipated situations, including intentional releases or attacks, EPA responders may be placed in a situation of having to decide to administer Mark I Kits to fellow responders without the assistance of medical personnel. EPA expects this scenario to be very infrequent. However, it is a possibility given our continuing threat from terrorism. All responders who have the potential for being in this situation must be trained in the proper use of Mark I Kits. Likewise, once trained, EPA contractors can administer the antidote to EPA employees. A trained EPA responder or an EPA contractor responder generally could not be held individually liable for any resulting injury, pursuant to the Federal Employees Compensation Act, 5 U.S.C. parts 8100 et seq., and the Federal Tort Claims Act, 28 U.S.C. parts 2671 et seq. The EPA makes no distinction between EPA employees or EPA contractors during a life or death situation. The benefits of administering these potentially life-saving Mark I Kits to fellow responders outweigh risks of possible harm which may result from the inappropriate or unnecessary administration of such antidotes. EPA employees or EPA contractors will not administer Mark I Kits to non-responders or a child. But, note that various states have "Good Samaritan" statutes which may

require some affirmative action on the part of persons witnessing others in emergency situations—e.g., at least calling 911 if witnessing a non-responder in a life-threatening situation.

V. Disposal of the Mark 1 Kits will be in accordance with all applicable biological and occupational hazard regulations (Occupational Safety and Health Administration Regulations on Blood-borne Pathogens, 29 CFR Part 1910.1030).

Consultation with the EPA Regional Removal Managers, EPA's Safety Health and Environmental Management Division (SHEMD), and OSCs has captured the best practices for Mark 1 Kits. The **EPA Best Practices for the Storage, Training, Use, and Disposal of Mark 1 Kits** guidance document is attached and shall be used as regions develop their respective standard operating guides.

Please have your Health and Safety Point of Contact on your staff be responsible for all aspects of implementation of this directive. Our Health and Safety Coordinator in OEM is Craig Beasley. Please contact Craig at 202-564-2087 or Beasley.Craig@epa.gov with any coordination issues, questions or comments.

Attachments: EPA Best Practices for the Storage, Training, Use, and Disposal of Mark 1 Kits

cc: Regional Removal Program Managers,
Regions 1 - 10
Dana Tulis, Deputy Director, OEM
Mark Mjoness, Director, NPPD
Dennis Bushta, OAM
Maude Bullock, Acting Director, SHEMP
Dave Wright, Acting Director, ERT
Steve Hawthorn, Director, NDT
Earl Salo, 2366A, Attorney, OGC
Lee Tyner, 2366A, Attorney, OGC
Kathy Jones, Director ECD

EPA Best Practices for the Storage, Training, Use, and Disposal of Mark 1 Kits

This guide addresses the four stages in the life of a Mark 1 kit: Storage, Training, Use and Disposal (STUD). EPA Regions need to consider appropriate **Storage** for the Kits and **Training** for personnel on when and how to use the Kits. If it is ever actually necessary to **Use** a Mark 1 kit, certain steps and precautions are needed. After actual use of a kit, or at the end of shelf life, proper **Disposal** is necessary.

This guide will be updated as necessary to keep the information current and accurate.

STORAGE

There are three important considerations for storage of the Mark 1 Kits:
I) Environment
II) Location and Security
III) Items that accompany the Kits

I) Environment

1. Mark 1 Kits shall be stored at room temperature (59 to 77 degrees Fahrenheit).

2. These Kits shall not be exposed to freezing temperatures or be exposed to direct sunlight.

II) Location and Security

1. Mark 1 Kits shall be issued for specific responses and not as standard gear. The Mark 1 Kits shall not be stored in an OSC's "response" or "gear" bag. The Kits shall not be taken into the homes of the OSCs under any circumstances.

2. The Mark 1 Kits will be placed in clearly labeled containers. The containers shall have a custody seal, which shall be inspected during a regular inventory process. The containers shall be stored in a secured area, where access is restricted by either some type of lock, fence, security guard, etc. The number of Kits within a region shall be tracked in an equipment database.

III) Items that accompany the Kits

Included with the Mark 1 Kits at all times shall be: an issuance log (to document who was given possession of the Kits), laminated tags to document administration of the Kits (see appendix 1), grease pencils (to be used on laminated tags), and a "sharps" container (for disposal).

TRAINING

Those who may need to use a Mark 1 kit shall be given training on these Kits. Documentation of this training shall be kept using "Train Trax". The mandatory Mark 1 kit training program shall include the following elements:

I) Initial Training
II) Competency Evaluation
II) Annual Refresher Training

I) Initial Training

1. An initial training session lasting 2 hours shall be offered to all employees who may need to use the Mark 1 Kits in the course of their duties. Initial two-hour sessions shall at a minimum review the following documents:
   a) Power Point Presentation: Use of Auto-Injectors by Civilian Emergency Medical Personal to Treat Civilians Exposed to Nerve Agents, 1997, by Lockheed Martin Energy Research Corporation. Also see instruction guide.
   b) Instructors Guide: Use of Auto-Injectors by Civilian Emergency Medical Personal to Treat Civilians Exposed to Nerve Agents, 1997, by Lockheed Martin Energy Research Corporation.
   c) Study Guide: Use of Auto-Injectors by Civilian Emergency Medical Personal to Treat Civilians Exposed to Nerve Agents, 1997, by Lockheed Martin Energy Research Corporation.
   d) Deployment Medication Information Sheet: Atropine Nerve Agent Antidote Auto-Injector, What You Need to Know, 2001, USACHPPM.
   e) This Document: EPA Best Practices for the Storage, Training, Use, and Disposal of Mark 1 Kits, 2005, USEPA.

2. When new employees are hired who may potentially need to use Mark 1 Kits, their orientation will include the initial two hour training.

3. Further information can be obtained at http://www.epaosc.net/mark1 for more instruction guides.

II) Competency Evaluations

1. Competency evaluations shall be given both during the initial training and shall be repeated annually at refresher trainings. A competency evaluation shall at a minimum assess understanding and evaluate competency. An example of an adequate competency evaluation is the use of the Review Questions starting on page 9 of the Instructors Guide: Use of Auto-Injectors by Civilian Emergency Medical Personal to Treat Civilians Exposed to Nerve Agents, 1997, by Lockheed Martin Energy Research Corporation.

III) Annual Refresher Training

1. Annual refresher training on Mark 1 Kits shall be offered each year and completed by any individual whose job may require the administration of a Mark 1 kit.
2. When ever possible, annual hazardous material / WMD training should provide the opportunity to practice or simulate the use of Mark 1 Kits. Mark 1 Training Kits should be used in either training or exercise scenarios to refresh this skill.
    a. Annual 8 hour OSHA HAZWOPPER refresher training can include any part of I) or II) as outlined above for this Training section.

USE

There are three important considerations for the Use of the Mark 1 Kits:

I.) Situation
II.) Notification
III.) Documentation

I) **Situation**

1. Responding to Incidents involving Nerve Agents:

EPA OSCs respond to a wide variety of real and threatened chemical spills and releases. OSCs are expected to use their best judgment for on scene safety when considering who will carry Mark 1 Kits, what medical support is available, and the decontamination plan when responding to any scene that includes known or suspected nerve agents or insecticides.

EPA recognizes that Mark 1 Kits are not commonly maintained on emergency response vehicles. Furthermore, local emergency medical support at an incident may not be trained or authorized to administer nerve agent antidotes. In addition, it may require a minimum of 12 hours to acquire federal supplies of Mark 1 Kits from the National Disaster Medical System. EPA's wait for a Mark 1 kit would considerably delay any entry.

EPA has an obligation to protect its work force as best as possible. While OSCs have been provided proper Personal Protective Equipment (PPE) to protect against nerve agents, EPA considers it prudent to go one step further by providing Mark 1 Kits should such PPE fail. As such, Mark 1 Kits should not be used as a substitute for proper PPE, planning and engineering controls.

Before entry, all key personnel will review the signs and symptoms of nerve agent exposure and use of Mark I Kits. The entry team should make a determination to carry Mark 1 Kits with them based on the site situation. Entry team members should be composed of those who have training as outlined in the **Training** section.

Having on scene medical support should be thoroughly considered in any event involving known or suspected nerve agents. If not already completed as part of the Health and Safety

plan, responders shall alert the nearest medical treatment facility of the incident and potential for victims.

Special consideration to the decontamination process is necessary before entry. A plan should at least be as discussed with the entry team and decontamination team as to what will happen if a victim needs to be decontaminated. Precautions should be in place to ensure that decontamination and any medical personnel are not exposed to any contaminants in the haste to help a victim.

2. **Administration of Antidote**

If in spite of wearing proper PPE, entry personnel are exposed to a nerve agent and begin to show signs and symptoms of nerve agent exposure, the antidote should be administered. It is EPA's expectation that the OSC will apply best judgment based on training and the specifics of the situation as to the need to immediately self-administer the antidote. Similarly, if an OSC's buddy has been exposed to a nerve agent and is incapacitated, it is expected that the OSC will administer the antidote for his or her buddy.

Decontamination and further medical treatment must be addressed in whatever order is applicable to the situation. The victim(s) must be transported to a hospital. The victim's supervisor and the Safety, Health, and Environmental Management Program manager must be notified. The exposure must be documented for the medical surveillance program.

Mark I Kits are available for use by EPA's START and ERRS contractors. Regions need to assure contractor personnel are trained and practice with EPA personnel as an emergency response unit with the MARK I Kits.

3. **Proper Technique**

Proper technique for administration of Mark 1 Kits is illustrated in the training documents referenced above in the **Training** section.

II) **Notification** shall occur as soon as possible and include the following:
- Incident Commander or Safety Officer
- Victim's supervisor
- EPA Regional SHEMP Managers

III) **Documentation** shall remain with the victim to the hospital and include the following legible information:

- Date & time first Mark 1 kit was administered
- Dose (how many Kits administered and at what time intervals)
- Delivery location (left or right buttocks, left or right thigh)
- Deliverer (who administered the antidote from the Mark 1 kit)
- Description of the symptoms exhibited by the victim

An example of a Documentation Tag is found in Appendix 1.

DISPOSAL

I) Disposal of Mark 1 Kits shall occur when their 5 year shelf life is over.

II) Whether used or unused, Mark 1 Kits shall be disposed of in a "sharps" container, as Biomedical Waste. Mark 1 Kits shall be disposed of in accordance with regulated procedure.

III) Based on Occupational Safety and Health Administration (OSHA) requirements for sharps disposal containers. The container must be

- closable
- upright and stable during use
- puncture resistant
- leak proof at sides and bottom
- properly labeled with the biohazard symbol and legend or color coded

The label on the container shall clearly inform the user that the container holds sharps waste. Either a recognized symbol, the phrase "Infectious Sharps Waste," or a similar warning must be clearly visible on the container label.

For more information about OSHA regulations for sharps disposal, see Occupational Safety and Health Administration (OSHA) Regulations on Blood-borne Pathogens, 29 CFR Part 1910.1030

Appendix 1
Documentation Tag

Whenever a Mark 1 kit is used some type of documentation must accompany the victim to the hospital.

Below is an example of a tag to document the administration of a Mark 1 kit(s). Tags should be laminated to ensure durability.

Date:	Name:

Circle symptoms:

Salivation (drooling)	Lacrimation (tearing)	Urination
Defecation/diarrhea	GI upset (cramps)	Emesis (vomiting)
Muscle twitching/spasm	Difficulty breathing	

Time 1st Mark 1 Kit Given	**1st Injection Site (circle):** Left thigh Right thigh Left buttock Right buttock
Time 2nd Mark 1 Kit Given	**2nd Injection Site (circle):** Left thigh Right thigh Left buttock Right buttock
Time 3rd Mark 1 Kit Given	**3rd Injection Site (circle):** Left thigh Right thigh Left buttock Right buttock

Who Administered Kit(s):

Note

- Depending on the severity of symptoms, immediately administer 1 atropine auto-injector, followed by 1 2-PAM Cl auto-injector. (Atropine should be given first, followed immediately by 2-PAM Cl).
- If nerve agent signs and symptoms are still present after 5-10 minutes, repeat injections.
- If signs and symptoms still exist after third set of injections, do not give any more antidotes but seek immediate medical help.

As an alternative, a standard triage tag which includes a section on antidote administration can also be used.