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REGION I

RADIOLOGICAL ASSISTANCE PROGRAM

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UNITED STATES DEPARTMENT OF ENERGY  
BROOKHAVEN AREA OFFICE

UPTON, LONG ISLAND, NEW YORK 11973

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### 1.0.0 Preface

The Radiological Assistance Plan for Region I (RAP-I) is divided into two sections; Part I, which contains general information regarding the organization and implementation of RAP-I, and Part II, which contains specific procedures, call lists, and reference data necessary for the RAP team members to implement their responsibility effectively. These procedures are intended to be guides and are designed for the most probable circumstances that might be encountered in radiological emergencies. Distribution of Part II is limited to DOE Headquarters, other DOE Operations offices, appropriate Brookhaven Area Office (BHO) management, and BHO Radiological Assistance Team personnel.

## RADIOLOGICAL ASSISTANCE PROGRAM - REGION I

### 1.1.0 Purpose

The purpose of the U.S. Department of Energy (DOE) Radiological Assistance Program (RAP) is to make DOE resources available and provide emergency assistance to state and local agencies in order to control radiological hazards, protect the public health and safety, and minimize the loss of property. After the immediate hazards associated with a radiological incident have been brought under control, and there is a reasonable assurance that the public health and safety can be protected by the available local resources, the DOE radiological assistance effort would terminate.

### 1.2.0 Regional Assignment

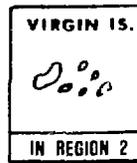
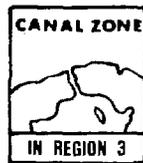
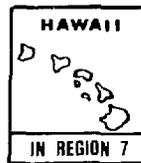
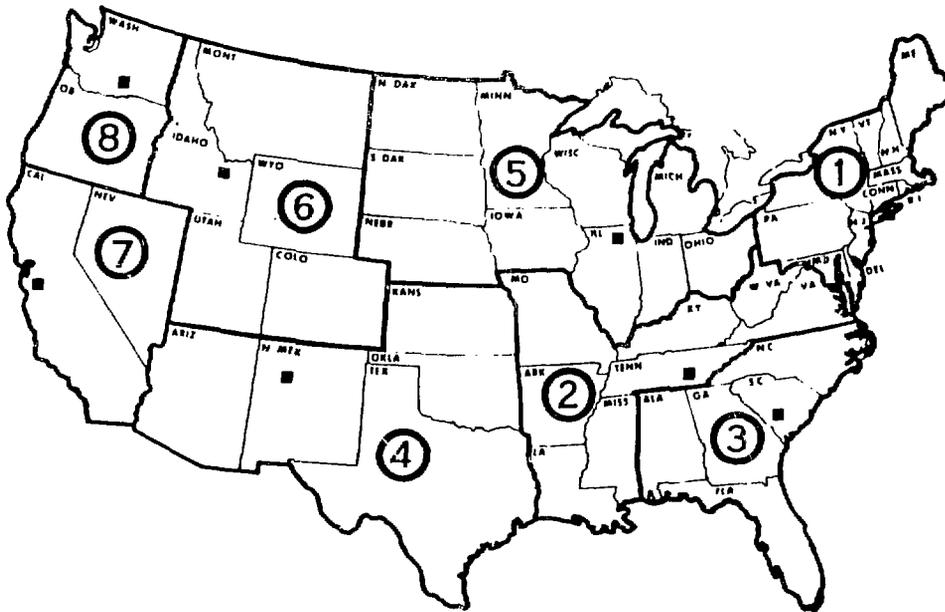
This plan is an integral part of a nationwide program of radiological assistance established by the U.S. DOE, (see Figure 1) and is implemented on a regional basis. The Brookhaven Area Office (BHO) Radiological Assistance Program is applicable to DOE Region I, which consists of the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia.

### 1.3.0 Implementation

The resources of the DOE radiological assistance program may be requested by any DOE office, a DOE contractor or licensee; a Federal, State or local authority; a law enforcement, civil defense or other agency; an industrial user of radioactivity; a common carrier; or a member of the general public. Each request will receive immediate consideration and an appropriate response.

Should a radiological incident occur for which assistance has not been requested, upon the discretion of the DOE Area Manager a radiological assistance team may be dispatched to the incident scene to independently evaluate the potential hazard to the public health and safety.

**DEPARTMENT OF ENERGY**  
**REGIONAL COORDINATING OFFICES**  
 FOR  
**RADIOLOGICAL ASSISTANCE**  
 AND  
**GEOGRAPHICAL AREAS**  
**OF RESPONSIBILITY**



REGIONAL COORDINATING OFFICE	POST OFFICE ADDRESS	TELEPHONE for ASSISTANCE
① BROOKHAVEN AREA OFFICE	UPTON, L. I. NEW YORK 11973	(516) 282-2200
② OAK RIDGE OPERATIONS OFFICE	P.O. BOX E OAK RIDGE, TENNESSEE 37830	(615) 579-1005 or (615) 525-7885
③ SAVANNAH RIVER OPERATIONS OFFICE	P.O. BOX A AIKEN, S.C. 29801	(803) 725-3333
④ ALBUQUERQUE OPERATIONS OFFICE	P.O. BOX 5400 ALBUQUERQUE NEW MEXICO 87115	(505) 844-4867
⑤ CHICAGO OPERATIONS OFFICE	9803 S. CASS AVE. ARGONNE, ILLINOIS 60439	Duty Hrs. (312) 972-4800 Off Hrs. 972-5731
⑥ IDAHO OPERATIONS OFFICE	880 SECOND ST. IDAHO FALLS, IDAHO 83401	(208) 526-1515
⑦ SAN FRANCISCO OPERATIONS OFFICE	1333 BROADWAY OAKLAND, CALIFORNIA 94612	(415) 273-4237
⑧ RICHLAND OPERATIONS OFFICE	P.O. BOX 880 RICHLAND, WASHINGTON 99352	(509) 373-3800

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Figure 1. Department of Energy  
Regional Coordinating Offices

The Brookhaven Area Office also implements the Federal Radiological Monitoring and Assessment Plan for Region I (FRMAP-1). Through this plan, numerous Federal agencies have mutually pledged their manpower and material resources in the interest of coping with radiological emergencies which call for resources beyond those of RAP-1 itself.

#### 1.4.0 Objectives

The BHO RAP-1 has been developed to:

(a) Ensure the availability of an effective radiological assistance capability to ensure the protection of persons and property.

(b) Provide guidelines to RAP-1 Team personnel for the evaluation of radiological incidents and implementation of corrective actions.

(c) Maintain liaison with other DOE installations, Federal, State and local organizations which may become involved in radiological assistance operations in Region I.

(d) Encourage development of a local capability to cope with radiological incidents.

#### 1.5.0 Organization

##### 1.5.1 General

The Brookhaven Area Office has been designated as the Regional Coordinating Office (RCO) for the DOE Region I. The BHO and Brookhaven National Laboratory (BNL), which is operated for DOE by its contractor Associated Universities Incorporated, provide the major source of radiological assistance personnel and equipment for Region I. Other DOE installations and contractors in Region I (i.e. the Environmental Measurements Laboratory in New York City, the Pittsburgh and Schenectady Naval Reactors Offices and Nuclear Fuel Services Incorporated in West Valley, New York) may be called upon to respond to radio-

logical emergencies by providing Advance Teams. In unusual circumstances, another Regional Coordinating Office may be requested to respond to a radiological emergency within Region I if the incident site is located closer to their resources. Other FRMAP agencies may also be called upon to provide assistance when they possess a unique response capability or to supplement the DOE Region I response.

The BHO maintains liason with FRMAP-1 agencies, various State and municipal, health, law enforcement, civil defense organizations and licensees so as to ensure their awareness of the availability of radiological assistance from BHO and to provide information on BHO radiological assistance capabilities to them.

#### 1.5.2 Brookhaven Area Office

The RAP-1 Program is under the jurisdiction of the BHO Area Manager. A RAP-1 Team would be composed of BHO and BNL personnel with competence in the fields of health physics, reactor safety, hazardous waste management, transportation, fire protection, public information, medicine, and other special areas as may be appropriate to the type and extent of an incident. The team would be headed by a Team Captain, who would function as the BHO Area Manager's representative at the scene of an incident with the responsibility for the management of the team's field activities. Participating team members would be responsible to the Team Captain for the duration of the response. Following notification of a major radiological incident in Region I, the Team Captain would request a member of the BHO staff to serve as a Coordinator during the incident.

#### 1.5.3 Federal Radiological Monitoring and Assessment Plan (FRMAP)

The BHO is the Regional Coordinating Office (RCO) for the implementation of the FRMAP portion of the Federal Radiological Emergency Response Plan

(FRERP) in Region I. FRERP is a comprehensive plan that presents the concept of operations for coordinating the overall Federal government response to a radiological emergency, and describes the rules and responsibilities of individual Federal agencies in that response. The Federal agencies in Region I who participate in FRMAP may be requested by the BHO Regional Coordinator to provide personnel or resources in response to a request for radiological assistance. They may be assigned independently or in conjunction with a DOE radiological assistance team. Responses will generally be based upon an agency's capability to respond to the type and location of incident.

A liaison is maintained by BHO with FRMAP-1 agencies relative to planning, training, and material resources. The procedures for activating FRMAP-1 are contained in the Radiological Assistance Plan, Section 2.1.5. The FRMAP-1 implementing plan details its organization and procedures. Support from FRMAP-1 agencies in Region I may be expected by BHO in the following respects:

(a) Agencies signatory to FRMAP-1 may be called upon to provide resources and assistance during a radiological incident. This response would be subject to the fulfillment of their primary responsibilities.

(b) FRMAP-1 operations will be carried out so that each incident is handled at the most appropriate level feasible.

(c) FRMAP-1 organization will make radiological assistance response personnel, resources, and training capabilities available upon request.

(d) During the period that resources of a FRMAP-1 agency are available to a Regional Coordinating Office or a responsible agency they will be under the direction of such coordinating office or responsible agency.

(e) FRMAP-1 agencies will provide BHO with current status of the following information:

(1) The name, title, and address of the official responsible for the agency's regional radiological assistance planning and the telephone number(s) to contact for radiological assistance.

(2) A list of types and locations of capabilities and resources useful for control of a radiological accident.

(f) FRMAP-1 agencies that provide radiological assistance through BHO (the Regional Coordinating Office) will submit a chronological report of their response actions to BHO.

#### 1.5.4 Joint Nuclear Accident Coordinating Center

The DOE and the Department of Defense (DOD) have established the Joint Nuclear Accident Coordinating Center (JNACC) at Albuquerque, New Mexico to handle coordination of on site response to accidents involving nuclear weapons and components or radioactive materials identified as military property. Upon receipt of information related to any of these accidents, a DOE or military organization must immediately notify JNACC and provide them with as many details of the incident as possible.

The agency having custody of the weapon or component will have the principle on site response authority. The DOE, through FRMAP, has the primary responsibility for off site monitoring and assessment in order to assist state and local authorities.

#### 1.5.5 State Agencies

Each of the states within Region I has a health and/or environmental agency which is charged with the responsibility of maintaining a radiological assistance response capability. The RAP-1 response is principally intended to support these agencies. Close cooperation exists between BHO and the respective State agencies in Region I. A policy of reciprocal assistance is

in effect with the various State agencies listed in Part II, Section 2.4.0. Twenty-four hour contacts for both the State Police and the State Agency with the responsibility for radiological incidents are included for each State. These State organizations may be requested to provide a RAP-1 team with transportation (after the arrival by air), an escort for team vehicles, radio communications, and to notify local police or other agencies whose cooperation may be needed in a RAP-1 response.

#### 1.6.0 Types of Accidents and Incidents

The Radiological Assistance Program was initiated in 1958. Since that time, a number of different types of requests for radiological assistance have been received. The overwhelming majority of the requests have been of a minor nature. They may be characterized as follows:

##### 1.6.1 Radioactive Shipments

Incidents connected with the transportation of radioactive materials, particularly those used in small quantities for medical and industrial purposes, have been the most frequent cause of requests for assistance. In most cases, leakage from a shipment was suspected due to damaged or wet exterior packaging. However, the specially designed packaging has generally contained the radioactive material, with little or no consequences to personnel or property.

In some cases radioactive materials have been lost or released from their containers due to inadequate packaging, mishandling impact, derailment or fire. The release of radioactivity has been generally confined to a vehicle, terminal, or the immediate scene of the accident. In a few cases loss of radioactive materials from vehicles in transit has precipitated ground and/or aerial searches covering hundreds of miles. Notification of such an incident

and the request for assistance has generally originated with transportation officials or law enforcement personnel.

#### 1.6.2 Licensee Incidents at Fixed Facilities

The increased number of radioactive materials licenses issued to individuals, industrial organizations, medical and academic institutions, as well as the increased number of operating nuclear installations, has increased the potential for radiological incidents among NRC and states licensees. Radiological assistance has been provided to licensees in emergencies involving the release of radioactivity, personnel exposures, and misplaced radioactive material.

#### 1.6.3 Weapons or Weapon Components Incidents

Extreme care is devoted to the design of nuclear weapons and weapons components. Stringent procedures are provided for their handling to preclude a nuclear detonation, even in the event of an accident. There is no record of an inadvertent or unintentional nuclear detonation. Nevertheless, crashes or collisions of vehicles transporting nuclear weapons could cause fire and/or the scattering or explosion of the high-explosive portion of the weapon. Such an accident could result in danger of explosion from the high explosive components and plutonium contamination at the scene of the crash and in downwind areas.

In the event of an accident involving nuclear weapons, military vehicles which may be transporting them, or radioactive materials identified as military property, the incident will be reported to JNACC. The DOE and DOD have agreed on the following general division of responsibility between them in all cases of accidents involving nuclear weapons:

(a) Immediate responsibility for the provision of technical direction at the scene of the accident will be assumed by the first DOD or DOE official to arrive at the scene of the accident, until relieved by appropriate authorities.

(b) Primary command responsibility for the provision of technical direction at the scene of the accident will be assumed by the service or DOE agency having physical possession of the weapon at the time of the accident upon arrival of their representatives. Nuclear weapons are classified items and, as such, will be safeguarded at all times. The couriers who accompany shipments of nuclear weapons material for security purposes are the direct custodians of the material. While physically able, it is the couriers' responsibility to protect the material from loss or security compromise (i.e., viewing and handling by unauthorized persons).

Depending on the nature of a weapons related incident a National Defense Area (NDA) might be declared by DOD for the purpose of safeguarding classified defense information or protecting DOD equipment or material. A National Security Area (NSA) may be declared by DOE for the purpose of safeguarding classified or restricted information, or protecting DOE equipment or material. Such areas would be established by an agency official on non-Federal lands located within the United States. Establishment of these temporary areas are under the effective control of the declaring agency and results only from an emergency event. The senior DOE or DOD official having custody of the material at the scene will define the boundary, mark it with a physical barrier, and post warning signs.

## 1.7.0 Radiological Assistance Implementation

### 1.7.1 Requests for Assistance - Region I

Requests for radiological assistance are received on the dedicated RAP number listed on the cover. During working hours it is answered by personnel of the BNL Safety and Environmental Protection Division. During non-working hours this number is serviced by the BNL Security Office. The person who answers the call will obtain the phone number, location and brief description of the incident. He/she will then contact a RAP-1 Team Captain from a designated call list.

### 1.7.2 Preparation for Response

Once a call is received by a RAP-1 Team Captain he/she will establish liaison with the initiator of the request for assistance. The Captain will obtain as much information about the incident as possible and will provide immediate guidance and advice as appropriate. He/she will then evaluate the situation based upon this information and will provide the appropriate radiological assistance in cooperation with the appropriate State agency. If needed, the Team Captain will request that an advance team respond to the scene, and will establish liaison with local, State or Federal authorities. Additionally the Team Captain may request the services of a BHO Coordinator and additional team members. Detailed procedures and check lists for Team Captains and Coordinators are contained in Part II. As the team members report for duty at BNL, they will choose the appropriate instrumentation and auxiliary equipment.

If a request for assistance involves the operation of a Nuclear Regulatory Commission licensee in Region I, the Regional Office of Inspection and Enforcement Region I (NRC-1) will be notified and provided with all available information regarding the request. Concurrently a radiological assistance

team will be activated and dispatched. The NRC-1 may dispatch a member of that organization to the incident scene for investigation purposes. However, the Regional Coordinating Office continues to coordinate the offsite radiological assistance response action, even when the NRC-1 representative is at the incident scene.

### 1.7.3 Selection of Radiological Assistance Team

To fulfill the DOE's responsibility for radiological assistance, the selection and composition of the appropriate Radiological Assistance Team(s) will be based upon the location, type and magnitude of an incident; the relative distances of various radiological assistance teams from it and their respective capabilities, material and manpower resources. In addition to radiological monitors, Radiological Assistance Teams may include other specialists in fields such as medicine, public information, security, fire protection, search and rescue, weapons, and aerial monitoring.

The history of radiological assistance response has demonstrated that a one or two-person response has usually been adequate. However, large-scale accidents would require additional resources. Such support can be obtained through the assistance of Advance Teams, other DOE office or contractor teams or the implementation of FRMAP.

### 1.7.4 Transportation

The mode of travel to the scene of a radiological incident will be determined by such factors as location, severity and urgency of the situation, distance, time of day and weather conditions.

#### (a) Motor Vehicle

For radiological assistance requests concerning incidents within 150 miles of BHO, teams will normally use a government vehicle.

(b) Aircraft

For radiological assistance requests concerning incidents which occur at locations greater than 150 miles from BNL, air transportation will generally be used (weather permitting). Arrangements have been made for such transport with the U.S. Coast Guard, who operate helicopters with a 600 mile range that can pick up as many as ten (10) team members, with equipment, at the BNL site.

1.7.5 Equipment

Emergency equipment kits and additional support equipment are kept at the BNL Calibration Facility, Building 348. The equipment is contained in Instrument Kits, Data or Reference Kits, Protective Clothing Kits and Sample Collection Kits.

1.7.6 Field Operations

Whether responding to a request for radiological assistance in the public or private domain, RAP-1 personnel will function at the incident scene through the highest level civil authority. In the absence of such authority the Team Captain will perform the necessary radiological functions until the arrival of such authority. Monitoring activities and corrective actions deemed necessary in the judgment of the Team Captain will be carried out by team members. RAP-1 Team operations will be performed in a manner consistent with the guidelines and limits established by the agency having the primary responsibility at the scene of the incident. These actions will be subject to approval by the Team Captain.

Actions such as the physical restraint of individuals, the impounding of materials, restriction of traffic, etc., are outside the duties

and responsibilities of the Team members. Team members will avoid performing actions or making commitments beyond the scope of the Radiological Assistance Program.

When the emergency aspects of the incident to which a RAP-1 response has been made have been brought under control, the RAP-1 on-scene activities will be terminated. Prior to leaving the scene of the incident, the Team Captain will inform the principals involved of the radiological status of the facility or environment and will offer appropriate recommendations regarding its restoration to unrestricted use. If, during a recovery operation, personnel or material resources will be required that are beyond the capabilities of the organization experiencing the emergency, that organization will be encouraged to contact commercial organizations capable of performing the necessary recovery functions.

#### 1.7.7 Reporting of Radiological Assistance Occurrences

A written report of each radiological assistance occurrence will be compiled and distributed by the BHO Radiological Assistance Coordinator.

#### 1.8.0 Resources in Region I

##### 1.8.1 FRMAP-1 Agencies (DOE and DOD)

DOE and DOE contractor resources such as personnel, equipment, facilities, material and services are available for radiological emergency operations subject to essential operational requirements of normal DOE health and safety and programmatic activities. DOD capabilities in Region I are available through JNACC by calling the Albuquerque DOE Office.

##### 1.8.2 FRMAP-1 Agencies (Other than DOE and DOD)

Other FRMAP-1 agencies may be called upon to provide the following types of radiological assistance:

(a) Nuclear Regulatory Commission (NRC)

This agency has the federal responsibility for licensing of commercial nuclear activities. Whenever a licensee is involved in a radiological assistance request, the Region I Office of Inspection and Enforcement at King of Prussia, Pennsylvania (which covers the same geographical area as RAP-1) Region I and will be notified. This office includes trained professionals and maintains equipment that can be called on to assist in an incident response. These resources include health physicists, nuclear safety engineers, sophisticated equipment and van mounted laboratory and environmental monitoring equipment.

(b) Environmental Protection Agency (EPA)

This agency has responsibility for nuclear activities not managed by DGE or DOE contractor activities (i.e. naturally occurring radioisotopes such as radium, accelerator produced radioisotopes from activities not sponsored by DOE). In addition, EPA offices located in RAP Region I have many professional health protection specialists and related monitoring equipment and laboratories.

(c) Department of Health and Human Services (HHS)

The capabilities of this agency are oriented toward water, food sampling, and radiochemical laboratory facilities.

(d) Department of Transportation (DOT)

This department includes a number of agencies which have an interest in transportation related incidents, such as the Federal Highway, Aviation, and Railroad Administration, and the U.S. Coast Guard. The Federal Aviation Administration (FAA) may be of assistance in obtaining various types of air

transportation in an emergency, and can expedite the through flight of a responding radiological assistance team.

(e) Department of Agriculture (USDA)

This agency would be of assistance in the control of potentially contaminated agricultural products and meat or meat products, and the inspection of livestock. In addition, through its Soil Conservation and National Forest Service Program, can provide heavy equipment, radio communications, aircraft, and access to remote areas.

(f) Departments of Commerce, Interior, and the Federal Emergency Management Agency

These agencies may be called upon to provide assistance consistent with their respective functions.

1.8.3 Aerial Monitoring

Radiological assistance operations may require the use of aerial monitoring to determine the extent and degree of the dispersal of radioactivity, or the location of lost or diverted radioactive materials. The DOE Aerial Measurement System (AMS), which is operated by EG&G is available through the Nevada Operations office, Las Vegas, Nevada. Initially, for DOE Region I, aerial monitoring assistance would be dispatched from the Washington Aerial Measurements Office of EG&G at Andrews Air Force Base.

The use of AMS aircraft would be requested by the BHO Area Manager, the Emergency Action and Coordination Team (EACT), or other prior designated individuals.

1.8.4 Predictive Capability

Information provided by a facility operator, a cognizant agency, RAP, and that obtained by AMS and other agencies can be analyzed by the

Atmospheric Release Advisory Capability (ARAC), who would use data coupled with local meteorology, to provide predictions of plume concentrations, ground deposition, and potential doses to individuals and populations resulting from the release of airborne radioactive material.

#### 1.8.5 Medical Emergencies

Medical doctors on the BNL staff can provide advice for incidents involving significant radiation exposure to or the contamination of persons. For accidents that are beyond the resources of BNL, the Radiological Emergency Assistance Center and Training Site (REAC/TS) operated by Oak Ridge Associated Universities would provide advice and assistance.

#### 1.9.0 Public Information

Whenever possible, announcements regarding DOE activities at the accident scene will be made through local officials, e.g., the mayor, sheriff, police chief, fire chief, or others having local authority after consulting with an official DOE spokesperson. Such announcements will emphasize that DOE is providing technical assistance through a local authority.

When deemed appropriate, a Public Information Officer will accompany the BHO Radiological Assistance Team to the scene of major incidents. In the absence of the Public Information Officer, the Team Captain may function in this capacity. It is the policy of DOE that unclassified information about incidents will be provided to the public as soon as possible, so as to avert fear or panic and to encourage public understanding. This may require that short "spot" or bulletin-type announcements be made by the Team Captain (or Information Officer), with the approval of the BHO Coordinator.

#### 1.10.0 Acronyms and Abbreviations

ALO	Albuquerque Operations Office
AMS	Aerial Measurement System
ARAC	Atmospheric Release Advisory Capability
BHO	Brookhaven Area Office
BNL	Brookhaven National Laboratory
DOD	Department of Defense
DOE	Department of Energy
EACT	Emergency Action and Coordinating Team
EG&G	EG&G Inc., A Prime DOE Contractor
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FRERP	Federal Radiological Emergency Response Plan
FRMAP	Federal Radiological Monitoring and Assessment Plan
HHS	Department of Health and Human Services
JNACC	Joint Nuclear Accident Coordinating Center
NDA	National Defense Area
NRC	Nuclear Regulatory Commission
NSA	National Security Area
RAP-1	Radiological Assistance Program Region I
RCO	Regional Coordinating Office
REAC/TS	Radiological Emergency Assistance Center and Training Site
USDA	United States Department of Agriculture