

NEW JERSEY ARMY NATIONAL GUARD

INTEGRATED PEST MANAGEMENT PLAN



2000
Revised January 2003

PEST MANAGEMENT PLAN
FOR
NEW JERSEY ARMY NATIONAL GUARD

May 2000

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Pest Management Coordinator Appointment Letter

2 May 2000

MEMORANDUM FOR See Distribution

SUBJECT: NJDMAVA Pest Management Coordinator

1. The New Jersey Department of Military and Veterans Affairs is required to have a Pest Management Coordinator oversee the Pest Management Program.
2. Ms. Lorraine C. Schrieber, Installations Division- Safety Officer, is appointed (as directed below) as the Pest Management Coordinator for the Department. Ms. Schrieber may be reached at 609 530-7077.

Authority: AR 420-76, para 2-4e, and 2-8.

Appointed as: Pest Management Coordinator

Period: Indefinite

Purpose: Individual will ensure pest management activities conducted within the installation are in compliance with AR 420-76, N.J.A.C. 7:30, subchapters 5, 6, 7, and 8, and The New Jersey Army National Guard Integrated Pest Management Plan dated April 2000.

PAUL J. GLAZAR
Major General, NJARNG
The Adjutant General

Distribution:

A, A1, A2, G

Mr. Mark A. Preston, ID-FMB

COPY

3 April 2002

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1. The New Jersey Department of Military and Veterans Affairs is required to have a Pest Management Coordinator oversee the New Jersey Army National Guard Integrated Pest Management Program.
2. Mr. Joseph K. Dunleavy, Installations Division- ECAS Manager, is appointed (as directed below) as the Pest Management Coordinator for the Department. Mr. Dunleavy may be reached at 609 530-7134.

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Period: Indefinite

Purpose: Individual will ensure pest management activities conducted within the installation are in compliance with AR 420-76, N.J.A.C. 7:30, subchapters 5, 6, 7, and 8, and The New Jersey Army National Guard Integrated Pest Management Plan dated April 2000.

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The Adjutant General

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EXECUTIVE SUMMARY

1. The contents of this plan apply to all activities and individuals working, residing, or otherwise doing business for the NJARNG, and will be implemented to the maximum extent possible. At no time will pest management operations be done in a manner that will cause harm to personnel or the environment. Pest management responsibility will begin with those individuals that occupy or maintain buildings or open spaces on the installation. Nonchemical control efforts will be used to the maximum extent possible before pesticides are used. This plan will be a working document and will be continually updated to reflect actual pest management practices.
2. The Pest Management Plan for the NJARNG describes the pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety and environmental requirements of the program. The program utilizes State certified Pesticide Applicators and other manpower (contractors, local city or county personnel, or armory personnel) as necessary to control pests. Pests included in the plan are: weeds and other unwanted vegetation; termites; mosquitoes; vertebrate pests such as birds, mice, rats, beavers, and snakes; flying insects; crawling insects; spiders; ticks and pests on desirable plants and trees. These pests can cause a negative impact on the environment, interfere with the military mission, damage real property, increase maintenance costs and expose personnel to diseases unless properly controlled. Actual pest management procedures are found in the Integrated Pest Management Outlines included as Appendix B.

PEST MANAGEMENT PLAN
FOR
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A. BACKGROUND.

1. Purpose. This pest management plan is a framework through which pest management is defined and accomplished by the New Jersey Army National Guard (NJARNG). The plan identifies elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. This plan is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques.

2. Authority.

a. Department of Defense (DOD) Instruction 4150.7, DOD Pest Management Program, 22 April 1996.

b. Army Regulation (AR) 200-5, Pest Management, 29 October 1999.

c. Executive Order 13112, Alien, Invasive Species Control, 3 February 1999.

3. Program Objective. This plan provides guidance for operating and maintaining an effective pest management program. Principles of integrated pest management (IPM) are stressed in the plan. IPM consists of the judicious use of both chemical and nonchemical control techniques to achieve effective pest management with minimal environmental contamination. Adherence to the plan will ensure effective, economical and environmentally acceptable pest management and will maintain compliance with pertinent laws and regulations.

B. RESPONSIBILITIES.

1. The Adjutant General (TAG).

a. Designate a NJARNG Pest Management Coordinator for all pest management activities.

b. Approve and support the pest management plan.

c. Ensure that NJARNG personnel performing pest control receive adequate training, and achieve pest management certification (if required).

d. Ensure that all pest management operations are conducted safely and have minimal impact on the environment.

2. Pest Management Coordinator

a. Function as NJARNG's Pest Management Coordinator

b. Prepare and monitor the pest management plan.

c. Annually update the plan to ensure that all references, methods and materials are up-to-date and that effective management of all pests is included. Any changes in pest management requirements will be incorporated into the plan during annual revisions. Obtain plan review and approval in accordance with DOD and National Guard policy and directives.

d. Coordinate with activities conducting pest surveillance or controlling pests to ensure all applicable information is recorded and reported as required by this plan.

e. Monitor the distribution of self-help pesticides at NJARNG sites.

f. Function as a point of contact between those individuals who store and apply pesticides (e.g., facility management, pest control contractors) and activities or individuals who document or deal with pesticide use in their programs (e.g., Environmental Office, Safety Office, Fire Department, and Industrial Hygienist).

g. Oversee the technical aspects of the self-help program with respect to pest control items and training of facility managers.

h. Monitor certification and continuing pest management training for pesticide applicators at NJARNG facilities.

i. Coordinate and monitor contracts dealing with pesticide application and keep a copy of each contract on file. Obtain review and approval of contracts and pesticide use submittals in accordance with DOD and National Guard Bureau policy and directives.

j. Coordinate with local, State, and Federal agencies, as necessary, to conduct the NJARNG's pest management program.

k. Provide answers to questions concerning pest management from Commanders, the Major Command, Department of the Army (DA), and interested State Agencies.

l. Perform design and review of new construction projects to ensure that pest entry points and potential harborage have been eliminated and that proper preconstruction termite treatment is included in project specifications.

- m. Initiate requests for aerial application of pesticides when necessary.
- n. Determine the pest management requirements for the NJARNG facilities and submit requests for funding.
- o. Maintain adequate records of pest management operations.

3. Facilities Management Officer (FMO)

- a. Review NJARNG's Pest Management Plan.
- b. Provide appropriate funding support for the pest management program through NJARNG's Environmental State Operating Budget (ESOB) and Real Property Operation and Maintenance (RPOM) budget.
- c. Ensure that FMO Department of Public Works personnel obtain and maintain adequate supplies of pesticides and pesticide dispersal equipment, if required, and ensure that equipment is properly maintained.
- d. Ensure that FMO Department of Public Works personnel performing pest control receive adequate training, and achieve pest management certification (if required).
- e. Maintain adequate records of pest management operations.

4. Armory Managers and Other Facility Managers.

- a. Obtain and maintain adequate supplies of approved self help pesticides and pest control equipment and ensure that equipment is properly maintained.
- b. Ensure that NJARNG personnel performing pest control receive adequate training, and achieve pest management certification (if required).
- c. Maintain adequate records of pest management operations.

5. Building Occupants.

- a. Apply good sanitary practices to prevent pest infestations.
- b. Apply only those pesticides approved for use by the Pest Management Coordinator.
- c. Cooperate fully with contractors and armory/facility personnel in scheduling pest management operations, to include preparing the areas to be treated.

d. Obtain PMC approval of all pest control contracts initiated for organizational use prior to solicitation. Request pest management trained Quality Assurance Evaluators (QAE) to monitor contractor performance.

6. Pest Management Personnel.

- a. Use IPM techniques to the maximum extent possible.
- b. Control pests according to the provisions of this plan.
- c. Operate in a manner that minimizes risk of contamination to the environment and personnel.
- d. Ensure that facility managers are kept informed of changes in pest management requirements.

7. Unit Commanders/Officers-In-Charge.

- a. Ensure the proper use of the DOD repellent system and other personal protective measures while personnel are exposed to potential disease vectors. (See Appendix N)
- b. NJARNG is required to appoint a field sanitation team for each company, troop, or battery size unit. Ensure that field sanitation teams are trained and supplied and mission capable prior to deployment (FM 21-10-1). (See Appendix N)

C. GENERAL.

1. NJARNG Installation and Facilities Description. A description of the NJARNG facilities is presented in Appendix Q. This description includes locations of facilities, and identifies each type of facilities' pest control needs. A more complete description including climatic and soils information is maintained at the Installations Division, Office of Environmental Compliance.

2. Plan Maintenance.

a. This pest management plan is maintained by the State Pest Management Coordinator. Pen and ink changes are made to the plan throughout the fiscal year. The plan is reviewed and updated annually to reflect all changes made in the pest management program during the fiscal year.

b. Annual updates of this plan will be sent to the National Guard Bureau Pest Management Consultant not later than 30 October of each year.

D. PRIORITY OF PEST MANAGEMENT. Priorities of pest control operations will be in the order shown below:

1. Disease Vectors and Public Health Pests.

a. Ticks.

(1) Ticks may transmit disease organisms. Tick-borne diseases include: Lyme disease, Rocky Mountain spotted fever, Human ehrlichiosis, and tularemia. The relative risk of contracting a tick-borne disease other than Lyme disease is low.

(2) The tick populations in the region are of concern both as a nuisance and a disease threat. Troops can be expected to encounter ticks during training. Edge habitats, such as where grassy fields meet stands of trees, bushes and shrubs, are favorite places for deer to browse and mice to burrow or nest. These areas are likely to be infested with ticks waiting for a passing host. Site specific information can be obtained from local health authorities. Personnel conducting outdoor training activities can minimize tick exposure by wearing appropriate clothing, applying tick repellent, and performing personal hygiene inspections (with bathing) upon return to camp (See Appendix N, DOD Arthropod Repellent System).

(3) The most common tick-borne disease threat in New Jersey is Lyme disease. The primary vector of this disease is the black-legged tick (*Ixodes scapularis*). The black-legged tick is the primary vector of the Lyme disease spirochete, *Borellia burgdorferi*, as well as the rickettsia responsible for human granulocytic ehrlichiosis (HGE). Lyme disease is usually transmitted by the nymphs which are primarily active in late spring and early summer. Soldiers training should use personal protective measures (See Appendix N, DOD Arthropod Repellent System) to reduce the risk of contracting Lyme disease.

(4) In general, chemical control of tick populations is not recommended. Stress should be placed on the use of personal protective measures followed by avoidance of tick habitat.

b. Mosquitoes.

(1) Mosquito species found in the State have the potential to transmit several arboviral encephalitides (i.e. eastern equine and St. Louis), dengue, and malaria; although these diseases have occurred very rarely or not at all in New Jersey for years. Mosquitoes are a known problem around NJARNG facilities, because of the favorable habitat.

(2) A listing of mosquito species in a particular area, their habits, breeding sites and the diseases they are capable of transmitting can usually be obtained from local, county or state health departments. On large military installations this information is available from Preventive Medicine (Environmental Health) or pest control personnel.

(3) Personnel conducting outdoor activities can minimize mosquito bites by wearing appropriate clothing and applying tick repellent (See Appendix N, DOD Arthropod Repellent System).

(4) In general, chemical control of mosquitoes is not recommended. Stress should be placed on the use of personal protective measures.

c. Mice present a potential human health threat of hantavirus pulmonary syndrome (HPS). This disease results from the inhalation of the aerosolized virus found in the feces and urine of rodents, particularly deer mice (*Peromyscus maniculatus*). Although this disease is relatively rare, the high fatality rate of 50 percent makes it important. Personnel who work in a closed space, stirring up dust where rodents are actively living or who handle mice and other small mammals should refer to the U.S. Army Medical Command memorandum dated 25 January 1995, SUBJECT: Policy on Protective Measures for Workers to Reduce the Risk of Hantavirus Exposure. Additional information can be obtained by calling the U.S. Army Center for Health Promotion and Preventive Medicine.

d. Black widow spiders are known to occur in New Jersey and frequent undisturbed places in warehouses, storage areas, foxholes, and around other buildings. These spiders may produce painful bites as well as toxic reactions. Brown recluse spiders are found in New Jersey and have been seen in some of the NJARNG facilities. The brown recluse poses a serious threat to personnel. The spiders are generally active at night. During the day they rest in undisturbed, dark, sheltered areas such as under rocks, woodpiles, and bark. They are frequently found in corners and crevices of buildings. The brown recluse normally bites when pressure is applied to it. Painful bites can cause restlessness and fevers. The healing of bites may take several weeks to months.

e. Envenomization from bee, hornet, yellow jacket, and wasp stings may produce allergic reactions in some individuals.

f. Rattlesnakes are found in the State. Although rarely encountered, these snakes are capable of causing serious illness or death. A variety of nonpoisonous snakes are found in the State; although non-venomous, their bites may be painful and could lead to secondary infection. Snakes from unwanted areas are captured alive and relocated to other areas away from ongoing activities. Removal and relocation of snakes found in unwanted areas (e.g., under buildings) is occasionally required.

g. Skunks, raccoons, foxes and bats may be infected with rabies. Since these animals may be found in or under NJARNG buildings, the disease potential should be recognized. There have been no reported cases of human rabies to the CDC for at least several years from New Jersey.

2. Quarantine Pests. The Gypsy moth is a Quarantine Pest found in New Jersey. See Executive Order (EO) 13112, dated 3 February 1999. Equipment and cargo must be inspected for presence of eggs, larvae, or adult moths prior to movement out of the area. The facility managers should coordinate with the local U.S. Department of Agriculture (USDA) inspector to determine requirements regarding inspection.

3. Pests of Real Property.

a. Subterranean termites are found throughout New Jersey and may cause substantial damage. Structures made of materials which contain cellulose will be inspected annually or every other year for termites or termite damage. Carpenter ants also damage wooden structures.

b. Birds roost in warehouses, aircraft hangars, maintenance and other buildings and may damage equipment and supplies with their droppings. Birds requiring control may include the starling, house sparrow, swallow, and pigeon. On occasion, bats may also roost in structures.

c. Squirrels, badgers, ground hogs, gophers, ground squirrels and rats damage structures and cause considerable property damage for which an ongoing maintenance program is necessary.

4. Stored Food Product Pests. Food items located in dining facilities, in armory kitchens or in food storage facilities may become infested by stored food product pests. Most susceptible items are moved and consumed before infestations occur. Infested foodstuffs are routinely discarded.

5. Noxious and Invasive Plants. Invasive plants are introduced species that have few, if any, natural controls in the United States and spread out of control. The NJARNG supports the National Strategy for Invasive Plant Management. The three goals of this strategy are prevention, control, and restoration. Examples of invasive plants are included in a complete federal listing of Invasive and Noxious weeds found in Appendix P.

6. Ornamental Plant and Turf Pests. Trees and shrubs can be infested by various insect pests, resulting in damage or destruction of the plants. Examples of these pests include the pine bark beetle, white grubs, webworms, and tent caterpillars.

7. Other Undesirable Vegetation. Weeds on firing ranges, around targets, along fence lines, on road shoulders, paved surfaces (including runways), etc. may require control using appropriate herbicides. Herbicides should be applied directly to weeds to protect desirable vegetation and reduce contamination of natural resources. Some control of unwanted plants is done mechanically (mowing, string trimmers) or by using mulch materials around ornamental plants. Where sites are significantly large and there are no State or Federally listed threatened or endangered species or wetlands involved, the Pest Management Coordinator may elect to have aerial application of herbicides applied by contractual services. Executive Memorandum (26 April 1996, Clinton) directs federal executive departments and agencies to use regionally native plants for landscaping of federal grounds and federally funded projects. The use of native plants protects natural heritage and provides wildlife habitat. Native plant restoration may reduce the need for fertilizer, pesticides, and irrigation requirements because native plants are suited to the local ecosystem.

8. Animal Pests.

a. Mice and rats occasionally invade buildings. The primary management techniques for controlling these rodents are exclusion and sanitation. Snap traps and glue boards are the main methods used for controlling rodent infestations indoors.

b. Stray dogs and cats occasionally need to be captured at NJARNG sites and should be accomplished by pest management technicians, the Military Police, contracted pest management services, or local municipal animal control authorities.

c. Beaver and deer have periodically required control throughout the state. Control efforts for beaver or other regulated wildlife species such as deer will be coordinated with the U.S. Department of Agriculture (USDA), Animal, Plant, Health Inspection Service (APHIS), Animal Damage Control (ADC) and the New Jersey Department of Natural Resources.

9. Household and Nuisance Pests. Mice, crawling insects (ants, cockroaches, etc.) and spiders may require control in office, billeting, food service facilities, warehouses, and other administrative buildings. Proper sanitation and housekeeping is emphasized to discourage these pests.

10. Other Pest Management Requirements. Pest management technicians are responsible, in conjunction with the Facility Management Office, for carcass removal. In addition, the pest management technicians may provide services for odor control in buildings and other structures. Odors may arise from dead animals in walls, crawl spaces, etc.; decaying vegetation, molds and fungi; or from other sources.

E. CONSERVATION PRACTICES FOR ENDANGERED SPECIES.

1. The Endangered Species Act requires EPA to regulate pesticides in such a way as to protect endangered species.

2. EPA's endangered species pesticide program requires pesticide applicators to be aware of information not on pesticide labels about endangered species requirements. Special considerations must be taken when using pest control tactics in areas where endangered species are found.

3. AR 200-3 requires personnel to deal with endangered and threatened species, and candidate, proposed, and state protected species as though they were endangered.

4. See Appendix E for the list of Federal and State or candidate endangered or threatened species listed. These lists change frequently as species are added or removed.

F. INTEGRATED PEST MANAGEMENT (IPM). Integrated pest management is the use of multiple techniques to prevent or suppress pests in a given situation. Although IPM emphasizes the use of nonchemical strategies, chemical control may be an option used in conjunction with other methods. IPM strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts.

1. IPM Principles. The four basic principles described below are the heart of IPM, and are descriptive of the philosophy used at NJARNG sites to manage pests; specific IPM measures can be found in the IPM Outlines in Appendix B. Additional useful information used is in the Armed Forces Pest Management Board, Technical Guide No. 29, "Integrated Pest Management in and Around Buildings." While any one of these methods may solve a pest problem, often several methods are used concurrently, particularly if long-term control is needed. For example, screens may be used to prevent mosquitoes from entering buildings, breeding areas may be filled in or drained to eliminate larval habitat, predatory fish may be introduced into mosquito breeding habitats, and pesticides may be used to kill adult mosquitoes. Screens will protect people inside, but do little to keep people from being bitten outdoors. Larval control may eliminate mosquito breeding on the installation, but may not prevent adult insects from flying onto the installation from surrounding areas. Chemicals may kill most of the flying mosquitoes, but may miss others. Although chemical control is an integral part of IPM, nonchemical control is the preferred method of control. Chemical control is almost always a temporary measure and, in the long run, more expensive. Nonchemical controls, which may initially be more expensive than chemicals, will usually be more cost effective in the long run. Nonchemical controls also have the added advantage of being nontoxic, thereby reducing the potential risk to human health and the environment. For additional IPM NGB policy guidance refer to Memorandum, NGB-ILE, 21 January 1997, subject Integrated Pest Management.

a. Mechanical and Physical Control. This type of control alters the environment in which a pest lives, traps and removes pests where they are not wanted, or excludes pests. Examples of this type control include: harborage elimination through caulking or filling voids, screening, mechanical traps or glue boards, and nets and other barriers to prevent entry into buildings. Mechanical and physical controls are the primary means for pest control whenever possible.

b. Cultural Control. Strategies in this method involve manipulating environmental conditions to suppress or eliminate pests. For example, spreading manure from stables onto fields to dry prevents fly breeding. Elimination of food and water for pests through good sanitary practices may prevent pest populations from becoming established or from increasing beyond a certain size.

c. Biological Control. In this control strategy, predators, parasites or disease organisms are used to control pest populations. Sterile flies may be released to lower reproductivity. Viruses and bacteria may be used which control growth or otherwise kill insects. Parasitic wasps may be introduced to kill eggs, larvae or other life stages. Biological control may be effective in and of itself, but is often used in conjunction with other types of control.

d. Chemical Control. Pesticides kill living organisms, whether they be plants or animals. At one time, chemicals were considered to be the most effective control available, but pest resistance rendered many pesticides ineffective. In recent years, the trend has been to use pesticides that have limited residual action. While this has reduced human exposure and lessened environmental impact, the cost of chemical control has risen due to requirements for more frequent application. Since personal protection and special handling and storage requirements are necessary with the use of chemicals, the overall cost of using chemicals as a sole means of control can be quite costly when compared with nonchemical control methods. Whenever possible, chemical control will be considered the last option when performing control operations.

2. IPM Outlines. IPM Outlines for pest surveillance and control are found in Appendix B. Each major pest or category of similar pests is addressed, by site, in separate outlines. New outlines will be added to Appendix B if additional pests at specific sites are encountered that require surveillance or control operations. Added outlines will be sent to the NGB Pest Management Consultant for approval. CAUTION: These outlines do not identify all the precautions and directions identified on product pesticide labels. Pesticide applicators are responsible to be familiar with and follow all precautions and directions on the pesticide label of the pesticide being used.

3. IPM in Schools. On December 12, 2002, Senate Bill Number 137 was signed into law. The School Integrated Pest Management Act, as the bill is known, will require schools to adopt and implement a pest management policy that is consistent with the model developed by the New Jersey Department of Environmental Protection (NJDEP). While emphasizing an IPM approach to control, this law recognizes the need to protect children from pests such as cockroaches, stinging insects and spiders. This need is reflected by the inclusion of a provision that allows for emergency treatments to immediately address potentially dangerous pest infestations without providing prior notice. The law also requires schools to notify parents and post signs at least 72 hours prior to certain pesticide applications and those schools should retain treatment records for three to five years, depending on the type of treatment. Current rules already require that persons applying pesticides in and around schools be certified by the NJDEP or supervised by someone who is. NJARNG personnel need to be aware of the requirements of this law and implement its provisions as they apply.

G. HEALTH AND SAFETY.

1. Medical Surveillance of Pest Management Personnel. All NJARNG personnel who apply pesticides, are included in a medical surveillance program. It is not anticipated that federal employees or M-Day soldiers will be authorized to perform pest management activities requiring medical surveillance. The medical surveillance program will consist of the following elements:

a. An initial physical examination will be conducted to establish that the individual is physically capable of wearing a respirator (if required) and to establish a baseline red blood cell (RBC) cholinesterase level. This physical examination also includes liver and kidney function tests, a complete blood count and a respiratory evaluation. A physical examination of the same scope as the initial examination is conducted annually.

b. When cholinesterase inhibiting substances (CIS) (e.g., carbamate or organophosphate insecticides) are applied by state employees on a regular basis, the RBC cholinesterase level will be monitored at least twice a year (before and after the summer spray season) and more frequently if CIS are heavily used or if the individual exhibits symptoms of CIS poisoning. Removal from work is instituted when the RBC cholinesterase level is depressed to 75 percent of the baseline level or less. Return to work is permitted when the level has returned to 80 percent or more of the baseline level.

Symptoms of cholinesterase inhibiting substances include:

Mild Poisoning

Anorexia
Headache
Dizziness
Weakness
Anxiety
Tremors of tongue
and eyelids
Miosis
Impairment of
visual acuity

Moderate Poisoning

Nausea
Salivation
Lacrimation
Abdominal cramps
Vomiting
Perspiration
Slow pulse
Muscular tremors

Severe Poisoning

Diarrhea
Pinpoint, non-
reactive pupils
Respiratory
difficulty
Pulmonary edema
Cyanosis
Loss of sphincter
control
Convulsions
Coma
Heart block

c. State pest management technicians who handle or otherwise come into contact with wild animals on NJARNG sites receive rabies prophylaxis.

d. U.S. Army Environmental Hygiene Agency (USAEHA) Technical Guide No. 114 is used as a guide for medical monitoring of pesticide applicators.

e. Contractors performing pest management services are responsible for receiving their own medical examinations and rabies prophylaxis from private sources at their expense.

2. Hazard Communication.

a. State pest management personnel are given hazard communication training, to include hazardous materials in the work place. Following initial hazard communication classes, additional training is given to new employees or when new hazardous materials are introduced into the work place.

b. Material Safety Data Sheets for all pesticides and other toxic substances used in the pest management program are kept by the Pest Management Coordinator and by armory/facility maintenance personnel and made available to all individuals who would have contact with these chemicals. Copies of MSDS are kept on each pest control vehicle for pesticides used that day. Additionally, all personnel who work with these chemicals are informed of the potential hazards and trained in the use of personal protective equipment.

3. Personal Protective Equipment. Approved masks, respirators, chemical resistant gloves and boots, and protective clothing (as specified by applicable laws, regulations and/or the pesticide label) are provided to pesticide applicators and contract quality assurance personnel at government expense. These items are used as required during the mixing and application of pesticides. Pesticide-contaminated protective clothing is not laundered at home. The clothing is laundered commercially. Severely contaminated clothing will not be laundered but is treated as pesticide-related waste and disposed of in accordance with current regulatory requirements. Contractors are responsible for providing these items and services to their employees at no additional expense to the government. The proper use and maintenance of personal protective equipment can be found in Appendices C (Pest Management Operations) and D (Maintenance and Care of Respirators).

4. Fire Protection.

a. The usual hazards presented by a fire are compounded in the case of a pesticide fire by the danger of pesticide poisoning and contamination. The Pest Management Coordinator will conduct pre-fire coordination with appropriate fire department and other emergency officials when pesticides are stored in NJARNG buildings. This coordination has been formalized in the armory/facility pre-fire plan. The pre-fire plan is updated by facility managers annually, or when changes occur in the amount or types of pesticides stored. A copy of this plan with annual updates is maintained by the State Pest Management Coordinator. Copies are provided to the local fire departments plus other emergency activities. In those facilities where minor amounts of self-help type pesticides are stored (e.g. aerosol insecticides, over-the-counter ant or cockroach baits, etc.), a pre-fire plan is not required; however, facility personnel follow all label precautions which deal with the storage of the pesticides.

b. The pre-fire plan includes a pesticide inventory, storage area floor plan, evacuation routes, water runoff control, and map of the surrounding area, emergency telephone numbers, medical assistance, salvage/hazard assessment, and provisions for safety briefings of appropriate personnel. A detailed discussion of pre-fire planning can be found in paragraph 2 of Armed Forces Pest Management Board (AFPMB) Technical Guide No. 16.

5. Pesticide Transport. Whenever possible, pesticides are transported in a lockable storage compartment of an assigned vehicle(s). Whenever possible, the same vehicle is used to transport pesticides. Vehicles that have been used to transport pesticides are not used to transport food, medical supplies or other sensitive items that, if contaminated, would adversely affect human health. Transportation of pesticides (from supply, delivery of self-help type items, etc.) is accomplished using the vehicle assigned to the pest controller. Pesticides are never transported in the passenger compartment of any vehicle. In addition, care is taken to secure pesticides to prevent damage to the containers and spillage of the chemicals. At no time are pesticides to be left unsecured in the vehicle when unattended.

H. ENVIRONMENTAL CONSIDERATIONS.

1. Protection of the Public. Adequate precautions shall be taken during pesticide application to protect the public, on and off NJARNG facilities. Pesticides are not applied outdoors when the wind speed exceeds five miles per hour. Whenever pesticides are applied outdoors, care is taken to make sure that any spray drift is kept away from individuals, including the applicator. Pesticide application, whether indoors or outdoors, is accomplished by individuals wearing the proper personal protective clothing and equipment. At no time are personnel permitted in a treatment area during pesticide application unless they have met the medical monitoring standards and are appropriately protected.

2. Sensitive Areas. Special consideration must be given prior to conducting pest control operations in sensitive areas that are identified on pesticide labels. No pesticides are applied directly to wetlands or water areas (lakes, rivers, etc.) unless its use is specifically approved on the label. In addition to aquatic and marine habitats, sensitive areas also include critical habitat to endangered, threatened, or rare flora or fauna species, and unique geological and other natural features.

3. Endangered and Protected Species.

a. Protected migratory birds that occur on NJARNG property cannot be controlled without a permit. The Pest Management Coordinator will periodically evaluate ongoing pest control operations and will evaluate all new pest management operations to ensure compliance with the Endangered Species Act and Migratory Bird Treaty Act. No pest management operations are conducted that are likely to have a negative impact on endangered or protected species or their habitats without prior approval from the National Guard Bureau Pest Management Consultant.

b. Appendix E provides the New Jersey lists of special plants and animals that are endangered, threatened, or rare species found in the state. Armory\facility personnel will review these lists to determine which species might be affected by pest management operations at their respective locations. Locations of endangered or threatened species are placed on maps of respective areas and made available to those individuals, either State or contract personnel, who are involved with outdoor pest control.

c. The impact of pesticide storage, transportation, and use will be fully documented in the NJARNG integrated natural resources management plan.

4. Pesticide Spills and Remediation. An adequate pesticide spill cleanup kit is maintained wherever pesticides are stored or used. Pesticide spill cleanup, notification procedures, and a list of suggested components of the spill kit are provided in Appendix F of this plan. Additional information on pesticide spills can be found in AFPMB Technical Guide No. 15 and Appendix F. All pesticide spills are reported to the NJARNG site hazardous waste manager.

5. Pollution Control/Abatement Projects. There are currently no pollution abatement projects being conducted at NJARNG sites.

6. Pollution Prevention (P2). The pest management program, as outlined in this plan complies, whenever possible, to Executive Order 12856 of August 3, 1993, Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements. The control of pests with pesticides is considered only after nonchemical control methods have been exhausted. Integrated pest management strategies that stress nonchemical control form the basic framework of the pest management program. Although established goals have been met and target dates have passed, the NJARNG continues to follow the spirit of the Pest Management Measures of Merit by striving to reduce pesticide use beyond the 50% reduction from the FY93 baseline use as shown in Appendix M. Methods to be used to achieve this goal are also included in Appendix M.

7. Prohibited Activities.

- a. At no time will a pesticide be used in any manner that is inconsistent with its label.
- b. No pesticide will be used whose registration has been suspended or canceled by the EPA or the State of New Jersey.

I. ADMINISTRATION.

1. Operations. Pest management operations will be conducted in accordance with Appendices B (Integrated Pest Management (IPM) Outlines) and C (Pest Management Operations) of this plan.

2. Work Orders. Work orders for pest control can be issued in response to complaints from building occupants. If the pest problem falls under an existing pest control contract, then the contractor is notified. If the pest problem does not fall within the scope of a pest control contract, the Facilities Management Office (FMO) may request additional assistance by submitting a Service Work Order.

3. Contracts.

a. Augmentation contracts are used when essential pest management activities are beyond the capabilities of armory/facility personnel. Pest problems threatening the health, safety or welfare of installation personnel are given priority. Contracts are administered in accordance with para 2-14, AR 200-5 and with NJARNG contracting procedures.

b. Facility Managers will contact the FMO Department of Public Works or the State Contracting Officer for guidance.

c. In accordance with Executive Order (EO) 12856 and Secretary of Defense Memorandum, Subject: Comprehensive Pollution Prevention Strategy, 11 August 1994, pest management contracts are initiated on an "as needed" basis. Monthly or periodic spraying will be eliminated unless deemed necessary after surveying and monitoring pest population levels. The EO states that the military will decrease its usage of toxic chemicals and pollutants by 50 percent. Use of integrated pest management techniques will be encouraged in all contracts. Pest problems threatening the health, safety, or welfare of installation personnel shall receive priority. Contracts for recurring pest problems and on-going pest control are processed as an annual, semiannual, quarterly or monthly pest control service.

d. Once a contract is awarded, it is the responsibility of facility personnel to establish a date and time for work to commence. Ongoing contracts are evaluated annually or as necessary. Prior to any payment being made an evaluation to confirm the satisfactory completion of all work is performed.

e. Contractors who conduct pest control on NJARNG facilities must:

(1) Show proof of liability insurance.

(2) Have State commercial certification and licensing in the category or categories of work to be performed. All contracted pesticide applicators must be certified in the category of work being performed.

(3) Use only EPA or State registered pesticides.

(4) Furnish NJARNG personnel with legible copies of specimen labels and the MSDS of all pesticides proposed for use.

(5) Furnish NJARNG personnel with information which specifies the pests controlled, the pesticide(s) used (common name, trade name, EPA registration number, strength of material applied, and the amount used), and the time expended for each pesticide application. This information is entered by facility personnel on the Pest Management Maintenance Record (DD Form 1532-1) for the building or site where the work was performed.

(6) Complete the appropriate IPM Outline for each pest and site where they provide contractual services following the format provided in Appendix B.

f. Appendix G contains a guide for the general contract requirements for pest control. This guide can be used for contractual pest control operations if they are needed in the future.

4. Resources.

a. Maintenance of NJARNG armories and facilities (including the pest management program) is supported with State and/or Federal funds.

b. The staff required to maintain an effective pest control program is less than 1/4 man-year at any given armory or other facility.

c. Only pesticides and pesticide application equipment required by the program are maintained at the armories/facilities. Materials and equipment belonging to contractors is not allowed to be stored on NJARNG property. Pesticides are ordered as required to maintain no more than a three-month supply. Inventory listings of pesticides and pesticide application equipment are maintained by armory/facility managers at each location at all times. Pesticides that are required for use during a specific time of year (e.g. herbicides for seasonal use) are ordered in a timely manner to ensure effective application. These inventory listings are provided to the NJARNG Environmental Officer and State Pest Management Coordinator at the end of each calendar year. Inventory listings are updated as changes occur.

d. Pesticides that are classed as moderately or highly toxic (the words WARNING or DANGER, respectively, will appear on the pesticide labels) will not be used or stored by any NJARNG personnel. Pesticides that are classed as slightly toxic (the word CAUTION on the labels) will be stored in locations where food, clothing and other personal items are not accidentally contaminated and which are locked when not in use.

e. When applicable, a vehicle with separate lockable storage areas and cab is assigned for the safe transport of personnel, pesticides, equipment and supplies for pest control operations. Pesticides are never transported in the cabs of vehicles or in personally owned vehicles.

5. Reports and Records.

a. Armory/facility maintenance personnel maintain adequate records of all pest management operations performed by maintenance personnel, contractors, and self-help.

b. Daily pesticide application and surveillance records are maintained using DD Form 1532-1, Pest Management Maintenance Record as shown in Appendix G. These forms are properly maintained to provide a permanent historical record of pest management operations for each building, structure, or outdoor site on the armory/facility.

6. Training and Certification.

a. All NJARNG personnel (State or Federal) who apply pesticides have received and maintained DOD or State commercial certification. State certification is required for Federal and State employees when any pesticides are used on State property. Federal employees of the NJARNG must be certified by the DOD or State when applying any pesticides on Federal property. State employees of the NJARNG must receive certification from the State of New Jersey certification program prior to applying pesticides on Federal or State property. Any NJARNG personnel who use self-help pest control items which are formulated as ready-to-use products and are classified as general use or are pest management materials which consist of nonchemical devices such as mouse traps or insect sticky traps on State or Federal property are still required to be certified. Certification is recommended for the State Pest Management Coordinator in the appropriate categories of work involved if the Coordinator makes specific

pesticide use recommendations. To comply with DOD Instruction 4150.7, individuals who evaluate the quality of work of pest control contracts (Quality Assurance Evaluators) must also be trained in the pest management category or categories of work being performed. To minimize costs, the certified Pest Management Coordinator can also be designated as a Quality Assurance Evaluator for pest control contracts at specific facilities.

b. Training and certification will be conducted at NJARNG expense for facility personnel. Certified pest control personnel shall be recertified IAW New Jersey State or DOD requirements as specified above. The Pest Controller must be certified and the quality assurance evaluator must be trained in the following categories, as appropriate, to perform pest control operations directly, to supervise other employees conducting pest control operations, or to evaluate contractor performance relating to pest control within these categories:

(1) Forest Pest Control (EPA category 2).

(2) Ornamental and turf pest control (EPA category 3).

(3) Right-of-way pest control (EPA category 6).

(4) Industrial, Institutional, Structural, and Health Related pest control (EPA category 7).

(5) Aerial Application (EPA category 11).

c. Appendix H provides clarification of the New Jersey statutes which address the status of State employees who apply pesticides with respect to certification and licensing.

d. Personnel who are involved in pesticide applications on a regular or seasonal basis, especially where mixing formulations is performed, are encouraged to attend local pest management classes, workshops, seminars, etc., in order to keep abreast of pest problems and pest management techniques which are unique to the area surrounding the installation. This is particularly true when dealing with vegetation control since many of the herbicide labels indicate that choices in strength and application technique should be based on local conditions. By attending local seminars, pest management personnel learn to solve problems on the installation by talking to people in the same geographic area which have solved similar problems in the past. The time and labor expended in this type of training is easily recouped through improved efficiency in pest management operations on NJARNG sites. Local pest management training should consist of at least eight hours per year; this is in addition to any off site recertification training, such as the DOD course or State recertification requirements. Other personnel who deal directly with pest control operations, but who may not need to be certified, are also encouraged to attend local seminars to better understand pest management needs.

7. Quality Assurance/Quality Control.

- a. The QAE for pest management contracts are trained in the EPA categories for which pest control work is performed on the NJARNG site.
- b. A written quality assurance surveillance plan is used to evaluate the work being performed by a contractor. A trained QAE provides on-site surveillance for all termite treatments.
- c. Completion of authorized Basic Pest Management and Pest Control Quality Assurance Evaluator Training or other training approved by the NGB pest management consultant is required for personnel who perform quality assurance of contractual pest control services.

8. Design/Review of New Construction. Construction projects on NJARNG sites are reviewed with pest prevention and control in mind. The State Pest Management Coordinator reviews the design of new buildings or other structures and conducts a pest evaluation in the constructed facility prior to completion of the project to ensure that pest entry points and potential harborages have been eliminated and that preconstruction termite treatments are included in project specifications.

J. COORDINATION - DOD, Other Federal, State, and Local.

1. The NGB Pest Management Consultant will review the pest management plan, and will give special attention to any pesticide application that uses restricted use pesticides, uses any pesticide that may significantly contaminate surface or ground water, include 259 or more hectares (640 acres) in one pesticide application, may adversely affect endangered or other protected species or habitats, or involves aerial application of pesticides.
2. Liaison will be maintained between the Pest Management Coordinator and local County and State health agencies to determine the prevalence of disease vectors and other public health pests in the area surrounding the armory/facility.
3. A list of useful organizations and contacts throughout the State who are involved with or who may impact the NJARNG Pest Management Program is found in Appendix I. A list of federal resources, including their addresses, telephone numbers, and a description of their responsibilities is provided at Appendix J.
4. County Health and environmental personnel are coordinated with for proposed actions that may impact adjacent off-post areas or where pests located in off-post areas are impacting NJARNG property or personnel health.
5. Predator control is coordinated with the USDA, APHIS, ADC regional office or local game enforcement officers when predator control is necessary.

6. Pest management personnel coordinate with the Corps of Engineers to assure that pesticide application, such as termite pretreatment for new construction, is properly performed and documented.

7. NJARNG Site Managers may also coordinate with County Cooperative Extension offices, New Jersey Department of Natural Resources, New Jersey Department of Agriculture, and USDA Natural Resources Conservation Offices to obtain information about the identification and control of specific pests in their locale or to obtain County Soil Surveys.

K. SALE AND DISTRIBUTION OF PESTICIDES.

1. Self-Help Pest Management Program. Although an available pest control option, NJARNG does not encourage self-help pest control and prefers the use of available in-house or contracted pest control services. Self-help programs follow the guidance found in CEHSC-FN Technical Note No. 420-76-1, "Pest Control Materials Suitable for Issue in Self-Help Programs." Self-help items are identified in Appendix K. Any deviations from this list require the written approval of the NGB Pest Management Consultant.

2. Army Air Force Exchange System (AAFES). Pesticides sold in AAFES facilities are registered by the EPA for general use; restricted use products are not sold. Pesticide products are grouped into several separate categories: products applied to pets for ectoparasite control, repellents, household, and lawn and garden products. A spill cleanup kit is on hand in the immediate vicinity of the home and garden pesticide storage area. Store personnel are familiar with the use of the cleanup kit and with installation spill contingency procedures. Additional guidelines on pesticides in exchanges can be found in paragraph 10-4h, AR 40-5.

L. REGULATED PESTS. Regulated pests are those regulated by state or federal laws such as noxious weeds, quarantine pests, or pests which may be found on retrograde cargo. The federal noxious weed list is provided in Appendix P. Retrograde cargo such as tactical equipment returning from a foreign country is cleared by the USDA, APHIS prior to arriving at NJARNG facilities.

M. PEST MANAGEMENT REFERENCES.

1. Federal and State Laws.

- a. The Federal Insecticide, Fungicide and Rodenticide Act (through PL 100-460, 100-464 to 100-526, and 100-532).
- b. Title 7, Code of Federal Regulations (CFRs), 1996 revision, Section 360, Noxious Weed Regulations.
- c. Title 29, CFRs, 1993 revision, Section 1910, Occupational Safety and Health Standards.
- d. Pollution Prevention Act of 1990, PL 101-508.
- e. EO 12856: Federal Compliance with Right-to-Know Laws and Pollution Prevention.
- f. New Jersey Administrative Code, Title 7, Chapter 30, Subchapter I-12, Pesticides, adopted 19 November 2001.
- g. New Jersey Senate Bill 137, IPM in Schools, signed 12 December 2002.

2. Regulations.

- a. DOD Instruction 4150.7, DOD Pest Management Program, 22 April 1996.
- b. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.
- c. AR 40-5, Preventive Medicine, 30 August 1986.
- d. AR 200-1, Environmental Protection and Enhancement, 23 April 1990.
- e. AR 200-2, Environmental Effects of Army Actions, 23 December 1988.
- f. AR 200-3, Natural Resources Land, Forest, and Wildlife Management, 28 February 1995.
- g. AR 385-32, Protective Clothing and Equipment, 31 October 1985.
- h. AR 200-5, Pest Management, 29 October 1999.
- i. HSC Reg 40-30, HSC Operating Program - Preventive Medicine Guidelines for Implementation of a Preventive Medicine Program for MEDCEN/MEDDAC, 16 March 1989.
- j. HSC Pam 40-3, Environmental Health Program, October 1985.

- k. NGR No. 385-10, Army National Guard Safety Program, 25 November 1983.
 - l. DOD Directive 4210.15: Hazardous Material Pollution Prevention.
3. Technical Manuals.
- a. TM 5-629, Weed Control and Plant Growth Regulation, 24 May 1989.
 - b. AFPMB Military Entomology Operational Handbook, Chapters 1-11, with Appendices, current revision on web site <http://www.afpmb.org/mpmhb/toc.htm>.
4. Technical Guides from the U.S. Army Center for Health Promotion and Preventive Medicine.
- a. No. 105, Environmental Sampling and Evaluation in the Investigation of Alleged Pesticide Incidents, April 1976.
 - b. No. 114, Guide for the Medical Surveillance of Pest Controllers, March 1976.
 - c. No. 116, Guide for Fish Kill Investigations, May 1980.
 - d. No. 133, Respiratory Protection Program for Pest Control Personnel, November 1982.
 - e. No. 138, Guide to Commensal Rodent Control, December 1991.
 - f. No. 142, Managing Health Hazards Associated with Bird and Bat Excrement, December 1992.
 - i. No. 196, Guide to Poisonous and Toxic Plants, July 1994.
 - j. No. 208 Procedures for Thermal Control of Cockroaches in Army Food Service Facilities, January 1997.
5. Armed Forces Pest Management Board Technical Guides.
- a. No. 13, Ultra Low Volume Dispersal of Insecticides by Ground Equipment, December 1999.
 - b. No. 14, Protective Equipment of Pest Control Personnel, March 1992.
 - c. No. 15, Pesticide Spill Prevention Management, June 1992.
 - d. No. 16, Pesticide Fires: Prevention, Control, and Cleanup, June 1981.
 - e. No. 18, Installation Pest Management Program Guide, July 2002.

- f. No. 20, Pest Management Operations in Medical Treatment Facilities, September 2002.
 - g. No. 21, Pesticide Disposal Guide for Pest Control Shops, October 1986.
 - h. No. 22, Guidelines for Testing Experimental Pesticides on DOD Property, June 2001.
 - i. No. 24, Contingency Pest Management Pocket Guide, April 2002.
 - j. No. 25, Devices for Electrocutation of Flying Insects, August 1988.
 - k. No. 26, Tick Borne Diseases, Vector Surveillance and Control, June 1998.
 - l. No. 27, Stored-Product Pest Monitoring Methods, September 2000.
 - m. No. 29, Integrated Pest Management In and Around Buildings, July 1994.
 - n. No. 31, Contingency Retrograde Washdowns: Cleaning and Inspection Procedures, December 1993.
 - o. No. 34, Bee Resource Manual, with emphasis on The Africanized Honey Bee, August 2002.
 - p. No. 36, Personal Protective Techniques Against Insects and Other Arthropods of Military Significance, April 2001.
 - q. No. 37, Guidelines for Reducing Feral/Stray Cat Populations on Military Installations in the United States, January 1996.
6. Other References, Manuals, Books and Guides.
- a. MIL-STD-903C, Sanitary Standards for Commissaries, 1 January 2000.
 - b. MIL-STD-904B, Guidelines for Detection, Evaluation and Prevention of Pest Infestation of Subsistence, 10 March 2000.
 - c. MIL-STD-3006A, Sanitation Standards for Food Establishments, 7 June 2002.
 - d. MIL-HDBK-1028/8A, Design of Pest Management Facilities, 1 November 1991.
 - e. TB Med 530, Occupational and Environmental Health, Food Service Sanitation, November 1991. (under revision)
 - f. TB Med 561, Occupational and Environmental Health, Pest Surveillance, June 1992.

g. Mallis Handbook of Pest Control, 7th Edition, PCT Books, 4012 Bridge Ave, Cleveland, OH 44113, 1100 pp., \$89.00.

h. Soil Surveys of New Jersey Counties, New Jersey, USDA Natural Resources Conservation Service.

7. Periodicals.

a. Pest Control (Magazine Published Monthly, \$22/year), P.O. Box 6215, Duluth, MN 55806-9915.

b. Pest Control Technology (Magazine Published Monthly, \$30/year), PCT, 4012 Bridge Ave, Cleveland, OH 44113.

c. Pest Management Bulletin, Periodic Publication of U.S. Army Center for Health Promotion and Preventive Medicine, Entomological Sciences Program, Aberdeen Proving Ground, MD 21010-5422. [Phone DSN 584-3613 or commercial (410) 436-3613]. Available on web site <http://chppm-www.apgea.army.mil/ento/bulletin.htm>.

APPENDIX A

NEW JERSEY ARMY NATIONAL GUARD

UNIT TROOP LIST

City: Atlantic City

Street: 1008 Absecon Boulevard

Zip: 08401-1999

1-114 INF E	609 441-3194
HQ STARC DET 2 (TRP CMD HHD)	609 441-3147
HQ STARC DET 2 (TRP CMD)	609 441-3184
HQ STARC DET 2 (TRP CMD)	609 441-3190
HQ STARC DET 2 (TRP CMD)	609 441-3191
R&R	609 345-0582
R&R	609 345-1069
R&R	609 345-4233
R&R (FAX)	609 345-0883

Atlantic City Air National Guard (Pamona)

Street: 400 Langley Rd (Egg Harbor Twp)

Zip: 08234-9500

DSN	455-XXXX
119 FTR SQD	609 645-6002
177 CIV ENGR SQ	609 645-6230
177 FIGHTER WING	609 645-6000
177 FIGHTER WING	609 645-6050
177 LOGISTICS GROUP	609 645-6101
177 MSN SPT SQD	609 645-6206
177 SEC FLT	609 645-6221
177 USAF CLINIC	609 645-6246

City: Bordentown

Street: 1048 Route 206 South

Zip: 08505-2124

250 SBF CO B	609 298-1196
250 SBF CO B	609 298-1897
ARMORER	609 291-8328
FAX	609 291-9574
OMS 17	609 298-1410
R&R	609 298-2731
R&R	609 298-5806

Street: US Highway 130, Box 108 RD 2
Zip: 08505-9617

ARMORER	609 324-1837
CSMS 1	609 298-1130
CSMS 1	609 298-1144
CSMS 1	609 298-1156
CSMS 1	609 298-1176
FAX	609 298-8362

City: Burlington
Street: 559 High Street
Zip: 08016-4516

1-114 INF C	609 386-0547
1-114 INF HHC DET 3	609 386-5201
ARMORER	609 386-4608
FAX	609 386-5935
R&R	609 386-7140

City: Cape May CH
Street: 600 Garden State Parkway
Zip: 08210-1699

253 TRANS CO	609 465-9612
FAX	609 465-5396
OMS 4	609 465-4409
R&R	609 465-3491
R&R	609 465-9237

City: Cherry Hill
Street: Grove Street & Park Boulevard
Zip: 08002-2797

ARMORER	609 486-2680
BTRY D 112 FA	609 486-2685
BTRY D 112 FA	609 486-2686
BTRY D 112 FA	609 486-2687
CO A 250 SIG (FAX)	609 486-2699
CO A 250TH SIG BN	609 486-2683
CO A 250TH SIG BN	609 486-2696
DET 1, HHB 3-112 FA	609 486-2695
DET 2 HHB 42D DIV ARTY	609 486-2692
FAX	609 486-2690
OMS 22	609 486-2694

City: Flemington
Street: State Highway 12
Zip: 08822-9511

250 SIG BN B (-)	908 782-5512
ARMORER	908 782-4872
FAX	908 788-3679
R&R	908 788-0565

City: Fort Dix
Street: Bldg 3650
Zip: 08640-7600

DSN	944-XXXX
42D ID/DET 2 DSC	609 562-0630
42D ID/DET 2 LIAISON OFF	609 562-0632
42D ID/DET 2 SJA	609 562-0631
444TH PAD	609 562-0895
50TH BDE	609 562-0600
50TH BDE ADMIN NCO	609 562-0621
50TH BDE CDR	609 562-0601
50TH BDE CSM	609 562-0603
50TH BDE MPT	609 562-0605
50TH BDE PER SVC SGT	609 562-0606
50TH BDE READINESS NCO	609 562-0620
50TH BDE S1	609 562-0618
50TH BDE S2	609 562-0607

50TH BDE S3	609 562-0608
50TH BDE S3 AIR	609 562-0611
50TH BDE S4	609 562-0614
50TH BDE XO/FTSS	609 562-0602
ARMORER	609 562-0626
CAO	609 562-0959
CAO-ACOFS	609 562-0954
DPCS	609 562-0650
DPCS-R&R	609 562-0700
DPCS-SIDPERS	609 562-0684
EOC 24-HR EMERGENCY NUMBER	800 241-5727
FAMILY ASSISTANCE PROGRAM	888 859-0352
HHD STARC	609 562-0640
HRO	609 562-0850
NJANG	609 562-0900
POTO	609 562-0750
POTO-CD (FAX)	609 562-0813
SRAA	609 562-0628
TAG	609 562-0950
TAG-IG	609 562-0980
TAG-JA	609 562-0940

Street: Bldg 5401

Zip: 08640-5225

HOLDING BN	877 412-1164
HOLDING BN	877 412-1170
HOLDING BN	877 412-1171
PRE-IET	609 562-0536
R&R	609 562-0558

Street: Bldg 5402

Zip: 08640

ChalleNGe Program	609 562-0570
ChalleNGe Program	609 562-0571
ChalleNGe Program	800 997-5587
FAX	609 562-0581

Street: T3BL Bldg 3601

Zip: 08640

DSN	944-XXXX
OMS 9	609 562-0629
T3BL	609 562-0500
T3BL-ADMIN BR	609 562-0511
T3BL-ARMORER	609 562-0507
T3BL-ARTBASS	609 562-0554
T3BL-CMDT	609 562-0540
T3BL-DEP CMDT	609 562-0543
T3BL-OPS SGM	609 562-0539
T3BL-RTS-M	609 562-0545
T3BL-SUPPORT BR	609 562-0565
T3BL-TRAINING BR	609 562-0520

City: Freehold

Street: 635 State Highway 33

Zip: 07728-2351

1-114 INF B	732 462-0371
1-114 INF D	732 462-4752
1-114 INF HHC DET 2/HHC DET 4	732 462-2715
ARMORER	732 308-1811
FAX	732 462-0351
FAX (R&R)	732 462-3233
R&R	732 431-1473
R&R	732 462-2120

City: Hackettstown

Street: 901 Willow Grove Street

Zip: 07840-5099

2-102 AR D	908 852-4400
2-102 AR HHC DET 4	908 852-0658
FAX	908 979-9371
R&R	908 852-8693

City: Hammonton
Street: Egg Harbor Road, Box 469
Zip: 08037-0469

ARMORER	609 567-8144
DET 1 CO B 250 SBF	609 561-0309
DET 1 CO B 250 SBF	609 561-5938
FAX	609 561-0613
R&R	609 567-3236

City: Jersey City
Street: 678 Montgomery Street
Zip: 07306-2208

2-113 INF D	201 915-3529
2-113 INF HHC DET 4	201 915-3530
50 SBM A DET 1	201 915-3531
50 SBM F (MED)	201 915-3528
ARMORER	201 433-0619
FAX	201 915-3429
OMS 11	201 915-3532
R&R	201 433-3871

City: Lawrenceville
Street: 101 Eggert Crossing Road (DMAVA)
Zip: 08648-2805

DSN	445-9000
ARMORER/MAINT	609 530-6822
DMAVA MAIN NUMBER	609 530-4600
NJDMAVA BBS (PC ONLY)	800 992-6282
NJDMAVA INFORMATION	609 530-6892
SELECTIVE SERVICE	609 530-4641
TDD	609 530-6966

Street: 131 Eggert Crossing Road (USPFO)
Zip: 08648

DSN	445-9000
FAX	609 530-6715
FAX	609 530-7089
FAX (ADP)	609 536-6848

Street: 141 Eggert Crossing Road (DLOGS)
Zip: 08648-2805

DSN	445-9000
CLASS IX MATERIEL	609 530-7081
CLASS IX WAREHOUSE	609 530-7022
DPBO	609 530-7025
FAX	609 530-6870
PBO	609 530-7070

Street: 151 Eggert Crossing Road (Armory)
Zip: 08648-2897

	609 530-6802
119 SPT BN (Corps) HHD	609 530-4621
119 SPT BN (Corps) HQ	609 530-4620
119 SPT BN (Corps) HQ	609 530-4622
119 SPT BN (Corps) HQ	609 530-4623
150 AG DET (PSC)	609 530-6516
150 FIN DET	609 530-7118
250 AG DET (PSC)	609 530-6517
250 FIN DET	609 530-7107
3-112 FA BTRY B	609 530-4627
350 FIN DET	609 530-7114
50 FIN BN HQ	609 530-4647
50 PERS SVC BN HQ	609 530-4593
50 PERS SVC CO HQ	609 530-6503
50 SBM C	609 530-4645
ARMORER	609 530-4644
DET 2 SVC 3-112 FA	609 530-4629
FAX (119 SB (C))	609 530-6378
FAX (ID-FPB)	609 530-7147
FAX (SMO)	609 530-6706
ID-FMB	609 530-2674
ID-FMB	609 530-4643
OMS 18	609 530-4640
R&R	609 538-1613
R&R	609 538-1629
R&R	609 538-8258
SMO	609 530-6982

City: McGuire AFB
Street: Bldg 1901
Zip: 08641-5406

DSN	440-XXXX
108TH CIV ENG FLT	609 724-2910
108TH COMM FLT	609 724-4177
108TH CONS ACFT MAINT SQD	609 724-2803
108TH MISSION SPT FLT	609 724-2695
108TH RESOURCE MGMT SQD	609 724-3482
108TH SECURITY POLICE	609 724-3629
108TH USAF CLINIC	609 724-5764
141ST AIR REFUELING SQD	609 724-2636
150TH AIR RFL SQD	609 724-2409
170TH USAF CLINIC	609 724-2635
204TH WEA FLT	609 724-6932
HQ 108TH AIR REFUELING WG	609 724-2802
HQ NJANG	609 724-6501
Warren Grove Gunnery Range	609 724-2414

City: Morristown
Street: Jockey Hollow Road
Zip: 07960-0499

3-112 FA A	973 631-6281
3-112 FA HHB	973 631-6278
3-112 FA HQ	973 538-2714
3-112 FA HQ	973 631-6280
3-112 FA HQ	973 631-6343
3-112 FA SVC	973 631-6282
ARMORER	973 631-6544
ARMORER (Rental Info)	973 631-6277
FAX	973 631-6283
OMS 12	973 267-1861
R&R	973 285-1709
R&R	973 538-1671
R&R	973 538-4117

City: Mount Holly
Street: 1670 Route 38 East
Zip: 08060-9701

1-114 INF A	609 518-3035
1-114 INF HHC DET 1 (FAX)	609 518-3037
ARMORER	609 518-3036
R&R	609 261-0124
R&R	609 261-0740

City: New Egypt
Street: PO Box 278 Highway 539
Zip: 08533

ARMORER	609 758-3732
FAX	609 758-3277
UTES	609 758-3027
UTES	609 758-3175
UTES	609 758-8631

City: Newark
Street: 120 Roseville Avenue
Zip: 07107

2-113 INF A	973 648-3411
2-113 INF B	973 648-3428
2-113 INF E	973 648-6298
2-113 INF HHC DET 1/HHC DET 2	973 648-6293
ARMORER	973 648-7012
CADET CORPS	973 648-7185
FAX	973 877-1433
OMS 5	973 648-6116
R&R	973 484-8717
R&R	973 484-8718
R&R	973 484-8740
R&R	973 484-9049
R&R (FAX)	973 484-2059
R&R NCOIC	973 484-5786

City: Newton
Street: Highway 206
Zip: 07860-1436

2-102 ARM C	973 383-2158
2-102 ARM C/HHC DET 3	973 383-3720
ARMORER	973 383-5653
FAX	973 383-3157
R&R	973 383-9691

City: Phillipsburg
Street: Heckman & Bates Streets
Zip: 08865-2693

ARMORER	908 454-7684
DRUG DEMAND REDUCTION	908 213-0404
FAX	908 213-0842
OMS 15	908 859-5016

City: Picatinny Arsenal
Street: Bldg 3801
Zip: 07806-5000

126 AVN, CO B, 1ST BN	973 724-4468
AASF 2	973 724-4609
AASF 2 MAINT	973 724-5493
AASF 2 MAINT	973 724-5587
AASF 2 OPS	973 724-4551
AASF 2 OPS	973 724-4580
FAX	973 724-4476
FAX	973 724-5965

City: Port Murray
Street: 550 Route 57
Zip: 07865

2-102 ARM A	908 689-1083
2-102 ARM HHC	908 689-9632
2-102 ARM HQ	908 689-1068
2-102 ARM HQ	908 689-1355
ARMORER	908 689-9635
FAX	908 689-0403
R&R	908 689-2089
R&R	908 689-5946

City: Princeton
Street: River Road, PO Box 166
Zip: 08540-0166

FAX	609 430-1789
STATE PROPERTY WAREHOUSE	609 924-2062

City: Riverdale
Street: 107 Newark-Pompton Turnpike
Zip: 07457

2-113 INF HHC	973 835-8303
2-113 INF HQ	973 835-2929
2-113 INF HQ	973 835-9219
ARMORER	973 839-4953
FAX	973 835-1323
FAX (OMS 2)	973 839-2236
OMS 2	973 835-6606
R&R	973 835-0059
R&R	973 835-9466

City: Sea Girt
Street: PO Box 251
Zip: 08750-0251

NGTC	732 974-5950
SUPERINTENDENT	732 974-5951

Street: PO Box 277
Zip: 08750-0277

250 SBF A	732 974-5940
250 SBF C	732 974-5943
250 SBF HHD	732 974-5937
250 SBF HQ	732 974-5949
254 REGIMENT (CA)	732 974-5900
63 ARMY BAND	732 974-5963
63 ARMY BAND	732 974-5965
DET 5 STARC (MED)	732 974-5910
DET 5 STARC (MED)	732 974-5971
NG MUSEUM OF NJ	732 974-5966
OMS 25	732 449-4499
OMS 25	732 974-5974
PROG FOR INCREASED ED (MPM)	732 974-5988

City: Somerset
Street: 1060 Hamilton Street
Zip: 08873

ARMORER	732 418-3321
CO A 2-102 ARM	732 937-6277
CO C 250 SIG BN	732 418-3320
COMSEC	732 418-3318
DET 1 42D BAND	732 418-3312
DMMC	732 418-3343
FAX	732 418-3319
FAX (R&R)	732 846-7157
HHC 42D DISCOM	732 418-3316
HQ 42D DISCOM	732 418-3312
HQ 42D DISCOM (CDR/FTSS)	732 418-3315
HQ 42D DISCOM (S-3/TT)	732 418-3313
HQ 42D DISCOM (S-4)	732 418-3314
OMS 20	732 545-7572
R&R	732 545-5459
R&R	732 545-8903

City: Teaneck
Street: Teaneck & Liberty Roads
Zip: 07666-0687

50 SBM A	201 833-2740
50 SBM C	201 833-9829
50 SBM HHD	201 833-9828
50 SBM HQ	201 833-9811
50 SBM HQ	201 833-9812
ARMORER	201 833-0784
FAX	201 833-0368
FAX (OMS 1)	201 569-6301
OMS 1	201 569-4190
R&R	201 833-0228
R&R	201 833-8405
R&R	201 833-9019
R&R (FAX)	201 833-1722

City: Toms River
Street: 1200 Whitesville Road
Zip: 08753-4130

3-112 FA C	732 349-4386
3-112 FA SVC/DET 1	732 349-3166
ARMORER	732 797-0374
FAX	732 818-1406
OMS 24	732 349-1897
R&R	732 349-3476
R&R	732 349-6090

City: Tuckerton
Street: 365 E. Main Street
Zip: 08087-2805

ARMORER	609 296-2129
DET 1, 253 TRANS CO	609 296-2129
FAX	609 296-2214
R&R	609 812-1216

City: Vineland
Street: 2560 South Delsea Drive
Zip: 08360-7093

5-117 CAV HHT	609 696-6799
5-117 CAV HQ	609 696-6702
5-117 CAV HQ	609 696-6797
ARMORER	609 794-5793
FAX	609 696-6798
OMS 23	609 691-3620
R&R	609 691-2210
R&R	609 794-9075

City: West Orange
Street: 1299 Pleasant Valley Way
Zip: 07052-5269

CSMS 2	973 736-5250
CSMS 2	973 736-5251
CSMS 2	973 736-6894
CSMS 2	973 736-8852
FAX (CSMS 2)	973 736-9073

Street: 1315 Pleasant Valley Way
Zip: 07052-1419

2-102 ARM B/HHC DET 2	973 731-3065
5-117 CAV B	973 731-2375
50 SBM D	973 731-3077
50 SBM E	973 731-1569
ARMORER	973 669-8962
FAX	973 731-3446
OMS 3	973 736-9886
R&R	973 325-8005
R&R	973 325-8159

City: West Trenton
Street: Trenton-Mercer Airport, 152 Scotch Road
Zip: 08628-1389

DSN (AASF 1)	445-9261
DSN (OSAC)	445-9251
DSN (SAAO)	445-9221
1-150 AVN CO A, B, C	609 530-4263
1-150 AVN CO D	609 530-4270
1-150 AVN HQ	609 530-4260
1-150 AVN HQ	609 530-4262
1-150 AVN HQ	609 530-4267
1-150 AVN HQ	609 530-4269
1-150 AVN HSC	609 530-4264
1159 MED DET	609 530-5914
AASF 1	609 530-4251
AASF 1 FACILITY CDR	609 530-4256
AASF 1 FLT INSTR SUPV	609 530-4254
AASF 1 MAINT	609 530-4252
AASF 1 MAINT	609 530-4255
AASF 1 MAINT OFF	609 530-4257
AASF 1 OPNS	609 530-4258
AASF 1 SAFETY	609 530-4250
ARMORER	609 530-6688
DET 19, OSAC	609 530-5917
DET 19, OSAC	609 530-5918
OMS 19	609 530-4266
R&R	609 530-4268

R&R	609 530-6571
RAID	609 530-4295
SAAO	609 530-4749
SAAO	609 530-4802
SAAO-0HM	609 530-4785
SAAO-PA	609 530-4751
SAAO-SM	609 530-4752

City: Westfield

Street: 500 Rahway Avenue

Zip: 07090-3335

250 SIG BN DET 1	732 499-5024
250 SIG BN HHC	732 499-5666
250 SIG BN HQ	732 499-5662
250 SIG BN HQ	732 499-5663
ARMORER	732 815-4875
COMSEC	732 499-5304
FAX	732 499-5025
OMS 13	732 499-5670
RECRUITER	908 317-8601
RECRUITER	908 317-9501
RETENTION	908 518-1950

City: Woodbridge

Street: 625 Main Street

Zip: 07095

2-113 INF C/HHC DET 3	732 499-5684
ARMORER	732 815-4922
FAX	732 499-5217
R&R	732 636-4131
R&R	732 636-5770
R&R	732 636-6739
R&R (FAX)	908 726-0246

City: Woodbury
Street: North Evergreen Avenue
Zip: 08096-1399

1-114 INF HHC	609 384-3770
1-114 INF HQ	609 384-3765
1-114 INF HQ	609 384-3772
1-114 INF HQ	609 384-3775
ARMORER	609 384-3774
FAX	609 384-3773
R&R	609 384-8831
R&R	609 845-4573
R&R	609 845-8801
R&R (FAX)	609 845-8707

City: Woodstown
Street: 501 North Main Street
Zip: 08098-9549

5-117 CAV TRP C	609 769-4059
ARMORER	609 769-8014
FAX	609 769-1620
R&R	609 769-4027
R&R (FAX)	609 769-1938

APPENDIX B

INTEGRATED PEST MANAGEMENT OUTLINES

1. German Cockroaches - Food Service Facilities
2. German Cockroaches - Barracks, Offices and Other Administrative Buildings
3. American Cockroaches
4. Filth Flies - Food Serving Facilities
5. Stored Products Insects
6. Mosquitoes
7. Wasps, Yellow jackets, and Hornets
8. Bees
9. Ticks
10. Fleas
11. Spiders (Including Black Widow and Brown Recluse)
12. Lice (Head and Pubic)
13. Household Ants
14. Crickets
15. Earwigs, Ground Beetles, and Other Crawling Arthropods
16. Termites
17. Carpenter Ants
18. Bagworms
19. Gypsy Moth Larvae
20. Mice and Rats
21. Birds (Pigeons, Starlings, and House Sparrows)
22. Geese
23. Skunks
24. Opossums, Raccoons, and Tree Squirrels
25. Feral cats and Dogs
26. Snakes
27. Deer
28. Beaver
29. Grassy weeds
30. Broadleaf Weeds - Parade Fields, Lawns, and Other Common Grassy Areas
31. All Vegetation - Utility Pole and Hydrant Bases, Sidewalks, Around Building Foundations, Parking Lots, and Fence Lines

INTEGRATED PEST MANAGEMENT OUTLINE NO. 1

PEST: German Cockroaches.

SITE: Food service facilities and other food preparation/serving areas.

I. Purpose: To control nymphal and adult cockroaches in food service facilities and other areas where food is prepared or served.

II. Surveillance.

A. Conducted by: Food service personnel, Facility management personnel, Pest Management Technicians (in-house or contract), or Pest Management QAEs. Pest management QAEs perform surveys as follow up after contract performance.

B. Methods: Sticky traps, rare use of a pyrethrin aerosol (as a flushing agent applied directly into harborage sites), and visual observations (preferably at night).

C. Frequency: Daily visual observations are conducted by food service personnel. Sticky traps are used at least quarterly and 1 to 2 weeks after chemical controls are applied to determine control effectiveness. Flushing agents are used only when immediate cockroach populations need to be determined and are used rarely to minimize resistance development. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Cockroach harborage is eliminated by using an elastomeric caulking (or filling with other materials) minor cracks, crevices, holes in walls and floors, or other areas where the structure has provided small openings which could be used by cockroaches. Live cockroaches and eggs capsules can also be removed by vacuuming.

b. Conducted by: Building occupants, Pest management technicians, and augmented by facility maintenance personnel.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Good sanitation is practiced to reduce food and water used by cockroaches. Spilled food is cleaned up from work surfaces, walls, and floors. Dirty dishes and cooking containers are washed following use. Bags, boxes, and other potential harborage is removed from kitchens, storerooms, etc. Food is kept in sealed containers when not in use. Standing water is eliminated and leaking pipes are repaired promptly to minimize water availability to cockroaches.

b. Conducted by: Food service personnel. Plumbing repairs made by maintenance personnel.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts..

1. Basis for Treatment: Seek professional assistance if two or more cockroaches are observed in each placed trap each day..

2. Method and Location: Place bait stations in locations where cockroaches have been seen (e.g., cabinets, under appliances, under sinks, etc.), along the junction between walls and floors, and in equipment voids for maximum effectiveness.

3. Conducted by: Pest management technicians if populations are more than 2 cockroaches/sticky trap/day.

4. Pesticide. Cockroach bait stations or bait gels

5. Control Standard: Replace bait stations every 3 months. Remove empty bait stations to preclude cockroaches using them for harborage sites.

C. Chemical.

1. Basis for Treatment: Continued presence of cockroaches.

2. Method and Location: Place dust directly into cracks, crevices, and voids in typical cockroach harborage sites (e.g., under cabinets, appliances, and sinks, into voids where plumbing penetrates walls, and behind metal corner protectors, etc.).

3. Conducted by: Pest management technicians.

4. Pesticide. Boric acid dust

5. Control Standard: No live cockroaches found 30 days following treatment. When sanitation and harborage present problems in a facility, a reduction in the number of cockroaches in sticky traps may indicate the effectiveness or limitation of chemical control efforts.

D. Chemical.

1. Basis for Treatment: Cockroaches found during surveillance or a sticky trap index of two or greater.

2. Method and Location: Crack and crevice residual application.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product.

5. Control Standard: No live cockroaches found 30 days following treatment. When sanitation and harborage present problems in a facility, a reduction in the number of cockroaches in sticky traps may indicate the effectiveness or limitation of chemical control efforts.

E. Chemical.

1. Basis for Treatment: Cockroaches found during surveillance or a sticky trap index of one or greater.

2. Method and Location: Crack and crevice residual application.

3. Conducted by: Pest management technicians.

4. Pesticide. IGR (Hydroprene).

5. Control Standard: Crinkled wings shall be noticed on cockroaches within two weeks following application. This insect growth regulator will be used in conjunction with other residual insecticides when cockroach populations are present. The control standard of no live cockroaches found 30 days following treatment remains in effect. When sanitation and harborage present problems in a facility, a reduction in the number of cockroaches in sticky traps may indicate the effectiveness or limitation of chemical control efforts.

IV. Precautions for Sensitive Areas: Do not apply to areas where aquariums are present.

V. Prohibited Practices: Do not apply pesticides on food items, utensils, or on food preparation surfaces. Do not let unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: Pesticides should be considered the last option in controlling cockroaches. As long as poor sanitation or harborage exist, the effectiveness of chemicals to control cockroaches may be limited. To meet Measures of Merit 2, contracts to control cockroaches will require the use of 99% boric acid dust and hydramethylnon baits which typically provide at least 3 months of control. Contracts will also emphasize routine surveillance, mandate nonchemical controls such as caulking, and provide chemical control only after cockroach populations have exceeded an acceptable threshold.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 2

PEST: German Cockroaches.

SITE: Barracks, offices and other administrative buildings.

I. Purpose: To control nymphal and adult cockroaches in building areas where people store and/or eat food on an occasional basis (e.g., break areas, coffee rooms, vending areas, etc.).

II. Surveillance.

A. Conducted by: Primarily building occupants by visual observation. Facility management personnel, Pest Management Technicians (in-house or contract), or Pest Management QAEs where professional assistance is needed (typically heavy infestations). Pest management technicians perform surveys when services are requested following self-help failure. Pest management QAEs perform surveys as follow up after contract performance.

B. Methods: Sticky traps, use of pyrethrin flushing agent, or visual observation. Sticky traps, rare use of a pyrethrin aerosol (as a flushing agent applied directly into harborage sites), and visual observations (preferably at night).

C. Frequency: Daily visual observations are conducted by building occupants. Sticky traps are used at least semiannually and 1 to 2 weeks after chemical controls are applied to determine control effectiveness. Flushing agents are used only when immediate cockroach populations need to be determined and are used rarely to minimize resistance development.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Sticky traps are used to control minor infestations of cockroaches in break areas or in other areas where food is eaten or stored. Cockroach harborage is eliminated by caulking minor cracks, crevices, and holes where cockroaches may hide in areas where food is prepared, served, and stored. Vacuums may also be used to remove cockroaches and egg capsules from harborage sites.

b. Conducted by: Building occupants typically use sticky traps and apply caulking materials. Assistance to caulk is occasionally performed by maintenance or pest management personnel.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Stored food items are placed in closed containers. Break areas are kept clean and spilled food is cleaned up immediately. Food containers (e.g., soda cans, coffee cups, etc.) are rinsed out to reduce cockroach food. Papers, bags, boxes and other items are kept off the floors in areas where food is present to eliminate harborage areas for cockroaches.

b. Conducted by: Building occupants.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Seek professional assistance if two or more cockroaches are observed in each placed trap each day..

2. Method and Location: Place bait stations in locations where cockroaches have been seen (e.g., cabinets, desks, under sinks, etc.) and along the junction between walls and floors for maximum effectiveness.

3. Conducted by: Pest management technicians if pest populations are high.

4. Pesticide. Cockroach bait stations or bait gels

5. Control Standard: Replace bait stations every 3 months. Remove empty bait stations to preclude cockroaches using them for harborage sites. Continue bait station use for at least 90 days. If cockroaches are still observed after 90 days or if two or more cockroaches/trap/day are observed pest management technicians are requested for assistance.

C. Chemical.

1. Basis for Treatment: Continuing presence of cockroaches.

2. Method and Location: Place dust directly into cracks, crevices, and voids in typical cockroach harborage sites (e.g., under cabinets, appliances, and sinks, into voids where plumbing penetrates walls, and behind metal corner protectors, etc.).

3. Conducted by: Pest management technicians.

4. Pesticide. Boric acid dust

5. Control Standard: No live cockroaches found 30 days following treatment. When sanitation and harborage present problems in a facility, a reduction in the number of cockroaches in sticky traps may indicate the effectiveness or limitation of chemical control efforts.

D. Chemical.

1. Basis for Treatment: Cockroaches still present after self-help measures have been used and failed to control the infestation.

2. Method and Location: Apply residual pesticides to harborage areas in kitchens, bathrooms and other areas where cockroaches are found.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: Live cockroaches observed 1 week after application. No call backs indicate successful treatment. A reduction in the number of cockroaches in sticky traps may indicate the effectiveness or limitation of chemical control efforts.

IV. Precautions for Sensitive Areas: Cholinesterase inhibiting pesticides are not applied in areas where young infants may occupy.

V. Prohibited Practices: Do not apply pesticides on food items, utensils, or on food preparation surfaces. Do not let unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: Cockroach elimination usually responds to good sanitation and light chemical treatment. Pesticides should be considered the last option in controlling cockroaches. As long as poor sanitation or harborage exist, the effectiveness of chemicals to control cockroaches may be limited. To meet Measures of Merit 2, contracts to control cockroaches will require the use of 99% boric acid dust and hydramethylnon baits which typically provide at least 3 months of control. Contracts will also emphasize routine surveillance, mandate nonchemical controls such as caulking, and provide chemical control only after cockroach populations have exceeded an acceptable threshold.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 3

PEST: American and Smoky Brown Cockroaches.

SITE: Sewers, structures, and crawl spaces.

I. Purpose: To prevent cockroach infestations in basements, crawl spaces, and other below-ground or on-ground areas in buildings.

II. Surveillance.

A. Conducted by: Primarily building occupants by visual observation. Facility management personnel, Pest Management Technicians (in-house or contract), or Pest Management QAEs where professional assistance is needed (typically heavy infestations). Pest management technicians perform surveys when services are requested following self-help failure. Pest management QAEs perform surveys as follow up after contract performance.

B. Methods: Sticky traps, use of pyrethrin flushing agent, or visual observation. Sticky traps, rare use of a pyrethrin aerosol (as a flushing agent applied directly into harborage sites), and visual observations in food preparation/consumption areas, sewer manholes, and crawl spaces.

C. Frequency: Daily visual observations are conducted by building occupants. Sticky traps are used at least semiannually and 1 to 2 weeks after chemical controls are applied to determine control effectiveness. Flushing agents are used only when immediate cockroach populations need to be determined and are used rarely to minimize resistance development.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Eliminate moisture in basements and other below-ground areas in buildings that could support cockroaches - this is most likely to occur in the main post area. Ventilate wet or damp areas under buildings. In buildings which experience frequent invasion of American cockroaches, drains, particularly those in the basements or on ground level, should have grates or screens over the openings with a mesh size less than 1/8-inch. Utility doors should fit tightly, and pipe chases and other entry points should be sealed. Shrubs adjacent to building exteriors will be trimmed to maintain air circulation next to buildings. Out-buildings should be kept neat and woodpiles will be located at least 75 feet away from structures. Vacuums may also be used to remove cockroaches indoors.

b. Conducted by: Maintenance personnel.

2. Type: Biological. None

3. Type: Cultural. None

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Cockroaches found during observations or a sticky trap index of one or greater.
2. Method and Location: Place bait stations in locations where cockroaches have been seen (e.g., cabinets, desks, under sinks, storage areas, etc.) and along the junction between walls and floors for maximum effectiveness.
3. Conducted by: Pest management technicians if pest populations are high.
4. Pesticide. Cockroach bait stations or bait gels.
5. Control Standard: Leave dated bait stations in place until bait is gone. Remove empty bait stations to preclude cockroaches using them for harborage sites. Continue bait station use for 30-60 days. If cockroaches are still observed after 60 days, then call the pest management technician.

C. Chemical.

1. Basis for Treatment: Continued presence of cockroaches.
2. Method and Location: Place dust directly into cracks, crevices, and voids in typical cockroach harborage sites (e.g., under cabinets, appliances, and sinks, into voids where plumbing penetrates walls, and behind metal corner protectors, etc.).
3. Conducted by: Pest management technicians.
4. Pesticide. Boric acid dust

D. Chemical.

1. Basis for Treatment: American cockroaches found in sewers.
2. Method and Location: Power sprayer use in sewers within 100 feet of occupied buildings.
3. Conducted by: Pest management technicians.
4. Pesticide. Residual insecticide product
5. Control Standard: No live cockroaches in treated sewers after 7 days and for a period of 30 days following treatment.

IV. Precautions for Sensitive Areas: Do not treat sewers if precipitation is anticipated within 12 hours.

V. Prohibited Practices: Do not apply pesticides on food, utensils, or food preparation surfaces. Do not let unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: American cockroaches in sewers (i.e. at manhole sites) can become a problem if the manholes are located near buildings and the cockroaches can migrate into work areas. Smoky brown cockroaches are typically found in drier sites such as attics, storage areas, and utility closets. Smoky brown cockroaches have replaced American cockroaches in peridomestic situations. Insecticide rotation for these larger cockroaches is not normally necessary. To meet Measures of Merit 2, contracts to control cockroaches will require the use of 99% boric acid dust and hydramethylnon baits which typically provide at least 3 months of control. Contracts will also emphasize routine surveillance, mandate nonchemical controls such as caulking, and provide chemical control only after cockroach populations have exceeded an acceptable threshold.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 4

PEST: Filth Flies.

SITE: Inside buildings, primarily food service facilities.

I. Purpose: To control filth flies which can mechanically transmit disease pathogens.

II. Surveillance.

A. Conducted by: Building occupants and Pest management technicians (in-house and contracted). Pest management QAEs may conduct surveys to determine control effectiveness achieved by contractual services.

B. Methods: Visual observations. Pest management technicians or pest management QAEs may use sticky fly tape. Fly tapes are not placed directly over stored food or over food preparation surfaces.

C. Frequency: Daily visual observations are conducted by building occupants during routine work performance. Pest management technicians conduct fly surveys after self-help control efforts fail. Pest management QAEs perform fly surveys after receiving complaints about contract performance or as random sampling.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Sticky fly traps may be used to control minor infestations in areas which are not directly over prepared food or food preparation surfaces. Fly grids designed to stun and capture flies on a sticky surface may be used in kitchen and eating areas (as opposed to older fly grids, which are designed to electrocute flies causing them to explode and fragment).

b. Conducted by: Building occupants.

2. Type: Mechanical and Physical.

a. Method and Location: Screens should be used to preclude fly entry when doors and windows are to be left open. Automatic self-closing devices should be placed on outer doors to reduce the time open doors permit fly entry. Air curtains may also be used at entry points, but must be installed and maintained correctly to blow flies away from the entrance and not into the entrance and should cover the entire door width. Fly swatters can also be used with care so not to contaminate food, utensils, and food preparation surfaces.

b. Conducted by: Building maintenance personnel install, repair, and replace screens, doors, door closing devices, air curtains, and electric fly grids. Keeping doors closed when not in use and the use of fly swatters is the responsibility of building occupants.

3. Type: Biological. None

4. Type: Cultural.

a. Method and Location: Use good sanitation to reduce food and water which attract flies. Clean up spilled food from work surfaces, walls and floors. Wash dirty dishes and cooking containers following use - do not leave exposed food in the facility overnight. Place garbage in sealable bags. Place the bags in containers with tight fitting lids and keep containers closed when not in use. Do not place dumpsters within 50 feet of the facility. Dumpsters with putrescible materials are emptied and cleaned weekly during the fly breeding season.

b. Conducted by: Building occupants for sanitation in and around the immediate vicinity of the work place. Dumpsters are emptied and cleaned by facility maintenance staff or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Flies found within the facility.

2. Method and Location: Contact treatment with aerosol insecticide.

3. Conducted by: Pest management personnel may perform chemical control only in rare situations.

4. Pesticide. Pyrethrin aerosol

5. Control Standard: Flies are killed on contact. Fewer than living 5 flies observed after treatment indoors for a period of 24 hours.

IV. Precautions for Sensitive Areas: No unauthorized personnel are allowed in areas which receive space treatment. See pesticide label for precautions.

V. Prohibited Practices: Do not apply pesticides on food items, utensils, or on food preparation surfaces.

VI. Environmental Concerns: None.

VII. Remarks: Good sanitation should virtually eliminate fly problems at most building sites. The pesticide listed above should be the only chemical control used. If flies are coming into the facility from a nearby source (e.g., farm, dump, etc.), then facility management personnel would be notified to look into the problem.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 5

PEST: Stored Products Insects (i.e. saw-toothed grain beetles and dermestids).

SITE: Food storage areas (i.e. Commissaries and Troop Issue Subsistence Activity warehouses and other food handling areas).

I. Purpose: To control insects which damage food and fiber products.

II. Surveillance.

A. Conducted by: Primarily facility personnel. Pest management personnel conduct surveys based on requests if stored product pests are suspected. Pest management QAEs may conduct surveys to determine control effectiveness achieved by contractual services.

B. Methods: Visual observations for insects or conditions that could favor insect infestations in stored food products. Particular attention shall be given to rodent bait stations when they are in use since most baits are subject to insect infestation. Visual observations may be enhanced by using sticky traps for detecting crawling insects or using species specific pheromone traps.

C. Frequency: Daily visual observations are conducted by food area occupants when working in the facilities. Pest management technicians conduct surveys based on service requests. Pest management QAEs conduct surveys based on complaints about contractor performance and by random sampling.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Clean up spilled food materials which may attract and provide a food source for insects at least daily. Vacuuming is encouraged to remove insects and food spillage. Caulking, sealing, or painting cracks and crevices will be implemented to reduce harborage and to aid in food spillage removal.

b. Conducted by: Facility personnel.

2. Type: Biological. None

a. Method and Location: Damaged goods should be kept in tight-fitting containers. Infested products are removed immediately upon discovery. Use or rotate the oldest food products first.

b. Conducted by: Facility personnel.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Insects found in products, in the food storage areas, or survey traps.

2. Method and Location: 2-gallon sprayer - apply around pallets, floor/wall junctures, and other areas where insects may be present.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: No evidence of insects for 30 days following treatment.

IV. Precautions for Sensitive Areas: None.

V. Prohibited Practices: Do not apply pesticides on food, utensils, food containers, or food preparation surfaces. Do not let unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: The occurrence of stored product insects is rare. Suspected unidentified specimens are sent to the USACHPPM-North, Entomological Sciences Division, ATTN: MCHB-AN-ES, Fort Meade, Maryland 20755-5225

INTEGRATED PEST MANAGEMENT OUTLINE NO. 6

PEST: Mosquitoes.

SITE: Cantonment areas.

I. Purpose: To reduce annoyance of biting mosquitoes and the potential for mosquito-borne disease transmission to humans.

II. Surveillance.

A. Conducted by: Pest management technicians.

B. Methods: Larval surveys are rarely performed in standing water in cantonment areas.

C. Frequency: Larval surveys are done in conjunction with travelling around the cantonment areas for miscellaneous duties. Use of light traps will occur several nights per week to monitor adult mosquito populations if a mosquito-borne disease is identified in the area.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Screens should be placed on windows on buildings occupied at night to exclude adult mosquitoes. Temporary standing water sites which hold water for 7 or more days should be considered to be graded or filled to eliminate mosquito breeding. Precautions are taken not to damage wetland ecosystems. (See Section VI, Environmental Concerns below.) Artificial container breeding sites such as used tires are eliminated.

b. Conducted by: Facility maintenance personnel perform screening work. Facility operations personnel perform habitat modifications.

2. Type: Biological. *Bacillus thuringiensis* Berliner variety *israelensis* (Bti), Bactimos (EPA Registration Number 6218-47).

a. Method and Location: Applied to sites which hold stagnant water longer than 7 days. When effective, no live mosquito larvae should be present 5 days after treatment.

b. Conducted by: Pest management technicians.

3. Type: Cultural. None

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: The incidence of biting mosquitoes is very high in the cantonment areas or a mosquito-borne disease outbreak has occurred in the area.

2. Method and Location: ULV cold fogger used in cantonment areas.

3. Conducted by: Pest management technicians (in-house or contracted) or local city/county health officials or their contracted services.

4. Pesticide. ULV Aerosol product

5. Control Standard: Mosquito numbers are reduced in light traps to below the 25 female mosquitoes/trap/night level. Incidence of mosquito-borne disease in humans discontinued. Materials are applied at all target sites per label directions.

C. Chemical.

1. Basis for Treatment: The incidence of biting mosquitoes is very high in the cantonment areas or a mosquito-borne disease outbreak has occurred in the area.

2. Method and Location: Briquettes applied to standing water such as storm drains, catch basins, roadside ditches, and other man-made depressions.

3. Conducted by: Pest management technicians, local city/county health officials, or their contracted services.

4. Pesticide. Altosid (methoprene)

5. Control Standard: Mosquito numbers are reduced in light traps to below the 25 female mosquitoes/trap/night level. Incidence of mosquito-borne disease in humans discontinued. Materials are applied at all target sites per label directions.

IV. Precautions for Sensitive Areas: Do not apply aerosols when wind speeds are in excess of 5 miles per hour. Refer to a local list of pesticide sensitive individuals before applying ULV aerosols.

V. Prohibited Practices: Do not apply pesticides in areas where honey bees can be harmed. Do not apply larvicide to sites if heavy precipitation is likely to wash away the insecticides.

VI. Environmental Concerns: Do not damage or eliminate wetland ecosystems. For determining locations of wetland ecosystems refer to the Integrated Natural Resources Management Plan and consult the Training Site Environmental Officer or the State Natural Resources Manager.

VII. Remarks: Emphasis for mosquito control is placed on habitat reduction and the use of repellents. Chemical control is directed primarily at mosquito larvae. If a mosquito-borne disease (e.g., encephalitis) is detected in the area (found in the mosquito population or reported human cases) coordination for surveillance and control is made with the USACHPPM-North, Entomological Sciences Division, ATTN: MCHB-AN-ES, Fort Meade, Maryland 20755-5225, telephone number DSA: 923-6205 or commercial number: (301) 677-6205, and other federal (i.e. Centers for Disease Control and Prevention), state, or local health agencies.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 7

PEST: Wasps, Yellow jackets, and Hornets.

SITE: Utility structures, occupied buildings, surrounding areas, and other public use areas.

I. Purpose: To control these medically significant insects which can cause painful stings and possible allergic reactions in hypersensitive individuals.

II. Surveillance.

A. Conducted by: Primarily building occupants or maintenance personnel by visual observation. Facility management personnel or pest management technicians (in-house or contract) in response to service requests where professional assistance is needed (typically when the nests are difficult to reach or find). Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested following self-help failure or when nests are difficult to find or reach. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Screening windows and doors and caulking gaps or crevices in exterior structural materials to prevent access. Physical removal of mud dauber nests with forced water. Above grade paper nests removed after chemical treatment or vacuuming. Vacuums may be used to remove wasps from nests or yellow jackets as they fly in or out of structures.

b. Conducted by: Building occupant or facility operations personnel perform building maintenance work.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Yellow jackets and hornets are attracted to meat, sweets, and other possible trash items; therefore sanitation practices such as sealing refuse in plastic bags and using tight fitting lids on refuse receptacles is implemented. Flowering plants, such as hollies or *Euonymus* species shrubs, which attract wasps, are not planted close to frequented sidewalks, outdoor benches and picnic tables, or building entrances.

b. Conducted by: Sanitation practices are performed by building occupants and vegetation selection and planting is performed by facility operations personnel or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Target pests found in utility structures, buildings, or around buildings or other human use areas and they present a health risk or interfere with mission accomplishment.

2. Method and Location: Hand-held aerosol applied directly to insects and nests. Nests are treated in very early morning or evening when most of the insects are at the nest site and during cooler temperatures when the insects are less active.

3. Conducted by Pest management technicians.
4. Pesticide. Aerosol wasp and hornet killer product.
5. Control Standard: Target pests are killed following treatment and control maintained for 7 days.

C. Chemical.

1. Basis for Treatment: Target pests found in utility structures, buildings, or around buildings or other human use areas and they present a health risk or interfere with mission accomplishment.

2. Method and Location: Use of a hand pressurized sprayer to apply insecticide to nest sites or directly to the insects. Nests are treated in very early morning or evening when most of the insects are at the nest site and during cooler temperatures when the insects are less active.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: Target pests are killed following treatment and control maintained for 7 days. Exposed wasp and hornet nests are removed.

IV. Precautions for Sensitive Areas: Do not apply insecticide diluted with water into electrical wire areas. Extreme caution is used around electrical lines when using metal ladders and aerosol extension poles.

V. Prohibited Practices: None.

VI. Environmental Concerns: Treat areas carefully to prevent loss of any desirable honey bees.

VII. Remarks: Exposed nests of wasps and hornets are removed and disposed of away from the treatment site after the live wasps are killed. Relocate shrubs which are planted close to sidewalks, building entrances, and other public use areas. Entrance holes of yellow jacket nests in the ground are covered with soil immediately after treatment. The use of vacuums is a method of wasp and yellow jacket control which will help achieve Measure of Merit 2 goals.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 8

PEST: Bees (Honey bees and Bumble bees).

SITE: Utility structures, occupied buildings, surrounding areas, and other public use areas.

I. Purpose: To control these medically significant insects which can cause painful stings and possible allergic reactions in hypersensitive individuals.

II. Surveillance.

A. Conducted by: Primarily building occupants or maintenance personnel by visual observation. Facility management personnel or pest management technicians (in-house or contract) in response to service requests where professional assistance is needed (typically when the nests are difficult to reach or find). Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Screening windows and doors and caulking gaps or crevices in exterior structural materials to prevent bee access. Physical removal of hives and swarms. Hive material (i.e. wax, honey, and dead bees) in walls are removed from treated sites. Honey bee excluder use is encouraged for use by beekeepers when removing colonies for within walls.

b. Conducted by: Maintenance is performed by building occupants or facility operations personnel. Hive and swarm removal is performed by local beekeepers whenever possible.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Bees are attracted to sweets, and other possible trash items; therefore sanitation practices such as sealing refuse in plastic bags and using tight fitting lids on refuse receptacles is implemented. Flowering plants, such as hollies, *Euonymus* species shrubs, and other ornamental plants which attract bees, are not planted close to frequented sidewalks, outdoor benches and picnic tables, or building entrances.

b. Conducted by: Sanitation practices are performed by building occupants and vegetation selection and planting is performed by facility operations personnel or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Target pests found in utility structures, buildings, or around buildings or other human use areas and they present a health risk or interfere with mission accomplishment.

2. Method and Location: Use of a hand pressurized sprayer to apply insecticide to colony sites or directly to the insects. Colonies are treated in very early morning or evening when most of the insects are at the nest site and during cooler temperatures when the insects are less active.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: Target pests are killed following treatment and control maintained for 30 days. All honey bee colony material is removed.

IV. Precautions for Sensitive Areas: Do not apply insecticide diluted with water into electrical wire areas. Extreme caution is used around electrical lines when using metal ladders and metal spray equipment.

V. Prohibited Practices: None.

VI. Environmental Concerns: Treat areas carefully to prevent loss of any desirable honey bees.

VII. Remarks: Beekeepers are called when swarms of bees are found in order to preserve the queen and her workers and removal of live honey bees from within walls is encouraged. Chemical use is the last resort for control. Bee access sites into structures are sealed. Flowering ornamental plants which are planted close to sidewalks, building entrances, and other public use areas are relocated if bees there are a problem. Entrance holes of bumble bee nests in the ground are covered with soil immediately after treatment.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 9

PEST: Ticks.

SITE: Outdoor areas.

I. Purpose: To reduce the possibility of tick bites which are irritating and may transmit a tick-borne disease such as Lyme disease, Rocky Mountain spotted fever, or Human ehrlichiosis.

II. Surveillance.

A. Conducted by: Individuals who work or train in tick habitats or pest management technicians.

B. Methods: Self or partner examination by individuals. Pest management technicians may use tick drags on rare occasions and specific training sites which get frequent use.

C. Frequency: Personal examination is performed twice daily while in tick habitats and again after returning from tick habitats. Rarely, in high-use areas such as outdoor class training and bivouac sites and other recreational sites, surveys may be performed upon request by site users.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Proper wearing of clothing outdoors helps prevent ticks from readily gaining access to the skin. Long pants should be worn and tucked into boot tops or socks. Whenever possible, use duct or similar tape to tape around the top of socks where they meet pants or blouse pants. Bivouac areas are raked clean of litter and tall grasses are cut short within a two meter perimeter from tents and other inhabited areas. Whenever possible, grassy areas along the edge areas at ranges will be mowed as directed by Natural Resource staff or Facilities maintenance administrators.

b. Conducted by: Site users, particularly soldiers in the field.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: When a site has a high population of ticks present, an alternate site should be selected for activities whenever possible. Use of controlled fires prior to site use can be useful to provide season long tick control.

b. Conducted by: Site users can select alternate sites. Facility operations personnel may elect to conduct control fires.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts. Use of repellents are highly emphasized to help protect soldiers and installation staff from tick-borne diseases and reduce the use of residual insecticide applications in the environment.

1. Basis for Treatment: Site user is or plans to go into potential tick habitat from early spring through the fall.

2. Method and Location: Deet repellent applied to the skin. See remarks below.

3. Conducted by: Individuals to be protected.

4. Pesticide. DEET Repellent

5. Control Standard: No tick attachment to the skin (no bites).

C. Chemical.

1. Basis for Treatment: Site user is or plans to go into potential tick habitat from early spring through the fall.

2. Method and Location: Repellent is applied to the exterior of outer clothing only (not undergarments). See remarks below. Do NOT apply to the skin.

3. Conducted by: Individuals to be protected.

4. Pesticide. Permethrin repellent

5. Control Standard: No tick attachment to the skin (no bites).

D. Chemical.

1. Basis for Treatment: Ticks infesting an outdoor site interfere with activities or the mission. With proper wearing of the uniform and repellent use area treatment is very rare.

2. Method and Location: Power sprayer - pesticide applied to surface of the ground and to low-growing vegetation where ticks may be present.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: No live ticks observed in the treated area for 30 days following treatment.

IV. Precautions for Sensitive Areas: The treatment site must be vacant during treatment and until the applied insecticide has dried.

V. Prohibited Practices: None.

VI. Environmental Concerns: Use of a residual insecticide for area control of ticks should be the last alternative selected for control since the pesticide kills other arthropods as well as ticks. Even if the pesticide is labeled for outdoor sites, alternative locations should be selected and/or repellents used in lieu of chemical application to the ground.

VII. Remarks: The main emphasis for tick control is proper wearing of the uniform and use of repellents. For additional information on personal protective techniques against ticks (and other arthropods) see Technical Guide No. 36, "Personal Protective Techniques Against Insects and Other Arthropods of Military Significance", which is available from the Defense Pest Management Information Analysis Center (DPMIAC), AFPMB, DSN 295-7479 or commercial (301) 295-7479.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 10

PEST: Fleas.

SITE: Buildings.

I. Purpose: To control fleas in buildings which are biting humans. Severe itching and secondary skin infections can result from flea bites.

II. Surveillance.

A. Conducted by: Primarily building occupants by visual observation of fleas or flea bites on pets or occupants. Facility management personnel or pest management technicians (in-house or contract) where professional assistance is needed. Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observation. Flea traps (commercially available or made following guidance in TB Medical 561, Chapter 7). Surveys include looking for possible hosts such as stray cats or wild animals in the area and conducting live trapping when necessary to remove these flea hosts.

C. Frequency: Visual observations are conducted by building area occupants during work operations. Pest management technicians perform surveys when services are requested. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Vacuuming carpets and upholstered furniture will help to control fleas - be sure to empty the cleaner bag immediately after vacuuming since the fleas which have been removed are usually not killed. Host animals are removed and excluded from buildings. Access doors and vents to building crawl areas will be maintained in good repair to prevent flea host (i.e. cats, skunks, etc.) entry to under structures.

b. Conducted by: Building occupants or janitorial services are responsible for vacuuming. Facility maintenance personnel are responsible for all structural maintenance and repairs.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Stray dogs and cats will not be encouraged to be in the area by deliberate feeding or by poor sanitation. Refuse receptacles have tight-fitting lids which prevent potential fleas hosts access to food.

b. Conducted by: Building occupants and refuse collection personnel.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: A flea infestation is known to occur.

2. Method and Location: Hand sprayer is used indoors and a powered sprayer may be used outdoors and to treat crawl spaces under buildings.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: No live fleas 5 days following treatment for a period of 30 days.

C. Chemical.

1. Basis for Treatment: A flea infestation is known to occur.

2. Method and Location: This aerosol application is used to treat indoors to only carpets and cloth upholstered areas.

3. Conducted by: Pest management technicians.

4. Pesticide. IGR Aerosol

5. Control Standard: Use with the residual insecticide application. No live fleas 5 days following treatment and continued control for 90 days. This product is a growth regulator and, as such, will prevent flea larvae from developing into pupae. This product will not, however, kill fleas which were in the pupal stage at the time of application. For this reason, the IGR is used in conjunction with the residual insecticide product mentioned above.

IV. Precautions for Sensitive Areas: Do not contaminate food, feed, food preparation surfaces, or utensils.

V. Prohibited Practices: Do not permit unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: Do not apply pesticides directly to water or when runoff is likely.

VII. Remarks: Fleas can be a problem in buildings which have feral cats or other wild animals such as skunks or raccoons living under them. Adult fleas may enter the first floors of the buildings through small cracks or other openings and subsequently bite people working inside. For this reason host removal and exclusion must also be performed.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 11

PEST: Spiders.

SITE: Buildings and other structures.

I. Purpose: Eliminate poisonous spiders (black widow and brown recluse spiders) and nonpoisonous spiders from buildings or other work places.

II. Surveillance.

A. Conducted by: Primarily building occupants by visual observation. Facility management personnel or pest management technicians (in-house or contract) in rare situations where professional assistance is needed (black widow or brown recluse spiders present). Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations - spiders are frequently found in dry, cool, usually undisturbed places inside buildings; in carports, utility sheds and other outdoor storage areas; and under buildings. Use of sticky traps enhances surveys for brown recluse spiders.

C. Frequency: Visual observations are conducted by building occupants during normal work operations. Pest management technicians perform surveys when services are requested following self-help failure or when black widow or brown recluse spiders are suspected. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Spiders and their webs can be eliminated by using a broom or vacuum cleaner in most cases. Maintenance of screens and weather-stripping around doors and windows will keep out small insects which the spiders use for food. Exclude spiders by caulking cracks and crevices in building exteriors, maintaining tight fitting doors, and use tight fitting window screens. Control individual spiders outdoors by washing away webs with a hose. Sticky traps can be placed next to doorjamb to intercept incoming spiders (if it is suspected they are coming into the building from outside). The traps can also be used to determine if additional control efforts are needed, depending on the number and species of spiders caught.

b. Conducted by: Building occupants and possible janitorial services perform cleaning in most facilities. Maintenance personnel install, repair, or replace weather-stripping and screens.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Spiders can be discouraged through good housekeeping, both inside and outside. Keep boxes, old equipment, and other items neatly stored on shelves, particularly in garages and basements; clean up and dispose of trash, debris, old equipment, etc.

b. Conducted by: Building occupants.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Spiders present in or around building or structure.

2. Method and Location: Indoor contact treatment with aerosol insecticide. The aerosol spray works effectively to control spiders as a space spray in small area voids such as under large appliances and cabinets where it is difficult to perform physical control. Spray is also directed into cracks and crevices in areas such as along baseboards, door thresholds, and other sites where spiders are seen.

3. Conducted by: Pest management technician.

4. Pesticide. Pyrethrin aerosol

5. Control Standard: Spiders are killed within 0.5 hours upon contact. No live spiders observed for 24 hours.

C. Chemical.

1. Basis for Treatment: Spiders present in or around building or structure. Application of this pesticide by the pest management technicians should not be done unless the occupants have failed to achieve control after trying self-help or the spiders are a medically significant pest.

2. Method and Location: Treat undisturbed areas in and around structures where spiders are found. Treatment may be required in attics, crawl spaces, eaves, window ledges, porch roofs, door facings, baseboards, storage places, TOE rooms, warehouses, out-buildings, and latrines.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: Control is achieved within 24 hours after treatment and for a period of 30 days.

IV. Precautions for Sensitive Areas: Do not apply pesticides on food, utensils, or food preparation surfaces.

V. Prohibited Practices: Do not let unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: Suspected brown recluse spiders can be sent to: USACHPPM-North, Entomological Sciences Division, ATTN: MCHB-AN-ES, Fort Meade, Maryland 20755-5225 for identification.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 12

PEST: Lice (Head and Pubic).

SITE: Building areas occupied by personnel with louse infestations.

I. Purpose: To control lice on individuals, clothing, bedding or other surfaces.

II. Surveillance.

A. Conducted by: Infested individuals or medical personnel.

B. Methods: Visual observation.

C. Frequency: As necessary.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Nit combs can be used to help remove lice and eggs.

b. Conducted by: Infested individuals.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Wash all potentially infested clothing in hot water and dry clothing on the hottest setting for 20 minutes. Pillows should be placed in a dryer at the hottest setting for 20 minutes. Non-washable clothes should be dry-cleaned. Non-washable items should be put in a sealed plastic bag for 2 weeks. Thoroughly clean toilets and floors in latrines. Clean combs and brushes by soaking them overnight in the lice treatment. Vacuum carpets, mattresses, and upholstered furniture thoroughly.

b. Conducted by: Infested personnel or other building occupants.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Physician documented presence of lice.

2. Method and Location: Chemical (insecticide) applications will be applied only to individuals. Follow physician recommendations for personal treatment.

3. Conducted by: Infested personnel.

4. Pesticide. Physician prescription

5. Control Standard: Total elimination of lice on body.

IV. Precautions for Sensitive Areas: None.

V. Prohibited Practices: None.

VI. Environmental Concerns: None.

VII. Remarks:

a. Personnel with louse infestations should first be directed to the local medical treatment facility. Treatment of the individual is a medical problem. Consult a physician about whether to repeat any treatments or what other steps to take if live lice or new nits are found at least 7 days after the initial treatment.

b. Head and pubic lice rarely leave the body or clothing of the infested individual. Laundering clothing and bedding should be done before any pesticide application is considered.

c. Lindane powder (1% dust) packages in small green tins (NSN: 6840-00-242-4217) are no longer authorized for use and must be turned in as hazardous waste.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 13

PEST: Household Ants (i.e. Odorous house ants, pharaoh ants, and pavement ants).

SITE: In buildings.

I. Purpose: To eliminate ants within buildings.

II. Surveillance.

A. Conducted by: Primarily building occupants by visual observation. Facility management personnel or pest management technicians (in-house or contract) in rare situations where professional assistance is needed (typically heavy infestations). Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations.

C. Frequency: Visual observations are conducted by building occupants during normal work operations. Pest management technicians perform surveys when services are requested following self-help failure. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Ant harborage is eliminated by caulking minor cracks, crevices, and holes in walls, especially in food storage, consumption, and preparation areas.

b. Conducted by: Building occupants apply caulking materials. Assistance to caulk is occasionally performed by maintenance personnel or management technicians.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Areas where food is stored, prepared, and consumed is kept clean and spilled food items are cleaned up immediately. Stored food products are kept in containers with tight fitting lids. Empty food container waste is removed from buildings daily were ants have been observed.

b. Conducted by: Building occupants. Janitorial services (in-house or contract remove trash from offices, etc.).

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Ants observed in buildings.

2. Method and Location: Use of ant bait stations is the major chemical control method used. Baits are placed in cabinets, along baseboards or runways used by ants or in other areas where ants have been observed.

3. Conducted by: Pest management technician.

4. Pesticide. Ant bait stations or bait gels

5. Control Standard: No live ants observed 4 days after treatment began and for a period of 5 weeks following the treatment start date.

C. Chemical.

1. Basis for Treatment: Presence of or potential for ants.

2. Method and Location: Place dust directly into cracks, crevices, voids in typical ant harborage sites (e.g., under cabinets, appliances, and sinks, into voids where plumbing penetrates walls, and behind metal corner protectors, etc.) and at ant trails. If pharaoh ants are observed or known to be a problem, remove the cover plate of electrical outlets and dust the electrical boxes.

3. Conducted by: Pest management technicians.

4. Pesticide. Boric acid dust

5. Control Standard: No live ants observed 7 days after treatment began and for a period of 9 weeks following the treatment start date.

D. Chemical.

1. Basis for Treatment: Ants found indoors in an area where control is required immediately. This chemical will be rarely used because sprays only reduce ant worker populations and do not provide the long term control given by using baits and boric acid.

2. Method and Location: Indoor contact treatment with aerosol insecticide.

3. Conducted by: Pest management personnel may perform chemical control only in very rare situations.

4. Pesticide. Pyrethrin aerosol

5. Control Standard: Ants are killed on contact. Less than 4 live ants observed for 1 day following treatment.

IV. Precautions for Sensitive Areas: None.

V. Prohibited Practices: Do not apply aerosol spray to food, utensils, and food preparation surfaces. Keep residual insecticides off of ant bait stations so ants are not repelled from the bait.

VI. Environmental Concerns: None.

VII. Remarks: Ants are normally a minor problem. Baits which provide colony control are the primary method of chemical control. Boric acid dust will control existing ant populations and provide a residual for long term control. **The use of aerosol should be minimized and the use of residual sprays should be avoided because these type of treatments often cause ant infestations to spread.**

INTEGRATED PEST MANAGEMENT OUTLINE NO. 14

PEST: Crickets.

SITE: Buildings.

I. Purpose: To reduce cricket populations at structures.

II. Surveillance.

A. Conducted by: Primarily building occupants by visual observation. Facility management personnel or pest management technicians (in-house or contract) in rare situations where professional assistance is needed (typically heavy infestations). Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations. Sticky traps may be used when performing quality assurance of control operations.

C. Frequency: Visual observations are conducted by building area occupants during work operations. Pest management technicians perform surveys when services are requested following self-help failure. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Sticky traps are placed along baseboards in areas where crickets are seen or heard. This method is used to help control minor cricket infestations. When large infestations occur, pest management technicians (in-house or contracted) are used. To prevent infestations indoors, crickets are excluded from buildings with tight-fitting doors and window screens. Yellow light bulbs are used for night lights at building entrances to reduce the effect of lights attracting these insects. Installation of high pressure sodium street lights, which attract insects much less than the typical mercury vapor lights, is encouraged.

b. Conducted by: Building occupants use sticky traps and may perform minor window screen and weatherstripping maintenance. Maintenance personnel perform structural repairs including screening, weatherstripping, and street light installation.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Sanitation is practiced to reduce harborage. Crickets often hide in areas which are cluttered with trash, old boxes, and other debris; cleanup of these types of items may help to reduce cricket infestations. Weeds and grasses are cut or removed around building perimeters. Reduce harborage and excessive moisture by pruning branches of deciduous and broad-leafed evergreen shrubs to create a minimum 6 inch space above the ground.

b. Conducted by: Building occupants conduct indoor sanitation practices and grounds maintenance personnel perform vegetation control.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: To control small populations of crickets found indoors. This chemical provides short term control with very little residual effect.

2. Method and Location: Indoor contact treatment with aerosol insecticide. The aerosol spray works effectively to control crickets as a space spray in small area voids where it is difficult to perform physical control and place sticky traps.

3. Conducted by Pest management personnel may perform chemical control only where infestations are severe or self-help efforts have failed.

4. Pesticide. Pyrethrin aerosol

5. Control Standard: Crickets are killed in one hour or less. Cricket problem resolved for at least 24 hours following treatment.

C. Chemical.

1. Basis for Treatment: Presence of or potential for crickets.

2. Method and Location: Place dust directly into cracks, crevices, and voids in typical cricket harborage sites indoors (e.g., under cabinets, appliances, and sinks, and into voids where plumbing penetrates walls, etc.).

3. Conducted by: Pest management technicians.

4. Pesticide. Boric acid dust

5. Control Standard: No live crickets found indoors for 30 days which begins 7 days after the initial treatment. When sanitation and harborage present problems in a facility, a reduction in the number of crickets in sticky traps may indicate the effectiveness or limitation of chemical control efforts.

D. Chemical.

1. Basis for Treatment: Crickets seen or heard in buildings and infestations are severe or self-help efforts have failed.

2. Method and Location: Hand or powered sprayer is used to apply residual insecticide to foundations outside buildings, at pest entry points, baseboards, and voids inside buildings where crickets may hide.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: No live crickets 24 hours after treatment and for a period of 60 days outdoors and 30 days indoors.

IV. Precautions for Sensitive Areas: Do not contaminate food, utensils, food preparation surfaces, or food containers.

V. Prohibited Practices: Do not permit unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: Exclusion, harborage reduction, and light control are the primary methods to control crickets indoors.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 15

PEST: Earwigs and other crawling arthropods not specifically addressed in other outlines.

SITE: Buildings.

I. Purpose: To control nuisance crawling insects in structures.

II. Surveillance.

A. Conducted by: Primarily building occupants by visual observation. Facility management personnel or pest management technicians (in-house or contract) in rare situations where professional assistance is needed (typically heavy infestations). Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations. Sticky traps may be used when performing quality assurance of control operations.

C. Frequency: Visual observations are conducted by building area occupants during work operations. Pest management technicians perform surveys when services are requested following self-help failure. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: To prevent infestations indoors, earwigs and other crawling arthropods are excluded from buildings with tight-fitting doors and window screens. Unnecessary plant debris, mulches, and rocks are removed away from building perimeters. Excess moisture sources around building exteriors (i.e. leaking faucets or improperly installed downspouts or splash guards) are eliminated.

b. Conducted by: Building occupants or maintenance personnel.

2. Type: Biological. None

3. Type: Cultural. None

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Earwigs or other crawling arthropods found within buildings.

2. Method and Location: Indoor contact treatment with aerosol insecticide. The aerosol spray works effectively to control earwigs and other crawling arthropods as a space spray in small area voids such as under large appliances and cabinets where it is difficult to perform physical control. Spray is also directed along baseboards, door thresholds, and other sites where earwigs or other crawling arthropods frequent.

3. Conducted by: Pest management technicians.

4. Pesticide. Pyrethrin aerosol

5. Control Standard: Earwigs and other crawling arthropods are killed within 0.5 hours upon contact. No live crawling arthropods targeted for control observed for 24 hours.

C. Chemical.

1. Basis for Treatment: Crawling insects seen in the quarters and other self-help control efforts have failed.

2. Method and Location: Hand or powered sprayer used to apply pesticide to foundations and other areas where the target pest tend to enter buildings.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: No live earwigs or other crawling arthropods 24 hours after treatment and for a period of 30 days.

IV. Precautions for Sensitive Areas: Do not contaminate food, utensils, food preparation surfaces, or food containers.

V. Prohibited Practices: Do not permit unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: Exclusion, harborage reduction, and moisture control are the primary methods to control earwigs and many other crawling arthropods.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 16

PEST: Termites.

SITE: Buildings and other structural elements.

I. Purpose: To prevent termites from damaging cellulose containing materials such as structural lumber, stored pallets, and cardboard boxes.

II. Surveillance.

A. Conducted by: Incidental surveys are conducted by building occupants who may discover termite damage or termite swarms at the work site. Certified pest management technicians (in-house or contracted) are the primary surveys for termites. Certified pest management QAEs perform 100% inspection of all contracted termite control operations.

B. Methods: Visual observation for termites, termite tubes, termite damage, or conditions that could favor termite infestations. Inspections performed by pest management technicians are recorded on floor plans drawn to scale which indicate the locations of infestations, damage, and favorable conditions for termite infestations.

C. Frequency: Termite inspections are conducted annually at all buildings constructed with cellulose containing materials (i.e. wood). These inspections may be performed as specific termite inspections or performed in conjunction with services for other pests. Additional inspections are performed when termite damage or swarms are reported and prior to major construction rehabilitation projects which involve new additions or floor work at grade level. Pest management QAEs perform surveys also as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Moisture sources that encourage termite colonies are eliminated. Examples include leaking pipes under buildings, dripping faucets, and incorrect drainage away from buildings. Crawl spaces are well ventilated. Infested material is repaired or replaced. Vegetation next to foundations which impairs inspection for termite tubes is discouraged and cut or removed. Termite shields are used during building construction. Termite tubes are removed when discovered. Waste lumber is removed from construction sites prior to final grading. Tree and large shrub stumps located near buildings are removed so not to attract termites. Soil at grade level is removed when found within 4 inches of wooden structural elements to eliminate earth to wood contact. Expansion joints in concrete floors and around plumbing which penetrates slabs are sealed with an elastomeric sealant.

b. Conducted by: Building occupants, facility operations, or contractors perform mechanical and physical controls.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Lumber, pallets, and other cellulose containing materials are not stored directly on the ground or against siding.

b. Conducted by: Building occupants, maintenance personnel, or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: All new construction projects for buildings receive preconstruction treatment in the soil. Structures not previously treated which are receiving rehabilitation work that includes additions or new floor work will be treated. All active termite infestations in structures are treated.

2. Method and Location: New construction sites are treated by broadcasting and trenching the insecticide per label directions. Injection and horizontal rodding is used only with post-construction treatment. Barrier treatment along foundations, around support beams, and along piers are trenched and not rodded to provide a more even distribution of insecticide.

3. Conducted by: Pest management technicians (in-house or contracted).

4. Pesticide: Soil residual or bait placement termiticide

5. Control Standard: No subsequent termite infestations or damage from treated structures for five years after application. Structural modifications made such as drilling holes, cutting tiles or linoleum, and installing bath trap access panels are repaired or replaced to match existing adjacent surfaces in quality and finish. All debris, including dust, caused by drilling or other work is removed from the treatment site.

IV. Precautions for Sensitive Areas: Avoid getting pesticide in areas where water can become contaminated, and in air ducts of buildings. Do not allow unauthorized personnel in the treatment area during termiticide application until the termiticide has dried and vapor odors have subsided.

V. Prohibited Practices: Do not treat soils too wet to accept the termiticide.

VI. Environmental Concerns: None.

VII. Remarks:

a. Records of inspections and treatment will be kept indefinitely.

b. Coordination is made with the Corps of Engineers and Facility Operations to ensure that all specifications for new construction and rehabilitation projects involve proper termite protection materials and techniques and quality assurance will be performed on all contracted termite control projects.

c. All treatment operations involve placing a termite treatment notification sign which legibly states the termiticide used, treatment date, and applicator's name (and company name for contractors) in the interior of the circuit breaker box.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 17

PEST: Carpenter Ants.

SITE: Buildings with wood elements of construction.

I. Purpose: To mitigate destruction of wooden structural elements.

II. Surveillance.

A. Conducted by: Primarily responsibility is with building occupants by visual observation. They report infestations to Facility Operations personnel or pest management technicians, who conduct a survey in response to service requests. Pest management QAEs perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observation.

C. Frequency: Visual observations are conducted by building occupants during work operations. Surveys are done by professional pest management technicians in conjunction with termite inspections or as necessary following complaints. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Severely damaged wood is replaced. Carpenter ants usually live in damp wood which is soft; therefore, moisture sources, including condensation and leaks are reduced. Vegetation against siding and roofs are trimmed. Sealants such as caulking are used to minimize access into buildings. Gutters are cleaned and pitched for proper drainage. Soffets are sealed and roofing materials are in good repair.

b. Conducted by: Maintenance personnel.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Do not place firewood or other wood against the outside of the building - this can: 1) bring wood infested with carpenter ants into proximity to the building, 2) provide an attractant to carpenter ants, and 3) hold moisture next to the building. Do not allow lawn sprinklers to constantly hit wooden portions of the building or allow water to puddle next to building foundations.

b. Conducted by: Building occupants.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Presence of carpenter ants in buildings.

2. Method and Location: Dust or bait formulations applied to trails, cracks and crevices where ants are observed, and into voids where nests are located.

3. Conducted by: Pest management technicians.

4. Pesticide. Insecticide dust or bait product

5. Control Standard: No live ants observed 2 days after treatment began and for a period of 5 weeks following the treatment start date.

C. Chemical.

1. Basis for Treatment: Carpenter ants observed in buildings.

2. Method and Location: A 2-gallon sprayer is normally used. The pesticide is applied to foundations and around the exterior of entrance doors and windows.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: No live ants observed 2 days after treatment began and for a period of 5 weeks following the treatment start date.

IV. Precautions for Sensitive Areas: Do not contaminate food, utensils, food containers, food preparation areas, or water.

V. Prohibited Practices: Do not let unauthorized personnel in treatment areas until applied materials have dried and vapor odors have subsided.

VI. Environmental Concerns: None.

VII. Remarks: Carpenter ants are normally a rare problem.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 18

PEST: Bagworms.

SITE: Primarily juniper, cedar, and arborvitae trees and shrubs.

I. Purpose: To prevent bagworms from killing landscaped trees and shrubs associated with buildings and found in other cantonment areas.

II. Surveillance.

A. Conducted by: Primarily building occupants or maintenance personnel by visual observation during work. Facility management personnel or pest management technicians (in-house or contract) in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observation for damage or bags.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested or during specific surveys for bagworms conducted in June or July. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Remove bags from trees and shrubs. This method works when the bags are easy to reach; however, for bags higher in trees or when the bags are numerous, alternate control methods are employed.

b. Conducted by: Building occupants, grounds maintenance, or facility operations personnel.

2. Type: Biological.

a. Method and Location: Apply *Bacillus thuringiensis* (Bt) in accordance with label directions.

b. Conducted by: Pest management technicians.

3. Type: Cultural.

a. Method and Location: Plant species selection to minimize the number of host plants subject to infestation.

b. Conducted by: Facility operations personnel, Corps of Engineers on new construction, and the pest management coordinator.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Presence of caterpillars in trees - Bt and hand removal have failed to correct the problem.

2. Method and Location: Apply pesticide with a hand or power sprayer to affected trees or shrubs when the bags are small.

3. Conducted by: Pest management technicians.

4. Pesticide. Residual insecticide product

5. Control Standard: No live larvae 5 days following treatment and extending for a period of 2 months. (Only one generation of bagworms occur per year.)

IV. Precautions for Sensitive Areas: Apply insecticides carefully to avoid killing desirable insects. Notify building occupants prior to conducting spray operations if they are near the treatment area.

V. Prohibited Practices: Do not allow drift onto vehicles.

VI. Environmental Concerns: Do not apply insecticides with powered sprayers when wind speed is greater than 8 mph, during precipitation, or if rainfall is expected within 8 hours.

VII. Remarks: Bt should be applied to all leaf surfaces of the trees. Heavy rains following treatment may necessitate retreatment.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 19

PEST: Gypsy moth larvae.

SITE: Hardwood trees.

1. Purpose: To prevent damage to hardwood trees.
2. Surveillance.
 - a. Conducted by: Forest service.
 - b. Methods: Visual observation for egg masses and/or larvae. Pheromone traps can be used to survey for adult males.
 - c. Frequency: As required (April - September).
3. Pest Management Techniques.
 - a. Nonchemical.
 - (1) Type: Mechanical and Physical.
 - (a) Method and Location: Egg masses are removed from trees and guard tape is used.
 - (b) Conducted by: Facility personnel.
 - (2) Type: Biological.
 - (a) Method and Location: Apply *Bacillus thuringiensis* (Bt) in accordance with label directions.
 - (b) Conducted by: Forest service and facility personnel.
 - (3) Type: Cultural. None
 - b. Chemical.
 - (1) Basis for Treatment: Number of egg masses per acre exceeds the local maximum established by the Forest service.
 - (2) Method and Location: Aerial application.
 - (3) Conducted by: Contracted pest controllers, pilots, and Forest service personnel.
 - (4) Pesticide: *Bacillus thuringiensis* (B.t.).
 - (5) Control Standard: No larvae observed for 30 days after treatment.
4. Precautions for Sensitive Areas: See pesticide label for precautions. Do not apply over exposed personnel.
5. Prohibited Practices: See paragraph 7.
6. Environmental Concerns: See paragraph 7.

7. Remarks: Coordinate with state, county, and federal officials. Prepare environmental assessment. Conduct program IAW ARs 200-2, 40-574, and 420-76.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 20

PEST: Mice and Rats.

SITE: All buildings.

I. Purpose: To reduce the possibility of structural damage or contamination caused by mice or rats.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel occasionally may conduct surveys by visual observation during work. Facility management personnel or pest management technicians (in-house or contract) conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations for mice or rats, mouse or rat damage, or droppings. Surveys may include the use of rodent glue boards placed along perimeter walls.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested, during the performance of other pest control services (i.e. cockroach control in food handling buildings), or during specific surveys for mice. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Openings greater than 1/4 inch at building exteriors are eliminated. Particular attention should be given to loading doors since they do not always close tightly. Windows and vents are tightly screened to prevent rodent entry. Snap traps and sticky glue boards may be used to capture mice or rats when an infestation is found. The suggested snap trap bait is peanut butter. Traps and glue boards will be checked daily.

b. Conducted by: Maintenance personnel perform building modifications such as weather stripping, door repair, etc. Building occupants may set snap traps or place glue boards for minor infestations. Pest management technicians set traps and glue boards when extensive trapping is required.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Good sanitation is practiced to reduce food sources especially in food handling facilities and break rooms. Spilled food products are cleaned up immediately or daily at the latest. Waste receptacles are heavy plastic or metal with tight fitting lids. Water leaks and unnecessary standing water in and around buildings are eliminated promptly. Potential harborage is kept at a minimum. Excess bags, empty boxes, and other potential harborage is removed from food storage areas. Food items are stored on shelving which is at least 24 inches from walls and 12 inches above floors or on shelves with rollers to permit routine cleaning, inspection, and rodent control. Vegetation around food handling buildings is kept cut at least 6 inches away from building perimeters.

b. Conducted by: Sanitation is performed by building occupants and maintenance personnel. Plumbing repair or replacement is conducted by facility maintenance staff. Vegetation control around buildings is performed by building occupants or grounds maintenance personnel or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: A heavy infestation of mice or rats is present or use of traps, glue boards, and other controls have failed to provide control.

2. Method and Location:

3. Conducted by: Pest management technicians.

4. Pesticide. Rodenticide dry bait product

C. Chemical.

1. Basis for Treatment: A heavy infestation of mice or rats is present or use of traps, glue boards, and other controls have failed to provide control. This liquid rodenticide is best used where water sources are limited.

2. Method and Location:

3. Conducted by: Pest management technicians.

4. Pesticide. Rodenticide liquid bait product

5. Control Standard: Product damage from mice and rats has discontinued. If baiting is instituted following evidence of a large mouse or rat infestation, then reduction in the number of droppings should be seen in and around bait stations within the first 30 days following bait placement. If there is no evidence of mice or rats following 30 days of baiting, then the bait stations should be removed unless there is a past history of repeated infestations (i.e. 3-4 times per year). Bait stations are to be serviced at least monthly.

IV. Precautions for Sensitive Areas: None.

V. Prohibited Practices: Do not place rodenticides where the bait will be accessible to children or pets. Bait should be placed in tamper proof containers. Do not use rodenticides where there is a possibility of contaminating food or surfaces that come in direct contact with food.

VI. Environmental Concerns: Keep rodenticides out of lakes, streams, or ponds. Do not contaminate water by cleaning of equipment or disposal of wastes.

VII. Remarks:

a. Rodenticides are considered the last option in controlling mice and rats. Use of nonchemical methods will assist in achieving Measure of Merit 2 goals.

b. Rodenticides will be placed in lockable bait stations.

c. As long as entry points into buildings exist, then trapping or baiting may be the only alternatives for control.

d. The presence of spilled food products and/or poor housekeeping (e.g., pallets against walls, old boxes and equipment kept in the warehouse, etc.) will adversely impact any baiting or trapping program. Building occupant cooperation to store items off the floors and away from the walls is critical in achieving effective rodent control in food handling areas.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 21

PEST: Birds (Pigeons, Starlings, Swallows, and House Sparrows).

SITE: Warehouses, loading docks, and other buildings.

I. Purpose: To control birds which nest or roost in areas of buildings where they will damage or contaminate food products or other material.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel may occasionally conduct incidental surveys by visual observation at the work site. Facility management personnel or pest management technicians (in-house or contract) conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observation for birds, droppings, or nests.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested, during the performance of other pest control services (i.e. cockroach control in food handling buildings), or during specific surveys for birds. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the only methods normally used and pesticides are not used without NGB pest management consultant approval.

1. Type: Mechanical and Physical.

a. Method and Location:

(1) Habitat modifications which exclude birds from buildings is the primary pest management technique practiced. Proper design in construction is considered to minimize bird harborage or access to buildings. Exclusion devices include screens, netting, and high tension using stainless steel posts and spring-tensioned wires are the accepted methods of exclusion.

(2) Repellents are not used because they are not effective and at best, provide very short term control. Examples of repellents are tactile (chemical and use of porcupine wires), acoustical (ultra sound devices, auditory alarms or distress calls), and visual (i.e. flashing lights, owl decoys, rubber snakes, etc.)

(3) Trapping is the preferred method of for reducing pest bird populations at a specific site or area. Funnel traps work for capturing starlings and house sparrows. Bob-type traps are used when controlling pigeons. Advantages of trapping include: the number of birds removed is known, protected bird species are released unharmed, controlled birds stay at the control site; whereas poisoned or sickened birds may fly away, and time is not required to pick up dead birds if toxicants were used. Trapped target birds are humanly killed.

(4) Nest destruction in buildings is performed during the nesting season. This method is usually done in conjunction with other control methods.

(5) When permitted by local laws, shooting in and around structures with a pellet gun at night is an effective method used to control small populations. Because shooting may be hazardous and labor intensive it is rarely used. Night shooting is practiced because fewer people are typically in the control area and birds are found at roost sites.

b. Conducted by: Maintenance personnel perform exclusion work. Some exclusion work for specific sites may be contracted. Contractors perform exclusion work that is incorporated into new construction. Trapping, nest destruction, and shooting is performed by pest management technicians. Trapping operations are coordinated with local

health department officials in surrounding communities to initiate controls where pest birds are coming from locations outside the NJARNG responsibility.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Loading doors and unscreened windows or other openings should be kept closed when not in use. People should be discouraged from feeding birds, especially pigeons.

b. Conducted by: Building occupants.

B. Chemical. None

IV. Precautions for Sensitive Areas: Shooting activity is coordinated with local law enforcement officials.

V. Prohibited Practices: Inhumane treatment of captured birds.

VI. Environmental Concerns: Protected bird species are released unharmed from traps.

VII. Remarks: Ectoparasite control may be necessary where bird nesting occurred.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 22

PEST: Geese.

SITE: Yards, parks, parade fields, and beach areas of lakes and ponds.

1. Purpose: To discourage geese from grazing in areas where their droppings are considered unsightly or unsanitary.
2. Surveillance.
 - a. Conducted by: Pest Controller.
 - b. Methods: Visual observation of birds.
 - c. Frequency: Ongoing, particularly during migration season.
3. Pest Management Techniques.
 - a. Nonchemical.
 - (1) Type: Mechanical and Physical.
 - (a) Method and Location: Goose Grid (fencing). Goose Grid is a fine black plastic that is placed around the perimeter of the pond and is checker boarded across the surface of the pond. The geese from the air can see the pattern and identify it as some kind of trap and do not land. Since the grid is placed above the water, it should be used primarily in ponds that are not used for fishing or boating
 - (b) Conducted by: Public Works.
 - (2) Type: Biological. None
 - (3) Type: Cultural.
 - (a) Method and Location: Use dogs to harass the geese.
 - (b) Conducted by: Contractor.
 - b. Chemical.
 - (1) Basis for Treatment: Presence of birds after all nonchemical methods have been tried and failed to control the problem.
 - (2) Method and Location: Application to areas where unwanted birds graze.
 - (3) Conducted by: Contracted pest controller.
 - (4) Repellent. Common Name: Rejexit AG-36.
 - (5) EPA Registration Number: 58035-9
 - (6) Control Standard: Birds do not return for 14 days following treatment.
4. Precautions for Sensitive Areas: None.

5. Prohibited Practices: See label specifications.

6. Environmental Concerns: None.

7. Remarks: The active ingredient of Rejexit AG-36 is classified as a naturally occurring flavorant by the EPA and is included in the Generally Recognized as Safe list.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 23

PEST: Skunks.

SITE: All buildings and associated surroundings.

I. Purpose: To reduce odor problems, turf damage from burrowing and foraging, associated flea infestations, and the potential for rabies exposure.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel may occasionally conduct incidental surveys by visual observation at the work site. Facility management personnel or pest management technicians (in-house or contract) conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services. Local game law enforcement officials are contacted to evaluate problems where numerous skunks are involved at a specific site.

B. Methods: Odor detection and visual observation for live animals, burrows, tracks, and scat.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested or during the performance of other pest control services. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the only methods used and pesticides are not used to supplement control efforts.

1. Type: Mechanical and Physical.

a. Method and Location: Live traps (wire, barrel, or wood box traps) are used. Live traps are baited with fish, cat food, chicken parts, bacon, peanut butter on bread, mayonnaise, or fruit. Exclusion from buildings is also conducted by installing hardware cloth, skirting, or other materials around structures. Existing burrows are filled in during control operations. Care is taken to prevent sealing in young skunks from April through August. Live trapped striped skunks are not relocated because of the possibility of spreading rabies, unless the local game enforcement officer states that relocation must be performed. Killed striped skunks are humanely disposed of and carcasses are placed in plastic bags and buried. Community animal control officers or local game enforcement officers are contacted for assistance.

b. Conducted by: Building occupants or maintenance personnel perform exclusion work and filling in burrows. Some exclusion work for specific sites may be contracted. Trapping is performed by pest management technicians, local animal control officers, or local game enforcement officers.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Sanitation practices are used which includes removing trash that attracts skunks and using tight fitting lids on trash receptacles. Feeding of stray or wild animals around buildings is prohibited. Sources of shelter around buildings such as unnecessary brush piles, stacked lumber, wood piles, etc. are eliminated to discourage the presence of skunks.

b. Conducted by: Building occupants, maintenance, or contract personnel.

B. Chemical. None

IV. Precautions for Sensitive Areas: None.

V. Prohibited Practices: Attracting skunks by feeding of stray or wild animals around buildings is prohibited.

VI. Environmental Concerns: None.

VII. Remarks: Coordination is made with local game enforcement personnel who determine if the animals can be trapped, relocated, or humanly killed. All personnel who perform live trapping receive rabies prophylaxis. Heavy duty leather gloves are worn whenever handling live traps and skunks. Coordination with local health or animal control officials will be made to determine if rabies examinations of the skunks are necessary when skunks suspected of having rabies (acting sick, signs of aggression, very nervous activity, or salivation) are captured. All bites or scratches from skunks are reported to the local medical authority. All skunks which have caused bites or scratches are submitted to the state health department for rabies examination. Areas under buildings where skunks were removed are treated for fleas when fleas are observed or suspected.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 24

PEST: Opossums, raccoons, and tree squirrels.

SITE: All buildings and associated surroundings.

I. Purpose: To remove nuisance animals in or under buildings, reduce the possibility of structural damage, exposure to rabies, or occurrence of flea infestations.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel may occasionally conduct incidental surveys by visual observation at the work site. Natural Resource personnel, facility management personnel, pest management technicians (in-house or contract), local animal control officers, or game enforcement officers conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services. Local game law enforcement officers are contacted to evaluate problems when numerous animals are involved at a specific site or if there is a question about how to remove the animal.

B. Methods: Visual observation for live animals, tracks, structural damage, and scat.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Natural Resource personnel, pest management technicians, animal control officers, and game enforcement officers perform surveys when services are requested or during the performance of other services. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan. Assistance from local game enforcement or animal control officers is on an as needed basis.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the only methods used and pesticides are not used to supplement control efforts.

1. Type: Mechanical and Physical.

a. Method and Location: Live traps (wire, barrel, or wood box traps) are used. Live traps for opossums and raccoons are baited with fish, cat food, chicken parts, bacon, peanut butter on bread, mayonnaise, or fruit. Live traps for tree squirrels may be baited with peanut butter on bread or other nut products such as shelled pecans. Exclusion from buildings is also conducted by installing hardware cloth, sheet metal, or other materials around structures, chimneys, and vents. Community animal control officers or local game enforcement officers are contacted for assistance if necessary. All opossums, raccoons, and tree squirrels that are trapped will be relocated unless they caused a bite, scratch, or suspicious rabies symptom behavior occurs. See the remarks section of this outline.

b. Conducted by: Building occupants or maintenance personnel perform exclusion work. Some exclusion work for specific sites may rarely be contracted. Trapping may be performed by maintenance personnel, pest management technicians, local animal control officers, or local game enforcement officers.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Sanitation practices are used which includes removing trash that attracts opossums and raccoons and using tight fitting lids on trash receptacles. Deliberate feeding of stray or wild animals around buildings is prohibited. Sources of shelter around buildings such as unnecessary brush piles, stacked lumber, wood piles, etc. are eliminated to discourage the presence of opossums and raccoons. Tree branches which reach close to buildings are removed.

b. Conducted by: Building occupants, maintenance, or contract personnel.

B. Chemical. None

IV. Precautions for Sensitive Areas: None.

V. Prohibited Practices: Attracting these animals by the deliberate feeding of stray or wild animals around buildings is prohibited.

VI. Environmental Concerns: None.

VII. Remarks: Coordination is made with local game enforcement personnel who determine if the animals can be trapped and relocated. All personnel who perform trapping for these animals receive rabies prophylaxis. Heavy duty leather gloves are worn whenever handling live traps and animals. Coordination with local health or animal control officials will be made to determine if rabies examinations of these animals are necessary when they are suspected of having rabies (acting sick, signs of aggression, or very nervous activity). Note: Opossums typically salivate heavily; therefore, this rabies symptom may be misjudged. Any of these animals which have caused bites or scratches are submitted to the state health department for rabies examination. All bites or scratches from these animals are reported to the local medical authority. Attics and areas under buildings where these animals were removed are treated for fleas when fleas are observed or suspected.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 25

PEST: Feral Cats and Dogs.

SITE: Primary sites are at all buildings and associated surroundings; however, control may be required in training areas if dog packs are present.

I. Purpose: To remove nuisance animals in or under buildings, reduce the possibility of animal bites and exposure to rabies, occurrence of flea infestations, and wildlife damage losses.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel may occasionally conduct incidental surveys by visual observation at the work site. Facility management personnel, pest management technicians (in-house or contract), animal control officers, Natural Resource personnel, or local game enforcement officers may conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services. Local game law enforcement officers are contacted to evaluate problems when numerous wild dogs are involved at a specific site or if there is a question about how to remove the animals.

B. Methods: Visual observation for live animals, tracks, sign of wildlife damage, and scat.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Natural Resource personnel, pest management technicians, local animal control, or game enforcement officers perform surveys when services are requested or during the performance of other work functions. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan. Assistance from local animal control or game enforcement officers is on an as needed basis.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the only methods used and pesticides are not used to supplement control efforts.

1. Type: Mechanical and Physical.

a. Method and Location: Live traps (wire, barrel, or wood box traps) are normally used. Live traps are baited with fish, pet food, chicken parts, bacon, or other meat products. Leg-hold traps or shooting may rarely be used to capture feral dogs in training areas. Use to leg-hold traps and shooting requires the permission of local law enforcement officers and the state Natural Resources Program Manager. Exclusion from buildings is also conducted by installing hardware cloth, sheet metal, or other materials around structures and vents. Community animal control officers or local game enforcement officers are contacted for assistance if necessary. All captured animals are turned over to local animal control officials. See the remarks section of this outline.

b. Conducted by: Building occupants or maintenance personnel perform exclusion work. Some exclusion work for specific sites may rarely be contracted. Live trapping may be performed by maintenance personnel, pest management technicians, local animal control officers, or local game enforcement officers. Use of leg-hold traps and shooting may be performed by Natural Resources personnel, pest management technicians, or local game or law enforcement officers.

2. Type: Biological. None

3. Type: Cultural. None

B. Chemical. None

IV. Precautions for Sensitive Areas: None.

V. Prohibited Practices: Attracting these animals by the deliberate feeding of stray or wild animals around buildings is prohibited.

VI. Environmental Concerns: None.

VII. Remarks: All personnel who perform trapping for these animals receive rabies prophylaxis. Heavy duty leather gloves are worn whenever handling live traps and animals. Coordination with local health or animal control officials will be made to determine if rabies examinations of these animals are necessary when they are suspected of having rabies (acting sick, signs of aggression, or very nervous activity). Any of these animals which have caused bites or scratches are submitted to the state health department for rabies examination. All bites or scratches from these animals are reported to the local medical authority. Areas under buildings where these animals were removed are treated for fleas when fleas are observed or suspected. Killed animals are disposed of by burial or incineration.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 26

PEST: Snakes.

SITE: Cantonment areas or other mission areas.

I. Purpose: To reduce the hazard of snakebite incidence or disruption of mission activities.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel may occasionally conduct incidental surveys by visual observation at the work site. Natural Resource personnel, facility management personnel, pest management technicians (in-house or contract), local animal control officers, or game enforcement officers conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services. Local game law enforcement officers are contacted to evaluate problems when numerous animals are involved at a specific site or if there is a question about how to remove the animal.

B. Methods: Visual observation for live snakes and presence of favorable snake habitat, or possible entry points into structures.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Local natural resource personnel, pest management technicians, animal control officers, and game enforcement officers perform surveys when services are requested or during the performance of other services. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan. Assistance from local game enforcement or animal control officers is on an as needed basis.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the only methods used and pesticides are not used to supplement control efforts.

1. Type: Mechanical and Physical.

a. Method and Location: Capture with snake loops, jawed tongs for reptiles, or herpetology hooks and removal.

(1) Exclusion by sealing entry points is performed. All openings around water pipes, electrical outlets, doors, and windows are closed. Holes in masonry foundations around structures are sealed with mortar. Hardware cloth (1/8th-inch) or sheet metal is also used to seal holes in wooden buildings or siding.

(2) Trapping snakes which have taken up residence in or under buildings with rodent glue boards is an effective method. Funnel traps constructed of 1/8th-inch hardware cloth used with drift fences may also be used to live trap snakes. Funnel traps are approximately 1 foot in diameter and about 4 feet long cylinders with an entrance funnel made of like material. Drift fences are made from 1/4- or 1/2-inch hardware cloth which may have various lengths and is about 2 feet tall. The drift fencing is used to guide the snakes towards the funnel trap.

(3) Physical removal is made using a snake stick, tongs, or looped extension pole, or similar devices. Extreme care is taken when handling snakes to prevent accidental bites.

b. Conducted by: Building occupants or maintenance personnel perform exclusion work. Some exclusion work for specific sites may rarely be contracted. Live trapping or direct removal may be performed by experienced snake handlers, pest management technicians, local animal control officers, or local game enforcement officers.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location:

(1) Habitat modifications include removing food sources of snakes such as bird nestings and rodents and eliminating rodent habitat. Vegetation around structures is closely mowed. Brush, lumber and wood piles, debris, rock piles, and other vegetation is removed.

(2) Avoidance - if at all possible must be attempted to bypass snakes. Snakes generally prefer to avoid people. Most encounters with snakes can be avoided by simply allowing the snake to leave the area. The biggest risk of snake bites comes from people going out of their way to handle or otherwise provoke snakes into a defensive attitude.

b. Conducted by: Habitat modifications may be performed by pest management technicians or grounds maintenance personnel. Avoidance must be practiced by all personnel encountering snakes.

B. Chemical. None

IV. Precautions for Sensitive Areas: Troops will be trained how to identify the possible species of poisonous snakes prior to using training areas.

V. Prohibited Practices: Non-poisonous snakes will not be harmed or killed. Venomous snakes are normally relocated and not killed but may be killed only in a dire emergency situation to prevent snake bite.

VI. Environmental Concerns: Snakes, both poisonous and nonpoisonous, will be captured alive and removed to a location where they will not cause any harm or disrupt post activities.

VII. Remarks: Personnel encountering snake bites will receive medical assistance immediately.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 27

PEST: Deer.

SITE: Cantonment areas and airfields.

I. Purpose: To remove animals which may cause ornamental plant damage or be hazards to aircraft using airfields.

II. Surveillance.

A. Conducted by: Natural Resource personnel or game enforcement officers conduct surveys in response to service requests or during other work duties. Local game law enforcement officers are contacted to evaluate problems when numerous animals are involved at a specific site, to obtain information how to remove the animals, and to obtain necessary permits to perform capture or lethal methods of control.

B. Methods: Visual observation for live animals, plant damage, tracks, and droppings. Spot-lighting at night, after coordinating with local game enforcement officers, may be used to enhance deer observations.

C. Frequency: Natural Resource personnel and game enforcement officers perform surveys when services after reporting problem deer or during the performance of job duties. Assistance from local game enforcement is on an as needed basis.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the only methods used and pesticides are not used to supplement control efforts.

1. Type: Mechanical and Physical.

a. Method and Location:

(1) Exclusion may be practiced by using plastic or wire screens around ornamental plants. Deer fences can be installed which effectively exclude deer from specific sites.

(2) Herd management includes shooting by hunters who follow area state hunting regulations during deer hunting season. Lethal shooting or shooting with tranquilizer guns by natural resource, local law or game enforcement personnel, or federal wildlife damage personnel, after obtaining necessary permits, may also occur if deer become a hazard at airfield sites or at sites where ornamental plant damage is severe.

(3) Trapping is a control method that although expensive and time consuming, may be used. Deer survival of trapped (or netted) deer is often low.

b. Conducted by: Exclusion work may be performed by facility maintenance or contract personnel. Shooting is performed by personnel with proper licenses and permits. Trapping may be performed by natural resource, game enforcement officers, or federal animal damage (i.e. USDA, APHIS, ADC) personnel.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Plant selection is practiced where severe plant damage occurs to minimize the use of plants which attract deer. Food plots may be used to attract deer away from areas where damage occurs.

b. Conducted by: Grounds maintenance or natural resource personnel.

B. Chemical. None

IV. Precautions for Sensitive Areas: Hunting is conducted in only designated areas.

V. Prohibited Practices: Attracting deer by the deliberate feeding in cantonment areas is prohibited unless it is part of a control operation.

VI. Environmental Concerns: The possibility exists that large or even small concentrations of Deer may present a road hazard in some areas. They will have an impact on the natural environment should population levels increase to a level that would not be supported in a natural manner. Additionally, the risks of Deer tick infestations increase significantly with an increase in the deer population.

VII. Remarks: Coordination is made with local game enforcement personnel who determine control methods which involve killing or relocation.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 28

PEST: Beaver.

SITE: Training or cantonment areas.

I. Purpose: To remove animals which have damaged valuable landscape trees or created flooding which threatens manmade structures or special habitats of rare, threatened, or endangered species.

II. Surveillance.

A. Conducted by: Natural Resource personnel or game enforcement officers conduct surveys in response to service requests or during other work duties. Local game law enforcement officers are contacted to evaluate problems when numerous animals are involved at a specific site, to obtain information how to remove the animals, and to obtain necessary permits to perform capture or lethal methods of control.

B. Methods: Visual observation for live animals, plant damage, tracks, and flooding. Spot-lighting may be done at night using a red filter lens to observe nocturnal activity.

C. Frequency: Natural Resource personnel and game enforcement officers perform surveys when services are requested by reporting problem beaver or during the performance of job duties. Assistance from local game enforcement is on an as needed basis.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the only methods used and pesticides are not used to supplement control efforts .

1. Type: Mechanical and Physical.

a. Method and Location:

(1) Exclusion may be practiced by using barriers of sheet metal or hardware cloth around ornamental plants. These barriers extend from the ground to about 4 feet. Barrier construction is performed as soon as evidence of damage begins.

(2) Population reduction may include evening shooting by officials who are authorized to control beaver and have State permits for control. Only shotguns with No. 4 buckshot or larger will be used. A potential method is to break dams in the morning and to hunt the beavers that night when they come to repair it. Hunters must be at the site about an hour before dark, be located in a good location for shooting, and be quiet and still as possible.

(3) Trapping is an effective method used for controlling beaver. Live traps, leghold traps, conibear traps, and snares can be used.

b. Conducted by: Exclusion work may be performed by facility maintenance or contract personnel. Shooting and trapping is performed by natural resource, game enforcement officers, pest management technicians, or federal animal damage (i.e. USDA, APHIS, ADC) personnel with proper licenses and permits. Trapping may also be performed by experienced and licensed local trappers during furbearer season who have permits to trap on installation property.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Habitat alterations may be practiced near ponds or other reservoirs to prevent beaver from moving in or to encourage them to move out. Clearing out trees and shrubs near ponds and planting crops no closer than 100 yards from streams or ponds usually will prevent beaver from moving in and may persuade them to leave. Eliminating food supplies and aquatic habitat are probably the only cultural methods that have significant effects on beaver.

b. Conducted by: Natural Resources personnel.

B. Chemical. None

IV. Precautions for Sensitive Areas: Shooting is conducted in only areas approved by local law enforcement officials.

V. Prohibited Practices: Leghold and conibear traps and snares will not be used in areas where there is a possibility of endangering humans.

VI. Environmental Concerns: None.

VII. Remarks: Coordination is made with local game enforcement personnel who determine control methods which involve killing or relocation.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 29

PEST: Grassy weeds.

SITE: Parade fields, lawns, and other common grassy areas.

I. Purpose: To remove unsightly grasses in turf.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel occasionally may conduct surveys by visual observation during work. Facility management personnel or pest management technicians (in-house or contract) conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations for undesirable grasses in turf.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested, during the performance of other grounds maintenance services (i.e. mowing, etc.), or during specific surveys for weeds. Surveys may include observations conducted during the previous growing season to determine if preemergent herbicides are necessary. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan. Surveys to determine the need for preemergent herbicides are conducted May - July the previous year. Surveys to determine the need for postemergent herbicides are conducted May - July the current year.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location:

(1) Proper mowing involves cutting desirable grasses at the recommended height and often enough to prevent scalping. This means removing no more than 1/3 of the total leaf surface in a mowing. Raising the mowing height during periods of stress helps maintain turf vigor. Mowing grass to maintain a uniform height generally does not eliminate grasses but may provide acceptable control.

(2) Mechanical grass removal may be selected by using shovels or hoes. Care is exercised to not damage root systems of desirable plants.

b. Conducted by: Building occupants, contractors, or grounds maintenance personnel.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location:

(1) Turfgrass selection is the most important factor in developing and maintaining a high quality, problem-free turf. Turfgrass selection is based on the environment, expected turf use, and expected management intensity. Certified seed or sprigs are used.

(2) Proper fertilization of grassy areas promotes favorable grass growth. Soil analysis of selected turf areas may be made to determine proper fertilization rates.

(3) Turfgrass watering needs depend on grass species, turf maintenance level, soil type, and weather. Most turfgrasses require one inch of water per week during active growth. Irrigating after sunset and before sunrise is the most efficient and effective time to irrigate and will not increase disease problems.

(4) Liming of selected areas may be applied according to soil test recommendations.

(5) Common cultivation practices include coring, spiking, and vertical mowing. Coring is the best method to reduce soil compaction and improve water infiltration. Coring is most effective using hollow or spoon-type tines which remove plugs of soil two to three inches and one-half to three-fourths inch in diameter. Fertilization 10 to 14 days before cultivation increases the turf recovery rate.

b. Conducted by: Grounds maintenance personnel, building occupants, or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: High potential for undesirable grasses in turfgrasses at selected sites or previous years survey found undesirable grasses. Targeted species must not have germinated when applying preemergent herbicides.

2. Method and Location: Preemergent herbicide application is performed using a broadcast spreader on selected turf.

3. Conducted by: Grounds maintenance personnel, pest management technicians, or contractors.

4. Pesticide. Preemergent herbicide selective for grassy weeds

5. Control Standard: Targeted grasses fail to germinate for 5 weeks following treatment.

C. Chemical.

1. Basis for Treatment: Undesirable grasses observed in turfgrasses at selected sites.

2. Method and Location: Postemergent herbicide application is performed using a boom sprayer, handgun from a powered sprayer, compressed air sprayer, or broadcast spreader on selected turf.

3. Conducted by: Grounds maintenance personnel, pest management technicians, or contractors.

4. Pesticide. Postemergent herbicide selective for grassy weeds (i.e. MSMA)

5. Control Standard: Targeted grasses controlled within 4 weeks following treatment and fail to produce seed.

IV. Precautions for Sensitive Areas: See the pesticide label for precautions. Do not allow personnel on treated turf until after sprays have dried.

V. Prohibited Practices: Do not apply preemergent herbicides if targeted grasses have already germinated. MSMA will not be applied to St. Augustine grasses.

VI. Environmental Concerns: Do not apply herbicides when winds may create undesirable drift.

VII. Remarks: Insect control is another element into controlling grasses in turf. When insect control is needed: (1) identify the pest problem, (2) select the chemical recommended to control the pest, (3) be sure the turfgrass will tolerate the chemical and (4) apply the chemical according to label recommendations. The local county extension agent will be contacted to determine dates for applying preemergent herbicides.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 30

PEST: Broadleaf Weeds.

SITE: Parade fields, lawns, and other areas that are not natural areas.

I. Purpose: To remove unsightly broadleaf weeds in turf.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel occasionally may conduct surveys by visual observation during work. Facility management personnel or pest management technicians (in-house or contract) conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations for undesirable broadleaf weeds in turf.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Pest management technicians perform surveys when services are requested, during the performance of other grounds maintenance work (i.e. mowing, etc.), or during specific surveys for weeds. Surveys may include observations conducted during the previous growing season to determine if preemergent herbicides are necessary. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan. Surveys to determine the need for preemergent herbicides to control summer broadleaf weeds are conducted May - July the previous year. Surveys to determine the need for postemergent herbicides to control summer broadleaf weeds are conducted May - July the current year. Surveys to determine the need for preemergent herbicides to control winter broadleaf weeds are conducted November - February the previous year. Surveys to determine the need for postemergent herbicides to control winter broadleaf weeds are conducted November - February the current year.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location:

(1) Proper mowing involves cutting desirable grasses at the recommended height and often enough to prevent scalping. This means removing no more than 1/3 of the total leaf surface in a mowing. Raising the mowing height during periods of stress helps maintain turf vigor. Mowing grass to maintain a uniform height generally does not eliminate broadleaf weeds but may provide acceptable control for a short period of time.

(2) Mechanical broadleaf weed removal may be selected by using shovels or hoes. Care is exercised to not damage root systems of desirable plants.

b. Conducted by: Building occupants, contractors, or grounds maintenance personnel.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location:

(1) Turfgrass selection is the most important factor in developing and maintaining a high quality, problem-free turf. Turfgrass selection is based on the environment, expected turf use, and expected management intensity. Certified seed or sprigs are used.

(2) Proper fertilization of grassy areas promotes favorable grass growth. Soil analysis of selected turf areas may be made to determine proper fertilization rates.

(3) Turfgrass watering needs depend on grass species, turf maintenance level, soil type, and weather. Most turfgrasses require one inch of water per week during active growth. Irrigating after sunset and before sunrise is the most efficient and effective time to irrigate and will not increase disease problems.

(4) Liming of selected areas may be applied according to soil test recommendations.

(5) Common cultivation practices include coring, spiking, and vertical mowing. Coring is the best method to reduce soil compaction and improve water infiltration. Coring is most effective using hollow or spoon-type tines which remove plugs of soil two to three inches and one-half to three-fourths inch in diameter. Fertilization 10 to 14 days before cultivation increases the turf recovery rate.

b. Conducted by: Grounds maintenance personnel, building occupants, or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: High potential for undesirable broadleaf weeds in turfgrasses at selected sites or previous years survey found undesirable broadleaf weeds. Targeted species must not have germinated when applying preemergent herbicides.

2. Method and Location: Preemergent herbicide application is performed using a broadcast spreader or boom sprayer on selected turf.

3. Conducted by: Grounds maintenance personnel, pest management technicians, or contractors.

4. Pesticide. Preemergent herbicide selective for broadleaf weeds

5. Control Standard: Targeted broadleaf weeds fail to germinate for 5 weeks following treatment.

C. Chemical.

1. Basis for Treatment: Undesirable broadleaf weeds observed in turfgrasses at selected sites.

2. Method and Location: Postemergent herbicide application is performed using a boom sprayer, handgun from a powered sprayer, compressed air sprayer, or broadcast spreader on selected turf.

3. Conducted by: Grounds maintenance personnel, pest management technicians, or contractors.

4. Pesticide. Postemergent herbicide selective for broadleaf weeds (i.e. Trimec)

5. Control Standard: Targeted broadleaf weeds controlled within 4 weeks following treatment.

IV. Precautions for Sensitive Areas: See the pesticide label for precautions. Do not allow personnel on treated turf until after sprays have dried.

V. Prohibited Practices: Do not apply preemergent herbicides if targeted grasses have already germinated. TRIMEC will not be applied during excessively dry or hot periods.

VI. Environmental Concerns: Do not apply herbicides when winds may create undesirable drift.

VII. Remarks: Good turf management practices which involve mechanical and cultural control is essential in establishing and maintaining healthy turf which resists invasion by broadleaf weeds. Insect control is another element into controlling broadleaf weeds in turf. When insect control is needed: (1) identify the pest problem, (2) select the chemical recommended to control the pest, (3) be sure the turfgrass will tolerate the chemical and (4) apply the chemical according to label recommendations. The local county extension agent will be contacted to determine dates for applying preemergent herbicides. Do not attempt seeding treated areas until at least 4 weeks after treatment with postemergent herbicides or 3 months after use of preemergent herbicides.

INTEGRATED PEST MANAGEMENT OUTLINE NO. 31

PEST: All Vegetation.

SITE: Utility poles, traffic and parking signs, hydrant bases, cracks in sidewalks or sidewalk edging, around building foundations, parking lots, targets on ranges, and fence lines.

I. Purpose: To reduce vegetative damage to paved surfaces, poles, signs, and fences, to reduce costs for physical vegetation control, and the risk of fire or security breaches. Use of vegetation control around food handling buildings also aids in rodent control.

II. Surveillance.

A. Conducted by: Building occupants or maintenance personnel occasionally may conduct surveys by visual observation during work. Facility management personnel or pest management technicians (in-house or contract) conduct surveys in response to service requests. Pest management QAEs may perform surveys for quality assurance of contractual pest management services.

B. Methods: Visual observations.

C. Frequency: Visual observations are conducted by building area occupants and maintenance personnel during work operations. Maintenance personnel and pest management technicians perform surveys when services are requested, during the performance of other grounds maintenance services (i.e. mowing, etc.), or during specific surveys for weeds. Surveys may include observations conducted during the previous or current growing season to determine the need for control measures. Pest management QAEs perform surveys as follow up after contract performance if complaints are received or as part of their quality assurance surveillance plan.

III. Pest Management Techniques.

A. Nonchemical. NOTE: Nonchemical controls are the primary methods used and pesticides are used only to supplement control efforts when necessary.

1. Type: Mechanical and Physical.

a. Method and Location: Mechanical broadleaf weed removal may be selected by using shovels, hoes, or string trimmers. Care is exercised to not damage root systems or bark at the base of desirable plants. Mechanical control methods can be used, but are very labor-intensive and often short term. Mechanical control may also be performed with other maintenance equipment such as graders and backhoes when used in conjunction with other operations (i.e. road grading or ditch cleaning). Use of elastomeric caulking in cracks and crevices in sidewalks and other pavement is encouraged.

b. Conducted by: Building occupants, roads, grounds maintenance personnel, or contractors.

2. Type: Biological. None

3. Type: Cultural.

a. Method and Location: Use of mulches (organic and synthetic) is encouraged to provide total vegetation control. Sites to be mulched include around desirable vegetation such as trees and shrubs and along fencelines.

b. Conducted by: Grounds maintenance personnel or contractors.

B. Chemical. NOTE: Pest control contractors perform pesticide selection which requires local contracting officer and Major Command pest management consultant approval or specific pesticides are identified in contracts.

1. Basis for Treatment: Vegetation around the bases of hydrants, utility poles, and targets, vegetation along fence lines, and vegetation on or along sidewalks and building perimeters.

2. Method and Location: Hand or power sprayer. Some formulations which are ready to use may be dispensed using a provided pistol grip pump sprayer. Chemical is applied IAW label directions to unwanted vegetation. Soil sterilants are best applied prior to the growing season.

3. Conducted by: Maintenance personnel, pest management technicians, or contractors.

4. Pesticide. Nonselective, translocated herbicide (i.e. Round-up)

5. Pesticide. Nonselective, soil residual herbicide (i.e. Arsenal)

6. Control Standard: Vegetation is killed within two weeks following treatment.

IV. Precautions for Sensitive Areas: Avoid contact with foliage of desirable vegetation. Do not apply Arsenal within the root zone of desirable vegetation. Avoid direct application to any body of water. Avoid drift which could damage desirable plants.

V. Prohibited Practices: Do not mix, store or apply this product in galvanized steel or unlined steel containers (except stainless steel). This product reacts with such containers to produce hydrogen gas. This gas mixture could flash or explode. To reduce runoff and effectiveness, do not apply herbicides if precipitation is anticipated within 6 hours.

VI. Environmental Concerns: Do not apply herbicides directly to water or wetland ecosystems. Do not contaminate water when disposing of equipment rinse water.

VII. Remarks: Glyphosate (i.e. Round-up) causes eye irritation and is harmful if swallowed. It may also cause skin irritation. Wear chemical-resistant gloves and goggles. To assist in meeting Measures of Merit 2, consideration will be given to using Oust or Arsenal to reduce the rate of herbicide use per acre. Consolidation of herbicide applications needs may also be made for creating a trained and certified task force or contractor to perform herbicide applications.

APPENDIX C

PEST MANAGEMENT OPERATIONS

1. **PURPOSE.** To outline procedures for handling pesticides and operating pest control equipment, and safety precautions associated with these operations.

2. **GENERAL.**

a. Those pesticides generally used on New Jersey Army National Guard (NJARNG) armories/facilities include insecticides, herbicides, and rodenticides.

b. Handling concentrated pesticides during shipment, storage, and preparation of dilute formulations and during application of dilute formulations is hazardous in that personal contamination can result in extreme illness, skin damage, or death.

c. Pesticides shall be procured under the supervision and approval of the State Pest Management Coordinator.

d. All locations used for pesticide storage and mixing shall be marked to designate pesticide operations.

3. **PROCEDURES.**

a. Training and Certification.

(1) All NJARNG personnel who apply pesticides will be DoD or State-certified and licensed in accordance with this pest management plan. The Pest Management Coordinator and personnel who evaluate the quality of work of pest control contracts, Quality Assurance Evaluator - (QAE), must also be certified or trained in the category of work being performed; certification may be achieved through the State or by attending the DOD Certification Course. To minimize costs, the Installation Pest Management Coordinator can also be the QAE.

(2) Training and certification will be conducted by the State of New Jersey at NJARNG expense. Certified pest control personnel shall be recertified IAW New Jersey requirements. These personnel must be certified, as appropriate, in the following categories:

(a) Ornamental and Turf Pest Control [U.S. Environmental Protection Agency (EPA) category 3].

(b) Right-of-way Pest Control (EPA category 6)

(c) Industrial, Institutional, Structural, and Health Related Pest Control (EPA category 7)

b. Pest Control Equipment.

- (1) Only authorized, trained personnel shall operate pest control equipment.
- (2) Cleaning and storage of pest control equipment shall be done only by authorized, trained personnel in accordance with manufacturer's instruction manuals for the specific equipment item.
- (3) Maintenance and adjustment of pest control equipment shall be carried out in accordance with the manufacturer's instructions for the specific equipment item.
- (4) All equipment used in pest control activities shall be marked "Contaminated with Pesticides".

c. Protective Clothing and Equipment.

(1) Protective clothing and equipment shall be available to NJARNG personnel acting as pest control personnel and, when not in use, stored in lockers provided for this use within a building on their work site. The following minimum protective clothing and equipment will be provided:

- (a) Chemical resistant gloves, aprons and boots.
 - (b) Full-face shield.
 - (c) Splash goggles.
 - (d) Respirators approved for use with pesticides.
 - (e) Coveralls.
- (2) Splash goggles, face shields and pesticide respirators shall be cleaned and sanitized as necessary.
- (3) All chemical resistant protective equipment, such as aprons, gloves and boots, shall be washed at the end of each day of use and properly stored in lockers or other areas free of contamination.
- (4) Coveralls shall be worn when handling or applying pesticides. External personal clothing shall not be worn during pesticide operations.
- (5) Coveralls that have become contaminated with pesticides through spillage or during normal use shall be returned to their designated work area for replacement and laundering. Laundering shall be done at NJARNG expense; operators shall not take pesticide contaminated clothing home to be laundered.

(6) Respirators shall be worn during the following operations:

- (a) While handling pesticide concentrates and adding diluents to spray tanks.
- (b) While spreading granular pesticides when there is danger of breathing the dust.
- (c) While applying any pesticide which states on the label that the vapors or dusts should not be breathed.
- (d) When the operator is located downwind during any spraying operation.
- (e) While cleaning up a pesticide spill.
- (f) At such other times as directed by the Pest Management Coordinator.

(7) Approved respirators will effectively prevent the inhalation of pesticide fumes and dust if the procedures for fitting*, cleaning, cartridge replacement and storage are conducted as follows:

- (a) Each respirator face piece will be numbered for identification.
- (b) Masking tape will be attached to each respirator cartridge when it is placed in the respirator. The user will write the amount of time the cartridge is used on this tape. The user will replace the cartridges when eight hours of use have been recorded, when the odor of pesticides is noticed while wearing the respirator, when breathing resistance becomes excessive, or in accordance with manufacturer's instructions.
- (c) Each individual will use the same respirator face piece for the duration of the job. If the face piece becomes dirty or contaminated, it will be cleaned and sanitized. Face pieces will be cleaned and sanitized before being used by different individuals.
- (d) Cartridges will be threaded into receptacles making sure that the gaskets are in proper position and hand-tightened to prevent damage to threads or gaskets.
- (e) To don the respirator, the face piece should be fitted onto the bridge of the nose, making sure the individual is able to breathe through the nose. Then the bottom of the face piece

*Note. Personnel who are required to wear a respirator will follow the guidance outlined by Occupational Safety and Health Administration (OSHA) in 29 Code of Federal Regulation (CFR) 1910.134; this guidance requires that all respirators be annually fit-tested to the individual. The procedures for use of respirators mentioned above applies to devices which rely on replaceable cartridges. When disposable respirators are used, the entire mask, including face piece and cartridges, is discarded and replaced. Replacement of disposable respirators will follow the same procedures as those outlined for cartridges in paragraph 3c(7)(b), above. should be swung into contact with the chin. Position headbands with the long straps above the ears and the short straps below the ears. The adjustment slides can be moved to achieve a comfortable fit.

(f) To test the respirator for leakage, remove the exhalation valve cover and hold the rubber valve against the seat. Create a slight positive pressure inside the face cushion by exhaling. If any leakage is detected around the face seal, readjust head harness straps and repeat the test until there is no leakage. If other than face seal leakage is detected, the condition must be investigated and corrected before another test is made. The face piece must pass this test before the user should attempt to enter any toxic atmosphere. The mask will not furnish protection unless all inhaled air is drawn through approved cartridges. Replace the valve cover after completion of the test.

(g) Consult Appendix D of this plan for further information concerning respirator maintenance.

d. Pesticide Storage.

(1) All pesticides shall be stored in buildings, or rooms within buildings, designated for this purpose. The pesticides shall be stored in their original containers. The buildings/rooms shall be kept locked when not in use.

(2) All pesticides shall be segregated as to kind of pesticide during storage (i.e., insecticides, herbicides, fungicides, etc.). Labels on all containers shall be visible at all times. Pesticides that are classed as moderately or highly toxic must be stored in facilities that meet the criteria described in MIL-HDBK-1028/8A, Design of Pest Management Facilities (Reference 4.d. of this appendix).

(3) The local Fire Department shall be furnished with an inventory of the kinds and amounts of pesticides present at each storage or mixing location. This inventory shall be updated at least annually, at the end of each calendar year by the Pest Management Coordinator.

e. Pesticide Transportation.

(1) Only authorized operators shall transport pesticides upon approval by a State certified individual or the Pest Management Coordinator.

(2) When transporting pesticides, operators shall have with them protective clothing and equipment.

(3) Pesticides will not be transported in the cabs or passenger compartments of vehicles.

(4) Pesticides will not be left unattended or unsecured in the vehicle.

f. Pesticide Mixing.

(1) Self-help pesticides will be handled and mixed by authorized, certified personnel only.

(2) Dispensing concentrates and mixing of all liquid pesticides shall be done on a nonporous surface (cement, asphalt, etc.).

(3) Any pesticide contamination on the skin shall immediately be washed off with soap and water. Contamination of the eyes shall be flushed generously with water. After washing, the individual will secure immediate medical attention.

(4) Pesticide containers shall be returned to their storage locations upon completion of mixing.

(5) All pesticides shall be applied in accordance with the label directions.

(6) When mixing liquid pesticides, the spray tank shall be filled 1/3 to 1/2 full with the diluent, the pesticide shall be added, and the spray tank shall then be filled with diluent. All pesticide mixtures shall be agitated.

g. Pesticide Application.

(1) Non-restricted, restricted use, State-licensed or controlled pesticides will be applied by authorized, certified personnel only. Pesticide application shall be carried out in accordance with the label directions of the pesticide used, the manufacturer's operating instructions for the equipment used, and as directed by a State certified individual.

(2) Pesticide application operations shall be conducted as follows:

(a) Dry, granular pesticide application, to include weed and feed products, shall be conducted when the wind speed is less than 10 miles per hour to prevent drift. An approved respirator shall be worn whenever required by the label or deemed necessary by a State certified individual or the Pest Management Coordinator. The operator shall wear a respirator when pesticide dust is a hazard.

(b) Outdoor liquid pesticide application shall be conducted when the wind speed is less than 10 miles per hour to prevent drift. Approved respirators shall be worn whenever required by the pesticide label or deemed necessary by a State certified individual or the Pest Management Coordinator.

h. Pesticide Spill Cleanup Kit.

(1) A pesticide spill cleanup kit, appropriate to the type and amount of pesticide used or stored, should be located in each building where pesticides are stored. Contents of this kit are listed in Appendix F of this plan (latest revision). In addition, adsorptive material to contain minor amounts of spilled liquid pesticides will be kept in each pesticide storage room.

(2) The pesticide spill cleanup kit shall be used in accordance with Appendix L (latest revision). All items in the kit that have been used shall be replaced as soon as possible.

i. Pesticide Container Disposal.

(1) Liquid pesticide containers shall be triple rinsed, with the rinse water placed in the spray tank and used as a diluent. The empty container shall then be crushed and placed in the garbage dumpster. Pesticide containers shall not be used for any purpose except that of holding the pesticide shown on the label.

(2) Dry, granular pesticide containers (bags and/or sacks) shall be emptied thoroughly and placed in the garbage dumpster. Pesticide bags or sacks shall not be burned or stored near heat or open flame.

j. Reporting.

(1) Adequate records of all pest management operations performed by NJARNG personnel and contractors will be maintained by the armory/facility maintenance personnel.

(2) Armory/facility maintenance personnel will maintain complete daily pesticide application and surveillance records using DD Form 1532-1 (Pest Management Maintenance Records). These records will account for all operations and will provide a permanent historical record of pest control operations for each building, structure, or outdoor site.

4. REFERENCES.

- a. AR 40-5, 15 October 1990, Preventive Medicine.
- b. AR 200-5, 29 October 1999, Pest Management.
- c. Title 29, CFRs, 1992 rev, Section 1910.134, Respiratory Protection.
- d. MIL-HDBK-1028/8A, Design of Pest Management Facilities, 1 November 1991.
- e. AFPMB Military Entomology Operational Handbook (latest revision).
- f. Equipment Manufacturer's Handbooks and Manuals.
- g. Pesticide Labels and Manufacturer's Literature.
- h. Appendix D, Maintenance and Care of Respirators.
- i. Appendix F, Pesticide Spill Cleanup Management.

APPENDIX D

MAINTENANCE AND CARE OF RESPIRATORS

1. **PURPOSE.** To establish a program for proper maintenance and care of respirators. Respirators shall be properly maintained to retain their original effectiveness.
2. **GENERAL.** Basic elements of the program are as follows:
 - a. Inspection for defects.
 - b. Cleaning and disinfecting.
 - c. Repair.
 - d. Storage.
3. **PROCEDURES.** Only respirators recommended by the National Institute for Occupational Safety and Health (NIOSH) for use with pesticides will be used during pesticide operations. After respirators have become contaminated, each Pest Management Technician will initiate the following procedures:

- a. Inspection for Defects. Each respirator shall be checked for tightness of connections and the condition of the face piece and headband. Rubber or elastomer parts shall be inspected for pliability and signs of deterioration.

Note: If a disposable respirator is used during pesticide application, the device should be inspected for defects before reuse during subsequent pesticide applications.

- b. Cleaning and Disinfecting.

- (1) Remove any filters or cartridges from the respirator.

- (2) Wash the face piece in cleaner/disinfectant solution.

- (a) Add one package (1 oz.) of powdered MSA Cleaner-Sanitizer (or other suitable cleaner/sanitizer), to a gallon of warm water (about 120° F).

- (b) Immerse soiled equipment in the solution and scrub gently with a soft brush until clean. Care should be taken to clean the exhalation valve in the face piece and all other parts that exhaled air contacts.

Note: Respirators contaminated heavily with organophosphate pesticides should also be washed with alkaline soap and rinsed with 50 percent alcohol (ethanol or isopropanol) before normal cleaning procedures.

(3) Rinse completely in clean, warm water.

(4) Air dry in a clean area (preferably overnight).

(5) Place in plastic bag for storage and label as to date cleaned and initial.

c. Repairs. Replacement of parts or repairs shall be done only with parts designed for the respirator by the manufacturer. No attempt shall be made to replace components or to make adjustments or repairs beyond the manufacturer's recommendations.

d. Storage. After inspection, cleaning, and necessary repairs, respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture or damaging chemicals. Pesticide approved respirators will be stored in clean, pesticide-free lockers or other locations.

e. Use. Respirators will be used in accordance with para 3c, Appendix B of this plan, pesticide labels and manufacturer's instructions.

4. REFERENCES.

a. Manufacturer's Instructions.

b. TB MED 502, February 1982, Respiratory Protection Program.

c. Appendix C, Pest Management Operations.

d. USAEHA Technical Guide No. 133, November 1982, Respiratory Protection Program for Pest Control Personnel.

APPENDIX E

RARE, THREATENED, AND ENDANGERED
SPECIES FOUND IN NEW JERSEY

Contact ID-OEC at 609 530-7133 for complete listing should the need arise.

APPENDIX F

PESTICIDE SPILL CLEANUP MANAGEMENT

1. **PURPOSE.** To outline procedures for the containment, cleanup and decontamination of pesticide spills and the safety precautions associated with these operations.

2. **GENERAL.**

a. Extreme caution shall be exercised by the New Jersey Army National Guard (NJARNG) personnel and contractors applying pesticides on NJARNG facilities to prevent spillage of pesticides during storage, transportation, mixing, application or any other handling of pesticides.

b. All pesticide spills shall be handled in accordance with this Appendix and applicable Spill Contingency Plans.

c. A pesticide spill cleanup kit will be maintained in buildings where pesticides are stored. Contents of the kit are given in paragraph 3.j., this Appendix. The cleanup kit shall be used to cleanup pesticide spills anywhere on the installation.

d. Spill cleanup personnel must wear appropriate protective clothing and respiratory protective equipment while cleaning up a pesticide spill. Spill cleanup and rescue personnel must wear appropriate protective clothing and respiratory protective equipment while conducting a rescue of injured and/or contaminated personnel. Protective clothing and equipment are available from NJARNG personnel responsible for pest control.

3. **PROCEDURES.** When a pesticide spill occurs or is discovered, the following procedures must be followed:

a. Reporting. All pesticide spills shall be immediately reported to the NJARNG Environmental Officer. Any need for first aid or fire equipment must be reported. If a "reportable quantity" of the pesticide has been spilled, spill containment, cleanup and reporting procedures specified in NJARNG spill contingency plan will be initiated immediately.

b. Identification. Identify the pesticide involved in the spill. Retain the container and label for the Facility Manager or armory maintenance personnel.

c. Care of Injured and/or Contaminated Personnel. Immediately determine if any Pest Controllers or other individuals are injured and/or contaminated.

(1) Remove injured and/or contaminated personnel from the spill site to a safe area upwind from the spill.

(2) If necessary, remove contaminated clothing from the victim and wash all contamination off the victim using soap and water.

(3) Seek and/or administer first aid for the injured and/or contaminated personnel which may include flushing contaminated eyes with clean water for 15 minutes. Remember that exposure by inhalation may be an important factor.

d. Site Security. Secure the spill site from entry by unauthorized personnel by roping off the area and posting warning signs.

e. Containment and Control.

(1) If the pesticide container is still leaking, prevent further leakage by repositioning the pesticide container or repackaging.

(2) Prevent the spill from spreading by trenching or encircling the area with a dike of sand, absorbent material, or, as a last resort, soil or rags.

(3) Cover the Spill: If the spill is liquid, use an absorbent material; if dry material, use a polyethylene or plastic tarpaulin and secure. Note: Use absorbent materials sparingly as they must be disposed of as hazardous wastes.

f. Cleanup. Adequate cleanup of spilled pesticides is essential in order to remove any health or environmental hazards. When cleaning up pesticide spills, it is advisable not to work alone and to make sure the area is properly ventilated.

(1) Dry spills (dusts, wettable powders, granular formulations) should be picked up in the following manner:

(a) Immediately cover dry spills to prevent them from becoming airborne (if indoors, a cover may not be necessary). This can be done by placing a polyethylene or plastic tarpaulin over the spilled material. Weight the edges of the tarp. Simultaneously roll the tarp and sweep up the spilled pesticide using a broom, shovel or dust pan. Do not allow the pesticide to become airborne while sweeping.

(b) Collect the pesticide and place it in heavy duty plastic bags. Properly secure and label the bags, identifying the pesticide. Set the bags aside for later disposal.

(2) Liquid spills should be cleaned up in the following manner:

(a) Place an appropriate absorbent material (floor-sweeping compound, sawdust, kitty litter, etc.) over the spilled pesticide. Work the absorbent into the spill using a broom or other tool to force the absorbent into close contact with the spilled pesticide.

(b) Collect all of the spent absorbent material and place into a properly labeled leak-proof container (e.g. a heavy-duty plastic bag). Set the containers aside for later disposal.

(c) Contaminated soil should be removed to a depth of at least three inches below the wet surface line and placed in properly labeled leak-proof drums for disposal.

g. Decontamination.

(1) Decontamination solutions can be used for decontaminating surfaces and materials where spills of dust, granular, wettable powders, or liquid pesticides have occurred. The bulk of the spilled pesticide should be cleaned up or removed prior to applying any decontaminant.

(2) Several materials may be used to decontaminate pesticides. Due to the many different pesticides available and the necessity to use the correct decontamination material, all decontamination activities must be carried out only after appropriate decontamination methods have been determined by the NJARNG Environmental Officer or the Spill Response Team. Many pesticides, especially the organophosphates, decompose when treated with lye or lime. Fewer pesticides are decomposed by bleach. Other pesticides cannot be effectively decontaminated and should only be treated with detergent and water to assist in removal. See Table F-1 for guidance on decontaminating certain pesticides.

(a) Pesticides amenable to treatment using lye or lime may be decontaminated when mixed with an excess quantity of either of these materials. Lye or lime can be used in either the dry form or as a 10% solution in water. CAUTION: caustic soda (lye) can cause severe eye damage to personnel not properly protected. Protect against contact by wearing unventilated goggles, long-sleeved work clothes with coveralls,

neoprene or nitrile gloves, and a chemical-resistant apron. An approved respirator should also be worn. Do not use lye on aluminum surfaces.

(b) For pesticides that can be degraded by treatment with bleach, in general use one gallon of household bleach (which contains approximately 5% sodium hypochlorite) per pound or gallon of pesticide spilled. If dry decontaminants are used, first spread them thinly and evenly over the spill area. Then using a watering can, lightly sprinkle the area with water to activate the decontaminant. For safety reasons, a preliminary test must be run using small amounts of bleach and the spilled pesticide. The reaction resulting from this test must be observed to make sure the reaction is not too vigorous. Do not store in close proximity to, or mix chlorine bleach with amine-containing pesticides. Mingling of these materials can cause a violent reaction resulting in fire. Calcium hypochlorite is not recommended as a decontaminating agent because of the fire hazard.

(c) Spilled granular/bait materials need to be swept up only. When there is doubt concerning which decontaminant is appropriate, only water and a detergent should be used.

Table F-1. Pesticide Decontaminants

<u>Use Lye or Lime For:</u>	<u>Use Chlorine Bleach For:</u>	<u>Don't use any Chemicals For:</u>
Atrazine	Calcium cyanamide	Alachlor
Propoxur	Calcium cyanide	Chloramben
Captan	Chlorpyrifos	Chlorinated hydrocarbons
Carbaryl	Fonophos	Diuron
Diazinon	Merphos	2,4-D
Temephos	Lethane	Maneb
Naled		Methoxychlor
Malathion		Pentachlorophenol
Acephate		Picloram
TCA		Toxaphene
Rotenone		Trifluralin
Cyanazine		
Dalapon		
Dichlorvos		
Dimethoate		
EPN		

A practical guide for applying decontaminants is as follows:

<u>Percent Active Ingredient</u>	<u>Amount of Decontaminant Needed</u>
1-10 to the quantity of pesticide spilled.	Use an amount of decontaminant equal
11-79 to 1.5 times the quantity of pesticide spilled.	Use an amount of decontaminant equal
80-100 be equal to twice the quantity of pesticide spilled.	The amount of decontaminant should

WARNING: There is a slight potential for creating toxic by-products when using these procedures. In critical situations, samples of affected soil, sediment, water, etc. should be sent to a laboratory for analysis to determine if decontamination was successful. Information or assistance for laboratory analyses may be obtained from the USACHPPM, Entomological Sciences Program, DSN: 584-3773/3613 or commercial (410) 436-3773/3613.

(3) Nonporous surfaces should be washed with detergent and water. The decontamination solution determined to be correct should be thoroughly worked into the surface. The decontamination solution should then be soaked up using absorbent material. The spent absorbent material is then placed into a labeled leak-proof container for disposal.

(4) Porous materials such as wood may not be adequately decontaminated. If contamination is great enough to warrant, these materials should be replaced. This is especially important for oil based formulations.

(5) Tools, vehicles, equipment and any contaminated metal or other nonporous objects can be readily decontaminated using detergent and the appropriate decontamination solution.

h. Disposal. All contaminated materials that cannot be effectively decontaminated as described above must be placed in properly labeled, sealed, leak-proof containers. Disposal of these containers shall be in accordance with instructions determined by the NJARNG Environmental Officer.

i. Supervision. All containment and control, cleanup, decontamination and disposal activities shall be carried out under the direct supervision of the certified Pest Controller or Spill Response Team.

j. The pesticide spill kits for NJARNG pesticide storage areas shall contain those items listed in Annexes A and B of this Appendix. Annex A is for large pesticide storage sites and Annex B is for sites such as armories or vehicles used to transport pesticides.

4. EMERGENCY TELEPHONE NUMBERS. Appendix J lists points of contact and their telephone numbers. CHEMTREC can be called for assistance in the event of a pesticide spill, leak or exposure using their toll-free number: (800) 424-9300.

5. REFERENCES.

a. Armed Forces Pest Management Board Technical Information Memorandum No. 15: Pesticide Spill Prevention and Management, June 1992.

b. Appendix K, Points of Contact.

Annex A, Appendix F: Large Pesticide Spill Kits

Large Pesticide Spill Kit

- 1 - copy of this appendix
- 1 - 55-gallon open-head drum
- 1 - 50-pound bag of absorbent material
- 2 - pairs of neoprene or nitrile gloves
- 2 - respirators with pesticide cartridges
- 2 - pairs of rubber boots
- 2 - aprons (chemical resistant)
- 3 - 1-gallon jug of household bleach
- 1 - 25-pound container of lime
- 1 - 1-gallon jug of liquid detergent
- 1 - 24-inch push broom
- 1 - square point "D" handle shovel
- 1 - shop brush (dust pan brush)
- 1 - dust pan
- 12 - 30-gallon polyethylene bag w/ties
- 1 - first aid kit

Annex B, Appendix F: Small Pesticide Spill Kits

Small Pesticide Spill Kit

- 1 - 5-gallon, open-head drum
- 10 - pounds of absorbent material
- 1 - 5-pound container of lime
- 2 - pairs of neoprene or nitrile gloves
- 1 - shop brush (dust pan brush)
- 1 - dust pan
- 4 - 30-gallon polyethylene bag w/ties
- 1 - 1-quart or equivalent quantity container of household bleach
- 1 - 1-pint or equivalent quantity container of liquid detergent

Whenever any of the items from the pesticide spill kits are used, they shall be cleaned and/or replaced.

APPENDIX G
PEST MANAGEMENT CONTRACT OPERATIONS
AND INTERSERVICE SUPPORT AGREEMENTS

NOTE. Place in this appendix, copies of all contracts with certified pest control operators. In addition, include all Interservice Support Agreements. Record all dates of pesticide applications, pests treated for, which control methods were used, amounts of pesticide used, specific location of pest problem and control used. Keep a record of when a contracted pest control operator will monitor pest control efforts.

RECORD OF CONTRACTED PEST CONTROL AND PEST SURVEILLANCE

Contracted Company Name/ Applicator Name	Date	Location	Pest(s) Present	Type of Control Used	Pesticide used	Quantity A.I.

APPENDIX H

STATE OF NEW JERSEY PEST CONTROL CERTIFICATION AND LICENSING

Certification and Licensing requirements with regard to State workers.



Certification of Commercial Pesticide Applicators in New Jersey

The Federal Insecticide, Fungicide, and Rodenticide Act of 1972 (FIFRA) required each state to set up a program to certify users of pesticides. This certification is designed to demonstrate a certain level of competency by pesticide users on the safe use of pesticides. New Jersey, through the Pesticide Control Program (PCP), began its certification program in 1975. Users of pesticides are classified as either private applicators or commercial applicators. The definition of each is as follows:

Private Applicator - any person who uses, or supervises the use, of pesticides for the purpose of raising an agricultural commodity. The application can be done on land owned or rented by the applicator or the applicator's employer. Examples of private applicators are dairy farmers, vegetable or fruit growers, greenhouse growers, ranchers, nurserymen, and home gardeners. Request a private exam application if your occupation requires private certification.

Commercial Applicator - any person who applies pesticides for non-agricultural purposes. Any person who uses, or supervises the use, of pesticides on a "for hire" basis (see note), no matter what for. Also, any person who applies pesticides as part of his job with any governmental agency. Examples of commercial applicators are those who work for exterminators; landscapers; tree services; aerial applicators; weed control firms; pet groomers; apartments, motels, nursing homes, restaurants, etc. who do their own pest control work; and governmental agencies such as mosquito extermination commissions, public school systems, Departments of Public Works, Departments of Health, the DOT, etc. If you are not sure whether you are classified as a private or commercial applicator, call the PCP at (609) 530-4070.

Note: If you apply pesticides "for hire" in New Jersey, State law requires that your business be licensed with the PCP as a Pesticide Applicator Business. The definition of a Pesticide Applicator Business is a business (or person) who, either wholly or in part, holds himself out for hire to apply pesticides. Examples are: pet groomers, exterminators, landscapers, tree services, aerial applicators, etc. The [Pesticide Applicator Business License](#) is in addition to your Certified Pesticide Applicator license. Call the PCP at (609) 984-6507 with any questions.

Commercial Applicator Certification - Certification is accomplished by passing pesticide applicator certification exams. Everyone must pass the basic "Core" certification exam. This exam is based on the Pesticide Applicator Training Manual - Core. In addition to the Core exam, one or more "Category" certification exams must be passed. The Category exams needed depend on the type of pest control that will be done. Category exams currently available:

- | | |
|------------------------------------|--------------------------|
| 1A-Agricultural-Plant | 7E-Wood Preserving |
| 1B-Agricultural-Animal | 7F-Antifoulant |
| 2 -Forest | 8A-General Public Health |
| 3A-Ornamental | 8B-Mosquito |
| 3B-Turf | 8C-Campground |
| 3C-Interior Landscaping | 8D-Cooling Water |
| 4 -Seed Treatment | 8E-Sewer Root Control |
| 5 -Aquatic | 8F-Pet Grooming |
| 6B-Right-of-Way | 9 -Regulatory |
| 7A-General & Household | 10-Demo & Research |
| 7B-Termite & Other Wood Destroying | 11-Aerial |
| 7C-Fumigation | 12A-Water Sanitization |

7D-Food Processing

12B-Sterilization

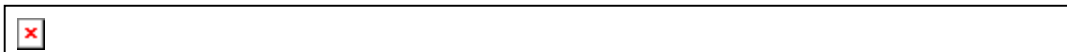
The Category exams are based on information contained in specific Category training manuals. The training manuals for all of the exams can be obtained from your [County Cooperative Extension Office](#). The Core exam is a closed-book exam, but the category exams are open-book. There is a limit of one hour and forty-five minutes for taking each exam. Exam sessions are held monthly throughout the state. You can take a maximum of three exams at each session (any combination of Core and Category). Visit the [Exam Schedule & Sign-up](#) page. You can also call the PCP at (609) 984-6614 to sign-up for the certification exam. When you have passed the Core exam and at least one Category exam, you are fully certified, unless you have taken either the Category 10 or 11 exam. For Category 10 and 11, you must pass at least one other category exam in order to be fully certified. Because Categories 10 and 11 are general categories, an additional category exam, which is more specific to the type of pesticide work being done, must be taken. You must become fully certified within 120 days of passing any certification exam or the exams previously passed will become invalid. Once you are fully certified, you will automatically receive licensing information in the mail. You cannot "use" your certification until you have received a license. Once you are fully certified, you must maintain your certification. This is accomplished by meeting the requirements of recertification.

The Recertification of Commercial Pesticide Applicators

Once you are fully certified, your certification is good for a minimum of 5 years. Each certification exam you have passed will have its own 5 year recertification date. The recertification date will be an October 31st date and is calculated by adding 5 years to the next October 31st date following the date you passed the exam (example: pass exam May 15, 1996; next October 31st date is October 31, 1996; recertification date is October 31, 2001). Recertification can be accomplished in two ways. One way is to retake the exams during the 5th year. The other way, which is encouraged, is to accumulate units of recertification credit over the 5 year period by attending PCP approved courses, seminars and meetings. A Commercial applicator must accumulate 8 units (one unit equals 30 minutes of instruction time) of Core subject matter credit and 16 units of Category subject matter credit (for each Category of certification) over the 5 years. [Click here for Recertification Courses](#) currently being offered. The PCP itself does not offer any recertification courses. Course information can also be obtained by contacting your County Cooperative Extension Office, industry associations, and private companies which offer such courses. You will receive an update of your recertification status at least once a year with your license renewal. The "Recertification Update Form" will tell you when your 5 year period is up for each area you are certified in, how many units you have accumulated and how many more you need. If there are any questions on Commercial applicator certification, call the PCP at (609) 530-4070.

APPENDIX I

NEW JERSEY POINTS OF CONTACT



The following is a list of contacts and resources prepared by the New Jersey Department of Environmental Protection, Pesticide Control Program. It is intended for use by public health officials, medical examiners and other government officials, and the general public in the event of a pesticide poisoning incident.

The following is a list of contacts and resources prepared by the New Jersey Department of Environmental Protection, Pesticide Control Program. It is intended for use by public health officials, medical examiners and other government officials, and the general public in the event of a pesticide poisoning incident.

New Jersey Poison Information and Education System (NJPIES)
Non-profit organization providing services to New Jersey. Suspected pesticide exposures or poisonings should be referred to this number first. NJPIES is New Jersey's regional drug and poison information program. Located at the Newark Beth Israel Medical Center.
1-800-POISON-1 (1-800-764-7661)

National Pesticide Telecommunications Network (NPTN)
Partially funded by EPA and maintained at Oregon State University. Besides providing a wealth of pesticide information on subjects such as pesticide products, poisonings, toxicology and environmental chemistry, this organization has a toxicologist on staff.
1-800-858-7378

Northeast Center for Agricultural Medicine and Health (NEC)
Funded by NIOSH and private foundations. NEC provides information services to health professionals, community organizations, libraries, business and rural citizens seeking to improve health and safety in agriculture and other rural-based occupations. The phone number given is for the New York Center for Agricultural Medicine and Health, a branch of NEC.
607-547-6023

Environmental & Occupational Health Sciences Institute (EOHSI)
Jointly sponsored by the University of Medicine and Dentistry of New Jersey and Rutgers University. EOHSI sponsors research, education and service programs in the areas of environmental health, toxicology, occupational health, exposure assessment and public policy.
732-445-0201

New Jersey Pesticide Control Program (NJPCP)
The New Jersey Department of Environmental Protection is the regulatory agency concerning pesticide registration and use.
Compliance Chief 1 609 984-6568 Operations 1 609 984-6647

APPENDIX J

FEDERAL RESOURCES AVAILABLE TO SUPPORT THE NEW JERSEY PEST MANAGEMENT PROGRAM

NATIONAL GUARD BUREAU (MACOM Pest Management Consultant)

Dr. Marc Imlay	DSN: 327-7989
Natural Resources	Comm: (703) 607-7989
Program Manager, NGB	Marc.Imlay@ngb-arng.ngb.army.mil

CHEMTREC (for assistance in a chemical emergency involving a spill, leak or exposure) 1-800-424-9300

NATIONAL PESTICIDE TELECOMMUNICATIONS NETWORK 1-800-858-7378

(up-to-date technical reference material on toxicity, human and environmental health effects, disposal, and proper use of each pesticide)

DEPARTMENT OF DEFENSE (DOD)

Armed Forces Pest Management Board (AFPMB)

The mission of the AFPMB is to recommend policy, provide scientific advice, and enhance coordination among the DOD components on all matters related to pest management. The AFPMB approves introduction, stockage, and deletion of pest management material in the DOD supply system; coordinates and develops requirements for pest management related research and testing within DOD; and operates the Defense Pest Management Information Analysis Center (DPMIAC). DPMIAC maintains a military entomology and pest management information data base. Scientific information pertinent to the military pest management program is indexed, abstracted, stored, analyzed, disseminated, and retrieved on request.

Armed Forces Pest Management Board
Forest Glen Section
Walter Reed Army Medical Center
Washington, DC 20307-5001

DSN: 295-7476
Comm: (301) 295-7476
Fax: 7473

Defense Pest Management Information Analysis Center

(24 hour telephone recorder for information about Armed Forces Pest Management Board information and publications such as Technical Information Memorandum and the Technical Information Bulletins)

DSN: 295-7476

Comm: (301) 295-7476

Fax: 7482

DEPARTMENT OF THE ARMY (DA)

The conservation division of the Director of Environmental Programs is responsible for developing Army policies, standards, and procedures relative to pest management programs, operations, pesticides, and related issues. Performs reviews to assure adherence to policies and provide technical advice as appropriate. Represents Army installations on the AFPMB, and with other government agencies. Establishes Army program requirements relative to Research and Development; interacts with other DA programs and disciplines.

Headquarters, Department of the Army
Assistant Chief of Staff for Installation Management
Directorate of Environmental Programs, Conservation Division
ATTN: DAIM-ED-N (Pest Mgmt)
600 Army Pentagon
Washington, DC 20310-0600

DSN: 223-0680

Comm: (703) 693-0680

Fax: (703) 697-0338

marroqui@Pentagon-ACSIM.Army.Mil

U. S. Army Center For Health Promotion and Preventive Medicine (USACHPPM)

The pest management program is responsible for providing technical assistance and support in all aspects of vector borne disease, pesticides, and integrated pest management. USACHPPM maintains laboratories and a staff of military and civilian entomologist and technicians for the purpose of providing assistance to the Army pest management community. USACHPPM operates the DOD Pesticide Hotline, produces technical guides, identifies arthropods, provides resistance test kits, and performs resistance testing. Examples of on-site services provided are: Pest Management Program Reviews, MEDCOM Pest Management Assistance Visits, Pest Resistance Evaluations, Lyme Disease Risk Assessments, Environmental Compliance Audits, and Pesticide Risk Management Studies. Other services are available by request and are tailored to the needs of the requesting organization.

COMMANDER
USACHPPM
ATTN: MCHB-TS-OEN
Aberdeen Proving Ground, Maryland 21010-5422

DOD Pesticide Hotline (for information concerning federal pesticide information
DSN: 584-3773 EPA or state registered pesticides and pesticide labels)
Comm: (410) 671-3773
Fax: 2037

USACHPPM-North

USACHPPM-North
ATTN: MCHB-AN-ES (C, ESD)
FORT MEADE, MARYLAND 20755-5225

DSN: 923-6502
Comm: (301) 677-6502
FAX: 7132

NOTE. For those installations serviced by USACHPPM other than USACHPPM-North listed above, the following information, as applicable, should be referenced:

USACHPPM-West
ATTN: MCHB-AW-ES (C, ESD)
Fitzsimons Army Medical Center
Aurora, Colorado 80045-5001

DSN: 943-8090
Comm: (303) 361-8090
FAX: 3290

NOTE. For those installations serviced by USACHPPM other than USACHPPM-North listed above, the following information, as applicable, should be referenced:

USACHPPM-South
ATTN: MCHB-AS-ES (C, ESD)
1312 Cobb St SW
Ft McPherson, GA 30330-1075

DSN: 367-2564/2578/2675
Comm: (404) 464-2564/2578/2675
FAX: 2633

Army Medical Department Center and School (AMEDD C&S)

The Medical Zoology Branch of the AMEDD C&S is the Army's designated center for DoD pest management certification training. Provides training to enlisted, officer, and civilian personnel. Involved in development of educational materials, including videos and graphic aids. Provides technical input to correspondence course.

Army Medical Department Center and School
Preventive Medicine Division, Medical Zoology Branch
ATTN: HSHA-MP
Fort Sam Houston, TX 78234-6142

DSN: 471-5270/4278
Comm: (210) 221-5270/4278
Fax: 5948

Walter Reed Army Institute of Research (WRAIR)

The Department of Entomology, WRAIR, implements an extensive program of basic and applied research on vectors of arthropod-borne diseases of military significance. Major areas of emphasis include: 1) design and evaluation of improved methods of biosystematics to include vector genetics, molecular taxonomy, and development and production of computerized interactive taxonomic keys for use by far-forward deployed preventive medicine personnel; 2) selection and development of rapid assays for detection and identification of parasites in vectors; 3) identification of arthropods responsible for transmission of infectious diseases and maintenance of reference insect collections of important vectors; 4) investigation of parasite vector host interactions and risk factors for prediction and disruption of natural transmission cycles; 5) culturing of malaria and *Leishmania* parasites and development of animal models to support vaccine development and diagnostics studies; 6) investigation of repellent mechanisms and optimization, composition, formulation and delivery of candidate repellents; 7) preparation of field sites for vaccine, drug, and repellent testing, and 8) design and evaluation of integrated vector control measures for preventing diseases.

Walter Reed Army Institute of Research
Department of Entomology
Building 40, Room 1089
Washington, DC 20307-5100

DSN: 291-3719
Comm: (202) 782-3719
Fax: 4598

APPENDIX K

SELF-HELP PEST CONTROL MATERIALS

1. Cockroach and ant control bait stations.

- a. Combat (regular size traps) – NSN 6840-01-180-0167.
- b. Combat (large size traps) – NSN 6840-01-224-1269.
- c. Maxforce – NSN 6840-01-298-1122.
- d. Dual Choice – NSN 3740-01-426-5472.

2. Cockroach sticky traps – NSN 3740-01-096-1632.

3. Spring mousetrap – NSN 3740-00-252-3384.

4. Rodent glueboards – NSN 3740-01-240-6170.

5. Wasp/hornet spray (pyrethrin formulation).

- a. PT 515 Wasp Freeze & Hornet Killer/Wasp Stopper II Plus/Wasp & Hornet Killer II - NSN 6840-00-459-2443.
- b. PT 565 Plus XLO Pyrethrin Aerosol Insecticide - NSN 6840-00-823-7849.

6. Fly swatters - NSN 3740-00-252-3383.

7. Fly sticky tape/ribbon - NSN 3740-01-412-9363.

8. Incandescent yellow light bulbs – (Local Purchase Item – for exterior use around building entrances to reduce attracting insects to lights at night).

9. Glyphosate (Roundup) – (For weed/plant control around buildings. Can be used around facilities with specific approval from the PMC. Concentrate and ready-to-use formulations are available. No container larger than 2.5 gals can be purchased).

- a. Roundup Pro NSN 6840-01-108-9578.
- b. Roundup Ready-To-Use NSN 6840-01-377-7113.
- c. Roundup Dry Pack NSN 6840-01-399-0673.

10. Boric acid

- a. Aerosol – NSN 6840-01-287-3938.
- b. 99% dust – (Commercial Purchase Item - 1 lb can or less).

11. Rodenticidal bait (0.005% diphacinone) – (must be placed in a container to avoid contamination and for safety reasons) NSN 6840-00-089-4664.

12. Rodent bait plastic container - NSN 3740-01-423-0737.

*NSNs are provided for use in purchasing the item through the Federal Stock System. Commercial purchase is authorized.

APPENDIX M
PESTICIDE USE
REDUCTION METHODS
TO BE IMPLEMENTED FOR ACHIEVING
MEASURE OF MERIT 2

Insecticide Reduction

1. Use 99% boric acid dust to control crawling insects indoors such as crickets, ants, and cockroaches.

Rationale: Boric acid is used at very low levels (heavy applications are repellent, thus less effective) and it has a long residual effect (fewer applications needed), no known insecticide resistance (less use of potentially non-effective pesticides), and low mammalian toxicity. Boric acid is approved as a self-help pesticide and will be a required use in pest control contracts that provide services to control crawling household pests.

2. Use insecticide baits to control cockroaches and ants indoors.

Rationale: Along with using boric acid dust, insecticide baits (i.e. the hydramethylnon baits approved for self help) will be emphasized instead of residual insecticide sprays. Advantages include: less active ingredient required to achieve control, baits are self help items which do not require the use of contracted professional services, residual sprays tend to repel target pests verses baits which attract specific pests. Use of hynamethylnon baits will be required in service contracts for controlling cockroaches and indoor ants.

Rodenticide Reduction

1. Emphasize use mechanical snap traps instead of rodenticides indoors.

Rationale: When minor infestations of mice and rats occur indoors, snap traps will provide good control results. Snap traps are available as a self-help item and do not require the use of certified pesticide applicators.

2. Other IPM practices such as sanitation and harborage reduction, and exclusion will be emphasized.

Rationale: Sanitation is a cultural method of control that reduces the availability of food to rodents. Sanitary inspections will be conducted to ensure good sanitary practices are implemented especially in food service and food warehouse facilities. Maintenance personnel will be used to perform rodent exclusion work where rodent entry is determined.

Herbicide Reduction

1. Use of herbicides that are more environmentally friendly and at reduced pounds of active ingredient per acre.

Rationale: The NJARNG will evaluate the use of Arsenal and Oust herbicides which require less active ingredient per acre than herbicides which contain bromacil and are less likely to migrate to non-target areas.

2. Additional herbicide use reductions include:

- a. Increase the use of mechanical mowing.
- b. Plant native low growing wild flowers.
- c. Reduce pesticide treatment areas by not using pesticides in non-essential areas.

4. SPECIAL NOTE:

Although herbicide use is the largest volume of pesticides applied on NJARNG facilities, reductions in herbicide use may be very difficult because of the presence of several noxious weeds which require control efforts. Some of these noxious weeds may be detrimental to endangered species and chemical control may be required to comply with the Endangered Species Act.

APPENDIX N

DEPARTMENT OF DEFENSE ARTHROPOD REPELLENT SYSTEM

NSN NATIONAL STOCK #	NOMENCLATURE	UNIT OF ISSUE
3740-00-641-4719	Sprayer, pesticide, manually carried, pressure type, 2-gallon, equipped with pressure gauge	EA
3740-01-332-8746	Gauge, pesticide sprayer (for retrofit use on 2-gallon sprayers not equipped with a gauge.	EA
4330-01-332-1639	Filter, fluid, (must be used with gauge NSN 3740-01-332-8746)	EA
6840-00-142-8965	Insect repellent, personal application, approximately 30% DEET (varies based on item currently being stocked)	12 1-oz cartridges/box (varies based on item being stocked)
6840-00-753-4963	Insect repellent, clothing and personal application, 75% DEET, 25% ethanol.	2-oz bottle
6840-01-137-8456	Insect repellent, personal application, 3% benzocaine, 10% precipitated sulfur (Chigg-Away)	118-ml bottle
6840-01-278-1336	Insect repellent, clothing application, aerosol, 0.5% permethrin (Permethrin Arthropod Repellent)	12 6-oz cans/box
6840-01-284-3982	Insect repellent, personal application (3M /EPA 58007-1), 33% DEET	12 2-oz tubes/box
6840-01-288-2188	Insect repellent, personal application & sunscreen, approx. 20% DEET/SPF 15 (varies based on item currently being stocked)	12 3/4-oz tubes/box (varies based on item being stocked)

NSN NATIONAL STOCK #	NOMENCLATURE	UNIT OF ISSUE
6840-01-334-2666	Insect repellent, clothing application, permethrin, 40% liquid (2-gallon sprayer)	12 151-ml bottles/box
6840-01-345-0237	Insect repellent, clothing application, 40% permethrin (IDA)	12 kits/box
6840-01-412-4634	Insecticide, d-Phenothrin, minimum 1.92%, space spray	12-oz aerosol can
7210-00-266-9736	Insect net protector, cot type	EA
7210-00-267-5641	Poles, folding cot, insect net protector	4 poles/set
8415-00-935-3130	Head net, insect	EA
8415-01-035-0846 -0847 -0848	Parka, fabric mesh, insect repellent (DEET jacket), small medium large	EA

3M is a registered trademark of Minnesota Mining and Manufacturing Co., St. Paul, Minnesota.
Chigg-Away is a registered trademark of L. T. York Co., 440 E. Helm St., Brookfield, Missouri.

APPENDIX O

GYPSY MOTH REGULATED AREAS

Gypsy Moth Quarantine regulations place restrictions on the interstate movement of regulated articles and outdoor household articles. No common carrier or other person may move interstate from any generally infested area any regulated article or outdoor household articles.

1. Regulated articles.

a. Trees without roots (e.g., Christmas trees), trees with roots, and shrubs with roots and persistent woody stems, unless they are greenhouse grown throughout the year.

b. Logs, pulpwood and wood chips.

c. Mobile homes and associated equipment.

d. Any other products, articles, or means of conveyance, of any character whatsoever, when it is determined by an inspector that any life stage of gypsy moth is in proximity to such articles and the articles present a high risk of artificial spread of gypsy moth infestation and the person in possession thereof has been so notified.

3. Outdoor household articles. Articles associated with a household that have been kept outside the home such as awnings, barbecue grills, bicycles, boats, dog houses, firewood, garden tools, hauling trailers, outdoor furniture and toys, recreational vehicles and associated equipment, and tents. Also, articles associated and moved with mobile homes and recreational vehicles, such as, but not limited to, awnings, tents, outdoor furniture, trailer blocks, and trailer skirts.

APPENDIX P

NOXIOUS AND INVASIVE PLANTS

FEDERAL LIST

(as of August 1995)

SPECIES:	COMMON NAME	FAMILY:	HABITAT:
<i>Aeginetia</i> spp.		Orobanchaceae	parasitic
<i>Ageratina adenophora</i>	crofton weed	Asteraceae	terrestrial
<i>Alectra</i> spp.		Scrophulariaceae	parasitic
<i>Alternanthera sessilis</i>	sessile joyweed	Amaranthaceae	terrestrial
<i>Asphodelus fistulosus</i>	onionweed	Liliaceae	terrestrial
<i>Avena sterilis</i> L.	animated oat wild oat	Poaceae	terrestrial
<i>Azolla pinnata</i>	mosquito fern, water velvet	Azollaceae	aquatic
<i>Borreria alata</i>	broadleaf buttonweed	Rubiaceae	terrestrial
<i>Carthamus oxycantha</i>	wild safflower	Asteraceae	terrestrial
<i>Chrysopogon aciculatus</i>	pilipiliula	Poaceae	terrestrial
<i>Commelina benghalensis</i>	Benghal dayflower	Commelinaceae	terrestrial
<i>Crupina vulgaris</i>	common crupina	Asteraceae	terrestrial
<i>Cuscuta</i> spp. (other than native or widely distributed species)		Cuscutaceae	parasitic
<i>Digitaria abyssinica</i> (= <i>D. scalarum</i>)	African conchgrass, fingergrass	Poaceae	terrestrial
<i>Digitaria velutina</i>	velvet fingergrass, annual conchgrass	Poaceae	terrestrial
<i>Drymaria arenarioides</i>	lightning weed	Caryophyllaceae	terrestrial
<i>Eichhornia azurea</i>	anchored or rooted waterhyacinth	Pontederiaceae	aquatic
<i>Emex australis</i>	three-cornered jack	Polygonaceae	terrestrial

SPECIES:	COMMON NAME	FAMILY:	HABITAT:
<i>Emex spinosa</i>	devil's thorn	Polygonaceae	terrestrial
<i>Galega officinalis</i>	goatsruc	Fabaceae	terrestrial
<i>Heracleum mantegazzianum</i>	giant hogweed	Apiaceae	terrestrial
<i>Hydrilla verticillata</i>	Hydrilla	Hydrocharitaceae	aquatic
<i>Hygrophila polysperma</i>	Miramar weed	Acanthaceae	aquatic
<i>Imperata brasiliensis</i>	Brazilian satintail	Poaceae	terrestrial
<i>Imperata cylindrica</i>	cogongrass	Poaceae	terrestrial
<i>Ipomoea aquatica</i>	water spinach	Convolvulaceae	aquatic
<i>Ipomoea triloba</i>	Swamp morning-glory little bell, Aiea morning-glory	Convolvulaceae	terrestrial
<i>Ischaemum rugosum</i>	murainograss	Poaceae	terrestrial
<i>Lagarosiphon major</i>	Moss	Hydrocharitaceae	aquatic
<i>Leptochloa chinensis</i>	Asian spranglegrass	Poaceae	terrestrial
<i>Limnophila sessiliflora</i>	Ambulia	Scrophulariaceae	aquatic
<i>Lycium ferocissimum</i>	African boxthorn	Solanaceae	terrestrial
<i>Melaleuca quinquenervia</i>	broadleaf paper bark tree	Myrtaceae	aquatic/ terrestrial
<i>Melastoma malabathricum</i>	banks melastoma	Melastomataceae	terrestrial
<i>Mikania cordata</i>	African	Asteraceae	terrestrial
<i>Mikania micrantha</i>	mile-a-minute	Asteraceae	terrestrial
<i>Mimosa invisa</i>	catclaw mimosa	Fabaceae	terrestrial
<i>Mimosa pigra</i>	giant sensitive	Fabaceae	terrestrial
<i>Monochoria hastata</i>	arrowleaved monochoria	Pontederiaceae	aquatic
<i>Monochoria vaginalis</i>	monochoria	Pontederiaceae	aquatic
<i>Nassella trichotoma</i>	serrated tussock	Poaceae	terrestrial
<i>Opuntia aurantiaca</i>	jointed prickly	Cactaceae	terrestrial pear

SPECIES:	COMMON NAME	FAMILY:	HABITAT:
<i>Orobanche</i> spp. (other than native or widely distributed species)	varies	Orobanchaceae	parasitic
<i>Oryza longistaminata</i>	red rice	Poaceae	terrestrial
<i>Oryza punctata</i>	red rice	Poaceae	terrestrial
<i>Oryza rufipogon</i>	red rice	Poaceae	terrestrial
<i>Ottelia alismoides</i>		Hydrocharitaceae	aquatic
<i>Paspalum scrobiculatum</i>	Kodo-millet	Poaceae	terrestrial
<i>Pennisetum clandestinum</i>	kikuyugrass	Poaceae	terrestrial
<i>Pennisetum macrourum</i>	African feather grass	Poaceae	terrestrial
<i>Pennisetum pedicellatum</i>	kyasumagrass	Poaceae	terrestrial
<i>Pennisetum polystachion</i>	missiongrass thin napiergrass	Poaceae	terrestrial
<i>Prosopis alapataco</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis argentina</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis articulata</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis burkartii</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis caldenia</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis calingastana</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis campestris</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis castellanosi</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis denudans</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis elata</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis farcta</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis ferox</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis fiebrigii</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis hassleri</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis humilis</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis kuntzei</i>	mesquite	Fabaceae	terrestrial

SPECIES:	COMMON NAME	FAMILY:	HABITAT:
<i>Prosopis pallida</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis palmeri</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis reptans</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis rojasiana</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis ruizlealii</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis ruscifolia</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis sericantha</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis strombulifera</i>	mesquite	Fabaceae	terrestrial
<i>Prosopis torquata</i>	mesquite	Fabaceae	terrestrial
<i>Rottboellia exaltata</i> (= <i>R. cochinchinensis</i>)	itchgrass, raoulgrass	Poaceae	terrestrial
<i>Rubus fruticosus</i>	wild blackberry	Rosaceae	terrestrial
<i>Rubus moluccanus</i>	wild raspberry	Rosaceae	terrestrial
<i>Saccharum spontaneum</i>	wild sugarcane	Poaceae	terrestrial
<i>Sagittaria sagittifolia</i>	arrowhead	Alismataceae	aquatic
<i>Salsola vermiculata</i>	wormleaf salsola	Chenopodiaceae	terrestrial
<i>Salvinia auriculata</i>	giant salvinia	Salviniaceae	aquatic
<i>Salvinia biloba</i>	giant salvinia	Salviniaceae	aquatic
<i>Salvinia herzogii</i>	giant salvinia	Salviniaceae	aquatic
<i>Salvinia molesta</i>	giant salvinia	Salviniaceae	aquatic
<i>Setaria pallide-fusca</i>	cattail grass	Poaceae	terrestrial
<i>Solanum torvum</i>	turkeyberry	Solanaceae	terrestrial
<i>Solanum viarum</i>	tropical soda apple	Solanaceae	terrestrial
<i>Sparganium erectum</i>	exotic bur-reed	Sparganiaceae	aquatic
<i>Striga</i> spp.	Witchweeds	Scrophulariaceae	parasitic
<i>Tridax procumbens</i>	coat buttons, tridax daisy	Asteraceae	terrestrial
<i>Urochloa panicoides</i>	liverseed grass	Poaceae	terrestrial

APPENDIX Q

NEW JERSEY ARNG INSTALLATION AND FACILITIES DESCRIPTION

This document is available from ID-OEC in GIS and provides a description of the installations and facilities of the New Jersey ARNG.

APPENDIX R

NJDMAVA LOG Sheets for the application of Pesticides either by contract or locally.