*** ORARNGR 210-5**

OREGON MILITARY DEPARTMENT

Joint Force Headquarters, Oregon National Guard

1776 Militia Way, P.O. Box 14350

Salem, OR 97309-5047

OREGON ARMY NATIONAL GUARD (ORARNG)

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INTEGRATED PEST MANAGEMENT PLAN

SUMMARY. This regulation identifies pest management requirements, and defines resources, administrative, safety, and environmental requirements to control pests at ORARNG facilities. It also serves as the ORARNG Integrated Pest Management Plan (IPMP).

SUGGESTED IMPROVEMENTS and PLAN MAINTENANCE. The proponent of this regulation is the Environmental Branch, Installations Division (AGI-ENV). Users are invited to send comments to the Oregon Military Department (OMD). ATTN: AGI-ENV, 1776 Militia Way, P.O. Box 14350, Salem, OR 97309- 5047.

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2 Executive Summary:

Pests can interfere with the military mission, damage real property and the environment, increase maintenance costs and expose personnel to diseases unless properly controlled. The Oregon Army National Guard's (ORARNG) pest management program objective is to use the integrated pest management (IPM) approach, for the judicious use of non-chemical and chemical control techniques to achieve effective pest control with minimal environmental impacts. IPM, as used by the ORARNG, is a decision making process designed to: identify the conditions causing a particular pest problem; devise ways to change those conditions to discourage recurrence of the problem; then select the least-toxic combination of strategies to suppress pest populations.

The contents of this plan apply to all activities and individuals working on Oregon Military Department, (OMD) property, or otherwise working for the OMD or the ORARNG, 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 violate the law. The application of pesticides is governed by the label. No pesticide will be applied contrary to its label. Pest management responsibility will begin with those individuals that occupy or maintain buildings, open spaces, or forests in the State, through a cost-effective self help program.

3 Background

3.1 Purpose:

This integrated pest management plan (IPMP) is a framework through which integrated pest management is defined and accomplished by the Oregon Army National Guard (ORARNG). 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.

3.2 Authority:

3.2.1 7 USC 136, Federal Insecticide, Fungicide, and Rodenticide Act, (FIFRA)

3.2.2 Oregon Revised Statutes, ORS 634

3.2.3 Army Regulation (AR) 200-1, Environmental Protection and Enhancement.

3.2.4 Department of Defense (DoD) Instruction 4150.07, DoD Pest Management Program.

3.3 Plan Maintenance, Annual Review, and Technical Approval:

This document will be reviewed and approved annually during the preparation of the Annual Plan Update Form (PUF) and the Pesticide Use Proposal (PUP). Annexes will be kept current. A completed PUF and PUP will be the documentation of the annual review and technical approval.

4 Responsibilities

4.1 State Adjutant General:

4.1.1 Comply with applicable Federal, State, and local environmental laws, regulations, internal directives and goals, and Executive Orders. AR 200-1, 1-24b.

4.1.2 Appoint an installation pest manager coordinator (IPMC) in writing. AR 200-1, 1-24w; AR 200-1, 5-4j and DoDI 4150.07, 5.4.20.3. Approval of this plan constitutes the written appointment of the designated IPMC.

4.1.3 Approve the IPMP and implement its programs. AR 200-1, 5-4b and DoDI4150.07, 5.4.20.2.

4.2 IPMC:

Prepare and implement an Integrated Pest Management Plan (IPMP) that complies with applicable Federal, State, and local environmental laws, regulations, internal directives and goals, and Executive Orders. AR 200-1, 5-4

4.3 Pest Management Personnel (State licensed applicators):

4.3.1 Comply with all Federal, State, and local laws, and regulations, internal directives and goals, and Executive Orders. 7 USC 136, FIFRA, ORS 634

4.3.2 Maintain an Oregon Public Pesticide Applicators License. ORS 634.116 Send a copy of the license annually to the IPMC.

4.3.3 Use IPM analysis techniques and the Installation Pest Management outlines from Annex A, to determine appropriate control measures. DoDI4150.07

4.3.4 In addition to following the direction on the label, if a licensed applicator is applying a pesticide on a school campus, (areas, preschool through community college, that are accessed by students on a regular basis) the applicator must follow the school's integrated pest management plan. ORS 634.700

4.3.5 Complete an AGO Form 43 (Annex E) after completing a work order implementing monitoring or control measures. The completed AGO Form 43 will be sent to: IPMC, Oregon Military Department, PO Box 14350 (AGI-ENV), Salem, OR 97309-5047. Electronic submission to the IPMC is preferred, for the current POC see Annex C.

4.4 Contractors:

4.4.1 Comply with all Federal, State, and local laws and regulations.

4.4.2 Complete an AGO Form 43 (Annex E) after providing contract services. The completed AGO Form 43 will be sent to: IPMC, Oregon Military Department, PO Box 14350 (AGI-ENV), Salem, OR 97309-5047. Electronic submission to the IPMC is preferred, for the current POC see Annex C. ORS 634.116

4.5 Self-Help (generally maintenance workers, but self-help is available to all tenants and employees):

4.5.1 Keep all areas clean, dry, and sanitary. Areas need to be free of open food containers. Don't accumulate pest harborage materials such as empty boxes or dunnage.

4.5.2 Using Installation Pest Management outlines from Annex A, determine if self-help is appropriate. Self help is not appropriate for restricted use pesticides, or when fuel or electric-powered sprayers or spreaders are used. Self-help is not appropriate on the campus (areas that are accessed by students on a regular basis) of a school. A school is defined as preschool through community college. ORS 634.116, ORS 634.700.

4.5.3 If self help pesticide application is appropriate, read and follow the label. (Generally any pesticide purchasable over-the-counter is acceptable.) Use any of the approved materials on the "Armed Forces Pest Management Board (AFPMB) Standard Pesticides List Available to DoD Components and Agencies", extensive list. The current list is available on the web, search for "AFPMB". DoDI 4150.07, E4.7.7.3.3.

4.5.4 Complete an AGO Form 43 (Annex E) after application. If using an aerosol can, the date of application on the AGO Form 43 is the day the can is emptied. Aerosol cans are a hazardous waste and must be turned-in following ORARNG 420-47. Other pesticide containers should be

disposed of properly when empty (follow the label). Unused, unwanted product must be turned-in, not thrown away. Turn-in and storage of pesticides will be governed by ORARNGR 420-47, Hazardous Material, Waste and Spill Management Plan. Store any unused portion appropriately (follow the label). The completed AGO Form 43 will be sent to: IPMC, Oregon Military Department, PO Box 14350 (AGI-ENV), Salem, OR 97309-5047. Electronic submission to the IPMC is preferred, for the current POC see Annex C.

4.5.5 If self-help is not appropriate fill out a work order requesting assistance with your pest problem and submit it to AGI.

5 Integrated Pest Management

5.1 Legal Mandate:

5.1.1 ORS 634

5.1.2 AR 200-1 5-4

5.1.3 DoDI 4150.07 4

5.2 Operations:

5.2.1 There are four basic principles that are the heart of IPM to provide long term control of pest populations at acceptable levels while maintaining ecosystem integrity. Although the use of the least-toxic pesticide is an integral part of IPM, non-chemical control is stressed. Use of pesticides is almost always a temporary measure and, in the long run, more expensive. Non-chemical control, which may initially be more expensive, will usually be more cost effective in the long run. Non-chemical controls have the added advantage of being nontoxic, thereby reducing the potential risk to human health and the environment. Monitoring is stressed to determine cause of infestation and to evaluate the most effective management of the problem. Animal pests require food, water, and harborage. Long term control is dependent upon eliminating or restricting access to these requirements.

5.2.2 Mechanical and Physical Control: This type of control alters the environment in which a pest lives, excluding pests, or trapping and removing pests where they are not wanted.. Examples of this type control include: harborage elimination in structures through caulking or filling voids, screening, mechanical traps or glue boards, and nets and other barriers to prevent entry into buildings.

5.2.3 Cultural Control: Strategies in this method involve manipulating environmental conditions to suppress or eliminate pests. For example, judicious sanitation at dining facilities reduces the attractiveness of the area to flocks of gulls and other birds that may cause increased air strike hazard. Planting or replacing ornamental trees and shrubbery with native plants that are less attractive to defoliating pests is another cultural measure.

5.2.4 Biological Control: In this control strategy, predators, parasites or disease organisms are used to control pest populations. For example, the introduction of ragwort flea beetle, and the cinnabar moth have dramatically reduce the prevalence of tansy ragwort. Release of these

controls in infested areas can virtually eliminate tansy ragwort at that local. Introduction of new biological controls is the responsibility of the US Department of Agriculture's Animal and Plant Health Inspection Service's, Plant Protection and Quarantine's, Biological Control Program.

5.2.5 Chemical Control: Pesticides kill living organisms, whether they are plants or animals. At one time, pesticides were considered to be the most effective control available, but pest resistance rendered many 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 has risen due to requirements for more frequent application. Since personal protection and special handling and storage requirements are necessary with the use of pesticides, the overall cost of control can be quite high when compared with non-chemical control methods. Use of chemicals may be warranted to control some pests and invasive species. For example some recently introduced herbicides are very specific to their target, such as Poast or Fusilade to invasive grasses, which make them an important component for reducing some invasive exotic pests.

6 Priority of Pest Management Work

6.1 Public Health Pests:

Wasps, yellow jackets, bees, spiders, fleas, mosquitoes, ticks, rodents, bats, birds, rabid mammals and poison oak.

6.2 Structural Pests:

Termites and carpenter ants.

6.3 Pests Found in and Around Buildings:

Roof moss, mold, and mildew.

6.4 Noxious or Invasive Plants:

Spurge laurel, barberry, English Holly, English ivy, Himalayan blackberries, false dandelion, European iris, purple loosestrife, tansy ragwort, knapweed, Scot's broom, European hawthorn, Californian bush lupine, European beach grass, false brome, medusa head, reed canary grass, cheat grass, European pasture grasses such as orchard grass, quack grass, sweet vernal grass, bent grass, tall fescue, and poison oak.

6.5 Undesirable Vegetation:

Vegetation, along fence lines, on road shoulders, in paved surfaces, and in gaveled parking lots.

6.6 Quarantine and Regulated Pests:

If regulated or quarantine pest are encountered the ORARNG will follow, ORS 569.175-195 and 7 CFR 300-399.

6.7 Vertebrate Pests:

Nutria, opossums, beavers, skunks, raccoons, squirrels, mice, rats, gophers, moles, and birds.

7 Health and Safety

7.1 Medical Surveillance of Pest Management Personnel:

The State licensing and annual training requirements cover pesticide safety. Applicators must read and follow all health and safety information on the label. Application of pesticides requiring formal medical surveillance or respirators is not authorized and must be contracted out.

7.2 Hazard Communication:

Applicators must read and follow the label. ORARNG 385-10, "Hazard Communication" will be followed.

7.3 Personal Protective Equipment:

Personal protective equipment as specified on the pesticide's label is provided to pest management personnel by AGI or the unit. Submit purchase order requests, when supplies of personal protective equipment become low.

7.4 Fire Protection:

Facility personnel must follow all label precautions when dealing with the storage of pesticides. Fire protection of pesticides will be governed by ORARNGR 420-47, Hazardous Material, Waste and Spill Management Plan.

7.5 Pest Management Vehicle(s):

Whenever possible, designate a single vehicle to transport and apply pesticides. Pesticides are never transported in the cabs of vehicles, in personally owned vehicles, or in vehicles generally used for non-pesticide related activities. Whenever possible, pesticides are transported in a lockable storage compartment of an assigned vehicle(s). 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 at an unsecure location.

7.6 Protection of the Public:

Precautions shall be taken during pesticide application to protect the public. All precautions listed on the label will be followed.

7.7 Pesticide Storage and Security:

Facility personnel will follow all label precautions that deal with the storage of pesticides. Pesticides should be kept secure at all times. Pesticides should be under the applier's direct control or located in a secure locked facility or cabinet. Pesticides are a hazardous material. Pesticide storage, security, and management will be governed by ORARNG 420-47, Hazardous Material, Waste and Spill Management Plan, to include using AGO Form 200-1-3, Hazardous Material Inventory and maintaining the appropriated MSDS.

8 Environmental Considerations

8.1 Sensitive Areas:

8.1.1 Sensitive areas that must be considered before any pesticides are used are listed on each pesticide label. Most pesticides should not be used near any waterbodies, check the label, and see below for further restrictions.

8.1.2 The US Sixth Circuit Court of Appeals held that pesticides applied "to" or "around" navigable waters of the United States require a Clean Water Act discharge permit. The National Cotton Council of Am, et. al. v. EPA, U.S. Sixth Circuit of Appeals. "Around" has been interpreted to be within 3 feet of the "waters of the US". The Oregon Department of Environmental Quality Permit Number: 2300A allows State and Federal agencies with a responsibility to control pests to apply pesticides to waters, upon registration through application, development of a pesticide discharge management plan, and payment of a fee. Contact the current IPMC if an application needs to be submitted.

8.1.3 Aerial applications require approval of the U.S. Army Environmental Command. An aerial statement of need is submitted to NGB-ARNG. AR 200-1, 5-4 h "IPM coordinators should update project documentation, particularly the associated environmental assessment, if subsequent aerial application operations are planned." DODI 4150.07, E4.7.1.

8.2 Endangered or Protected Species and Critical Habitats:

8.2.1 By court order ground application of certain pesticides cannot be within 20 yards of critical habitat rivers and creeks of listed threatened and endangered anadromus fish. The updated list of pesticides and maps can be found at the Oregon Department of Agriculture's website. Washington Toxic Coalition, et al v. EPA, Case C01-0132C, US District Court Western District of Washington. OMD has no properties where the application of pesticides would occur within 20 yards of these waterbodies.

8.2.2 Threatened and Endangered species occur on some ORARNG training sites. Refer to the site specific Integrated Natural Resource Plan for information on any management, or any pesticide application restrictions.

8.2.3 The Bald and Golden Eagle Protection Act, originally passed in 1940, provides for the protection of the bald eagle and the golden eagle (as amended in 1962) by prohibiting the take,

possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C. 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.3).

8.2.4 Migratory birds and their nests are protected. No migratory bird or their eggs may be harmed. Birds maybe scared or herded to encourage them to move (unless the birds are otherwise protected under separate authority such as the Threatened and Endangered Species Act). 50CFR Part 21. Nuisance nests may be destroyed (not collected) before eggs are laid or after chicks have fledged.

8.3 Cultural and Historical Sites:

All Integrated Pest Management activities must be in accordance with the Oregon Military Department Integrated Cultural Resource Management Plan, (ICRMP). Inadvertent discovery of cultural resources will immediately follow the procedures and notifications specified in the ICRMP. Locations of native plants, identified during the tribal consultation process, that are of interest to the Tribes will be reported to the Oregon Military Department Cultural Resource Manager. Any necessary ground disturbance or work requiring alteration of building eligible for the National Register of Historic Places would be reviewed by the Oregon Military Department Cultural Resource Manager. For the current POC see Annex C

8.4 Environmental Documentation:

The National Guard Bureau (NGB) completed a programmatic environmental assessment (PEA) for the Army National Guard Bureau's pest management program. A copy of the PEA's Finding of No Significant Impact (FONSI) and the ORARNG's Record of Environmental Consideration for this plan, tiered to the attached FONSI can be found in Annex F.

8.5 Pesticide Spills and Remediation:

Any pesticide spills and remediation will be governed by ORARNGR 420-47, Hazardous Material, Waste and Spill Management Plan; ORARNG 200-1; and ORARNG PAM 200-1, Environmental Compliance Notebook, and applicable Federal, State, and local laws and regulations.

9 Program Administration:

9.1 Pest Management Operations:

Pest management operations will be conducted in accordance with Annex A of this Plan.

9.2 Contracts:

ORARNG uses State of Oregon contracting procedures. See contractor responsibilities section above in "Responsibilities" section.

9.3 Outleases:

If the ORARNG initiates outleases in the future, the leasee will be governed by this regulation as a contractor.

9.4 Interservice Support Agreements:

Tenants of ORARNG or OMD will be governed by this regulation. If ORARNG has activities or units that are tenants upon another installation, ORARNG will follow that installation's Integrated Pest Management Plan. In no instance will a pesticide be applied contradictorily to its label.

9.5 Reports and Records:

Pesticide application and surveillance records will be created using the form in Annex E. Annex E contains copies of AGO Form 43, Pesticide Application Record, which must be used for all pesticide applications. The form must be completed by the applicator. Contractors must provide copies of pesticide application records to the state maintenance worker at the facility. AGO Form 43, Annex E, shall be submitted to AGI-ENV quarterly by the applicator, covering the preceding three month period (due dates are Jan.10, Apr.10, July 10, and Oct.10); Oregon Department of Agriculture, ODA, pesticide application records completed and reported to ODA by contractor must be noted on AGO Form 43. Reports will be sent to: IPMC, Oregon Military Department, PO Box 14350 (AGI-ENV), Salem, OR 97309-5047. Electronic submission to the IPMC is preferred, for the current POC see Annex C. DoDI 4150.07, E4.11.

9.6 Training and Certification:

9.6.1 State employees who apply restricted use pesticides, use fuel or electric-powered sprayers or spreaders to apply pesticides, or apply on the campus of a school will be licensed by the State of Oregon as a Public Pesticide Applicator in the appropriate categories. Copies of applicator's licenses and renewed licenses will be sent to: IPMC, Oregon Military Department, PO Box 14350 (AGI-ENV), Salem, OR 97309-5047. Electronic submission to the IPMC is preferred, for the current POC see Annex C. ORS 634.116, AR 200-1, 5-4.

9.6.2 Self help users awareness training will consist of reading this regulation, using the integrated pest management system decision making process in Annex A, and following the label's directions of each pesticide used. Additional information can be found on the Armed Forces Pest Management Boards website, search for "AFPMB".

9.7 Emergency Disease Vector Surveillance and Control:

The ORARNG's State Surgeon will remain aware of any new disease vectors entering the area and assess and disseminate any surveillance and control measures necessary.

9.8 Coordination (DoD, other Federal, State, and local):

The submission to and approval of this Plan by NGB and the annual PUP and PUF insure continued federal coordination. Our Integrated Natural Resource Management Plans for Biak, Camp Rilea, and Camp Adair and their annual reviews guarantee coordination with Federal and State Fish and Wildlife authorities. We also often consult with the local County Extension Agent for the most effective management of pests and invasive exotic species.

10 Sale and Distribution of Pesticides:

Self help pesticides are bought on the economy following State or Federal purchasing procedures. State contracting is used for purchase of pesticides for use by licensed applicators.

11 IPM References and Links:

The most current IPM information is available on the Armed Forces Pest Management Board's website, search for "AFPMB".

Annex A

Integrated Pest Management Outlines

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HORNETS, WASPS, AND YELLOW JACKETS

PURPOSE

To control insects that can sting, causing pain and possible life-threatening allergic reactions to hypersensitive individuals. The insects may inhabit vehicles, utility structures, occupied buildings, surrounding areas, and other public use areas.

SURVEILLANCE

Conducted by: Mechanics, Installation/Facility personnel or Facility Maintenance personnel.

Methods: Inspections for or incidental observation of live insects or nests.

Frequency: Daily incidental observations by Mechanics, Installation/Facility personnel or Facility Maintenance personnel during work hours. PMP inspect when requested and following insufficient control by other methods.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Place screens on windows and doors, and caulk gaps or crevices to prevent access. Forced-water/hose, or a broom may be used to remove mud dauber nests. Chemical treatment of nests and subsequent removal is more effective if done, very early in the morning, just at sunset, or at night when most of the hornets, wasps, or yellow jackets are in the nest. Disturb the nest as little as possible when applying chemical treatment and remove nests after treatment. If additional lighting is needed, use a red filtered spotlight since these insects cannot see red light. Insects (live or dead) and nests can be removed by vacuuming, though care should be taken in doing so. Personnel allergic to stinging insects should avoid removing stinging insects.

Conducted by: Mechanics, Installation Personnel/Facility Maintenance personnel. PMP may remove nests.

Cultural

Method and Location: Yellow jackets and hornets are attracted to meats, sweets, and putrid trash. Therefore, seal garbage in plastic bags and use tight fitting lids on receptacles. If accumulating recyclable food or drink containers rinse then store in air tight containers. Flowering plants that can attract wasps should not be planted close to frequently used areas such as building entrances.

Conducted by: Installation/Facility personnel are responsible for keeping areas free of trash. Facility Maintenance personnel or contractors should select vegetation and plants unattractive to these stinging insects.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- 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.

Pesticide: Hand held aerosol applied directly to insects and nests, or equivalent.

Basis for Treatment: Target pests found in parked vehicles, utility structures, in and around buildings, or around other areas that may present health risks or interfere with mission.

Method and Location: Apply residual insecticides directly to insects and nests. Treat nests during early mornings or evenings when most insects occupy their nests and during cool weather, when they are least active. Wasps, yellow jackets, and hornets will be most active and visible during the warm summer months.

Conducted by: Mechanics, Installation/Facility personnel, Facility Maintenance personnel, or PMP.

Control Standard: Target pests are killed following treatment and control is maintained for seven (7) days.

BUMBLE AND HONEY BEES

PURPOSE

To control insects that can sting, causing pain, and possible life-threatening allergic reactions to hypersensitive individuals. The insects may inhabit utility structures, occupied buildings, surrounding areas, and other public use areas. Notify a local beekeeper when swarms of bees are found. All bees, including the queen, should be removed.

NOTE: Chemical use is the last resort for control.

Seal crevices that bees can access structures. All hive materials (dead bees, brood, wax, and honey) must be removed from hives found inside walls. Flowering ornamental plants planted close to sidewalks, building entrances, and other public-use areas should be relocated if bees are a problem. Bumble bee entrance holes in the ground should be covered with soil immediately after chemical treatment. Do not disturb naturally occurring swarms and hives found in training areas unless they curtail military training.

SURVEILLANCE

Conducted by: Installation/Facility and Facilities Maintenance personnel

Methods: Inspections.

Frequency: Daily incidental observations by Installation/Facility personnel or Facility Maintenance personnel during work hours. PMP inspect when requested and following insufficient control by other methods.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Place screens on windows and doors and caulk crevices to prevent access. Remove hives, swarms, and hive materials (i.e., wax, honey, and dead bees) in walls. Beekeepers use queen excluders when removing colonies.

Conducted by: Installation/Facility personnel. PMP or beekeepers remove hives and swarms.

Cultural

Method and Location: Bees are attracted to sweets and trash, seal garbage in plastic bags, and use tight fitting lids on receptacles. If accumulating recyclable food or drink containers rinse then store in air tight containers. Flowering plants, such as *Euonymus* shrubs, which attract bees, should not be planted close to frequently used sidewalks, outdoor benches, picnic tables, or building entrances.

Conducted by: Building occupants keep areas free of trash. Facility Maintenance personnel or contractors select and plant vegetation appropriate for areas frequently trafficked by people.

CHEMICAL PEST MANAGEMENT TECHNIQUES
• **FOLLOW THE DIRECTIONS ON THE LABEL.** • Honeybees are important economic insects. Chemical control should be used only when other tactics have failed. It is best for beekeepers to remove swarms and hives and re-locate them to remote areas to promote colony survival. • Do not apply insecticides diluted with water into electrical wire areas. Use extreme caution around electrical lines when using metal ladders and metal spray equipment. • Treat areas carefully to prevent loss of honey bees and bumble bees.
Pesticide: Hand held aerosol applied directly to insects and nests or equivalent ***Basis for Treatment:*** Target pests found in utility structures, in and around buildings, or around other areas that may present health risks or interfere with mission. ***Method and Location:*** Apply residual insecticides directly to insects and nests. Treat nests during early mornings or evenings when most insects occupy their nests and during cool weather, when they are least active. ***Conducted by:*** Installation/Facility personnel, Facility Maintenance personnel, or PMP. ***Control Standard:*** Target pests are killed following treatment and control is maintained for seven (7) days.

SPIDERS

PURPOSE

To eliminate venomous spiders, such as the Black Widow, *Latrodectrus* spp., Brown Recluse, *Loxosceles* spp., Hobo spider, *Tegenaria* spp., and nuisance non-poisonous spiders from buildings and other structures.

IDENTIFICATION

The **black widow spider** is easily recognized by the reddish hourglass marking on the bottom of its abdomen. Their webs are always built low to the ground in out of the way places. Venom from the black widow is a neurotoxin and bites are very painful. Physiological effects from the bites are accelerated heart beat, increased blood pressure, breathing difficulties and paralysis. Seek medical attention immediately and bring the spider with you if at all possible.

The **brown recluse,** aka: fiddle-back spider, is easily distinguished by the dark, fiddle shaped marking on top of the cephalothorax. Their webs are always built low to the ground in out of the way places. Venom from the brown recluse spider is hemolytic and produces necrotic wounds causing the tissue around the bite area to die. Seek medical attention immediately and bring the spider with you if at all possible.

SURVEILLANCE

Conducted by: Installation/Facility personnel or PMP. PMP may conduct surveys to validate complaints or to evaluate control.

Methods: Incidental observation is the primary survey method. Spiders are frequently found in dry, cool and undisturbed places like stored clothing items. Shake out all clothing and footwear prior to wearing. Insect sticky traps may be used for inspections.

Frequency: Installation//Facility personnel may incidentally observe spiders during facility use. PMP inspect when requested, following ineffective self-help control measures, and if potentially poisonous spiders are suspected.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Sweep or vacuum spiders and webs. Maintain screens and weather-stripping around doors and windows. Caulk cracks and crevices in building exteriors, maintaining tight fitting doors, and tightly fitted window screens. Store as much equipment and supplies on metal shelves as possible. Place shelving and other items away from walls. Any holes, cracks, or seams, which can provide spider harborage, can be easily sealed-off using caulking or foam. Attempt to store heavy items on some type of support to avoid their contact with the floor. When possible, place items in sealed plastic, tight meshed bags, or sealed boxes to exclude spiders. Control spiders outdoors by washing webs with a hose. Insect sticky traps can be placed next to doorjambs to intercept incoming spiders and determine if additional control is needed.

Conducted by: Installation/Facility personnel or custodial services keeping facilities clean. Facility Maintenance personnel install, repair, or replace weather-stripping and screens.

Cultural

Method and Location: Prevent infestations through good housekeeping. Keep boxes and equipment neatly stored on shelves to exclude spiders. Keep premises free of debris; clean and dispose of trash, debris, and old equipment. Use yellow incandescent lights at doors to attract fewer insects, thus reducing spider food. Shake clothing and foot wear out prior to wearing, and always wear long shirts, long pants, boots and gloves when working in areas that may harbor spiders.

Conducted by: Installation/Facility personnel and Facility Maintenance personnel.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Do not apply pesticides on food, utensils, and food preparation surfaces. Read the label for additional precautions.
- Do not let unauthorized personnel in treatment areas until pesticide has dried and odors subsided.
- Spiders are predators of many insect pests and are therefore considered beneficial. Consider using pesticides only when poisonous spiders pose a risk to personnel.

Pesticide: Aerosol formulated for spiders, or equivalent.

Basis for Treatment: Self-help is used when spiders are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Spray directly on pests. If necessary, use repeated applications to webbing and cracks and crevices which harbor spiders.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

Control Standard: Spiders are killed on contact. Fewer than five (5) living spiders observed after treatment indoors for a period of 24 hours.

Pesticide: Boric Acid

Basis for Treatment: Self-help is used when spiders are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Indoor - Inject with the prescribed dosage into cracks and crevices and void spaces where insects may be harboring. Outdoor - Treat cracks around doors, windows, under siding and voids at foundation level, beneath guards on loading docks, into cracks in foundations and floors and in other places where these pests may enter building.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

Control Standard: Spiders are killed on contact. Fewer than five (5) living spiders observed after treatment indoors for a period of 24 hours.

FLEAS

PURPOSE

To eliminate fleas from buildings and other structures. Fleas are introduced when wild or feral mammals inhabit a structure or are taking refuge in the crawl space or attic. Reduce fleas in heavy infested training areas where they impact mission.

IDENTIFICATION

Fleas are generally noticed because of bites. Visually if directly observed with the naked eye they are small dark dots that hop when disturbed. They have a very hard chitin shell and cannot be squished between your fingers if caught.

SURVEILLANCE

Conducted by: Building occupants, housekeeping staff, Soldiers and the facility manager(s).

Methods: Visual Inspection or traps.

Description of bites: Characteristic of an infestation. If bites are identified, it can be assumed there is an infestation.

Carpets and Furniture: Inspect carpets and furniture. Fleas will generally be found around your ankles in your socks.

Frequency: As necessary after an infestation is detected.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

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, raccoons, etc.) entry to under structures.

Conducted by: Occupants, Housekeeping Staff and PCOs.

Cultural

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.

Conducted by: Occupants, Maintenance Staff and PCOs.

CHEMICAL PEST MANAGEMENT TECHNIQUES	
• **FOLLOW THE DIRECTIONS ON THE LABEL.** • Do not contaminate food, utensils, or preparation surfaces. • Do not permit personnel in areas until the applied insecticide has dried and odors have subsided.	
Basis for treatment: Fleas are present in large numbers and causing a nuisance. **Conducted by:** Maintenance worker, PMP, or Contractor. **Control Standard:** Elimination of all fleas for 30 days.	
Pesticide	
• Residual insecticide and aerosol applied together.	
ADDITIONAL INFORMATION	
Sensitive areas: Do not apply pesticides to areas where aquariums are present. Do not apply cholinesterase inhibiting pesticides in areas where young children are present. **Prohibited practices:** Do not apply to food, utensils, or on preparation surfaces. Do not allow unauthorized personnel in treatment areas until insecticides dry and odors subside. **Environmental concerns:** See pesticide label for additional concerns and precautions. **Additional comments:** Elimination of host animals is essential. Pesticides should be considered the last option, but are often necessary for control.	

LICE

PURPOSE

To eliminate lice from buildings areas occupied by personnel with louse infestations.

IDENTIFICATION

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. 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. Clean combs and brushes by soaking them overnight in the lice treatment.

SURVEILLANCE

Conducted by: Conducted by: Infested individuals or medical personnel.

Methods: Visual Inspection.

Carpets, Furniture, Bedding and Clothing: Inspect carpets, upholstered furniture, bedding and clothing.

Frequency: As necessary after an infestation is detected.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

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

Conducted by: Infested individuals, or medical personnel.

Cultural

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. Vacuum carpets, mattresses, and upholstered furniture thoroughly. Remove all hair from combs and brushes then clean and soak them for thirty minutes or more in soapy water heated to 150 degrees F. Vacuum carpets, mattresses and upholstered furniture thoroughly. Containerize

and seal vacuum bags immediately after vacuuming and place the sealed container outdoors in a sealable trash receptacle. ***Conducted by:*** Infested personnel or other building occupants.
CHEMICAL PEST MANAGEMENT TECHNIQUES
• **FOLLOW THE DIRECTIONS ON THE LABEL.**
Basis for treatment: Recommended by physician. **Conducted by:** Maintenance worker, PMP, or Contractor. **Control Standard:** Elimination of all lice for 30 days.

Pesticide	
• Residual aerosol.	

MOSQUITOS

PURPOSE

To reduce mosquito populations in the cantonment area thus reducing bites and the potential for mosquito-borne disease transmission, such as West Nile Virus (WNV), to humans. 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 is detected in an area (found in mosquito populations or reported human cases), coordination for surveillance and control should be made through the Environmental Office.

SURVEILLANCE

Conducted by: Installation/Facility personnel or PMP.

Methods: Surveys for larvae in standing water that has existed for 5 or more days. Landing/biting count surveys are used in areas where day-biting mosquitoes are a problem. Light traps can be used to survey for nocturnally active mosquitoes.

Frequency: Larval surveys are done in conjunction with other duties. Larval and adult mosquito surveys are also performed when complaints from personnel are received. If a mosquito-borne disease is identified in an area, use light traps several nights per week to monitor populations.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Screens should be placed in windows to exclude mosquitoes. Temporary standing water sites that hold water should be graded or filled to eliminate breeding sites. Precautions must be taken to prevent damage to wetlands. Eliminate artificial breeding sites, such as tires. Mow and remove grasses and brush to reduce resting sites. Mosquito traps can perform an important function at specific locations such as gate guard locations, etc.

Conducted by: Installation/Facility personnel or Facility Maintenance personnel.

Biological

Mosquito Dunks or equivalent; EPA Registration Num: 6218-47, *Bacillus thuringiensis* Berliner variety *israelensis* (Bti)

Method and Location: Applied to sites that hold stagnant water longer than seven (7) days. When effective, no live mosquito larvae should be present five (5) days after treatment. NOTE: This product is ineffective for controlling fourth instar larvae or pupae. Applications may be made at sites that are currently dry but have a history of mosquito problems. Larvae should be controlled for about 30 days.

Conducted by: Installation/Facility personnel or PMP.

Cultural

Method and Location: Remove items that can hold water such as bottles, cans, and discarded tires to reduce potential breeding sites. Clean gutters to reduce standing water. Personnel should empty (weekly) or eliminate containers that hold water that may provide mosquito-breeding sites. Use yellow incandescent light bulbs and high-pressure sodium lights to reduce the attraction of mosquitoes.

Conducted by: Installation/Facility personnel or Facility Maintenance personnel.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Do not apply aerosols when wind speeds exceed five (5) miles per hour.
- Do not apply larvicides before heavy precipitation that may wash them away. Read pesticide labels for additional prohibited practices.
- These pesticides can harm honeybees. Do not damage or eliminate wetland ecosystems. For determining locations of wetland ecosystems contact the Environmental Office.

Pesticide: DEET (34.34% N,N-Diethyl-metatoluamide); EPA Registration Num: 58007-1

Basis for Treatment: When individuals plan to go into potential mosquito habitats during early Spring through Fall.

Method and Location: DEET repellent applied to the skin.

Conducted by: Individuals to be protected.

Control Standard: No mosquito bites on the skin.

Pesticide: Aerosol insecticide

Basis for Treatment: Self-help is used when mosquitoes are found within the facility.

Method and Location: Close all doors and windows. Point nozzle upward. Direct spray mist to all parts of room, especially windows and other light sources which attract insects. Fill room with mist, then leave treated area immediately. Keep room closed for at least 15 minutes. Ventilate room when treatment is completed. Repeat as necessary.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

Control Standard: Mosquitoes are killed on contact.

Pesticide: Altosid (Methoprene) or equivalent (2.1% Methoprene); EPA Registration Num 2724-421

Basis for Treatment: Presence of larvae.

Method and Location: Briquettes or other dry formulations are applied to standing water in storm drains, catch basins, roadside ditches, and tires.

Conducted by: Certified PMP.

Control Standard: Larval mosquitoes die before pupation. Materials are applied at all target sites per label directions.

NOTE: Methoprene does not control late instar larvae, pupae, or adults.

Pesticide: ULV cold fogger pesticide or equivalent.

Basis for Treatment: When adult mosquito biting curtails outdoor activity of personnel, or there is a high potential or an outbreak for mosquito-borne diseases.

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

Conducted by: Certified PMP or contractor.

Control Standard: Control has been achieved when mosquito numbers in light traps are less than 25 female mosquitoes per trap per night levels and/or incidence of mosquito-borne disease in humans has discontinued. *NOTE: This may take additional treatments, possibly combined with larvicide applications.* Materials should be applied to all target sites per label directions.

TICKS

PURPOSE

The primary purpose of controlling ticks is to prevent bites and the potential transmission of tick-borne diseases such as Lyme Disease, Rocky Mountain Spotted Fever, or Human Ehrlichiosis. Controlling for ticks in structural and outdoor use areas. The main emphasis for tick control in the field is wearing the proper uniform and using tick repellents.

SURVEILLANCE

Conducted by: Occupational health and safety personnel may conduct tick surveys at quarters and training areas. PMP may perform tick surveys based on submitted service requests.

Methods: Personal or partner examinations for ticks. Observation for ticks is the most frequently used surveillance method. Occupational health and safety personnel, and/or PMP may use tick drags or dry ice traps.

Frequency: Personal examination is performed twice daily while in tick habitats and after returning from tick habitats. Occupational health services may inspect for ticks in high-use outdoor areas when requested. PMP inspect in response to work orders and to determine the need for professional treatment.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

***Method and Location*:** Wear clothing properly outdoors to prevent ticks from getting inside. Long pants should be worn and tucked into boot tops or socks. When possible, tape around the top of socks where they meet pants or blouse pants. Rake litter from Bivouac areas and cut tall grasses within a two (2) meter perimeter of tents and other inhabited areas. When possible, grassy areas along ranges will be mowed as directed. Check for ticks during and after fieldwork. If a tick becomes imbedded, remove the tick with tweezers within 24 hours. If you use your fingers to remove it, wash immediately. Do not leave the head of the tick imbedded in the skin. If you cannot remove the tick or if parts of the tick stay in your skin, obtain medical care. If a rash or flu-like symptoms develop, seek medical help. Do not use a lighted match, petroleum jelly or other coating to try and remove the tick.

Lyme disease is spread by deer ticks. Deer ticks are very tiny and difficult to see. They can be as small as a poppy seed or the head of a pin. Adult deer ticks are only as large as a grape seed. The first sign of infection may appear a few days or a few weeks after a tick bite. Typically, a rash starts as a small red area at the site of the bite. It may spread up to 7 inches across and have bulls-eye appearance, but you can have Lyme disease without a rash. Other

symptoms of Lyme disease include fever, headache, weakness, and joint and muscle pain similar to the "flu." Lyme disease must be treated. In advanced stages, it may cause arthritis, numbness, memory loss, problems in seeing or hearing, high fever and stiff neck, indicating problems with the brain or nervous system.

Conducted by: It is an individual's responsibility to wear proper clothing. Training site users or range maintenance personnel may mow. Installation/Facility personnel or Facility Maintenance personnel should caulk using self-help materials.

Cultural

Method and Location: When a site has a high population of ticks, an alternate site should be selected for activities when possible. Controlled fires can be useful to provide season long tick control at certain sites under the guidance of the appropriate Range Control or Environmental Office personnel.

Conducted by: Users can select alternate sites. Range maintenance personnel or Environmental Office personnel may elect to conduct prescribed burning.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- If pesticides are used, they should only be dispensed in spots rather than broadcast applied.
- The treatment site must be vacant during treatment and until the insecticide has dried. See label for other precautions and concerns.

Pesticide: DEET (34.34% N,N-Diethyl-metatoluamide); EPA Registration Num: 58007-1

Basis for Treatment: When individuals plan to go into potential tick habitats during early Spring through Fall.

Method and Location: DEET repellent applied to the skin.

Conducted by: Individuals to be protected.

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

CHEMICAL PEST MANAGEMENT TECHNIQUES (continued)

Pesticide: aerosol pesticide

Basis for Treatment: Professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Apply as a coarse, low pressure spray to areas where these pests hide, such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, and stoves, the underside of shelves, drawers and similar areas. Pay particular attention to cracks and crevices.

Conducted by: Certified PMPs or contractor.

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

FILTH FLIES

PURPOSE

To control filth flies in buildings and primary food services facilities that can mechanically transmit pathogens to humans. Good sanitation measures should eliminate fly problems at most building sites. If flies are coming into the facility from a nearby source (e.g., kennels, stables, refuse collection site, etc.), then preventive medicine or PMPs may be requested for assistance.

SURVEILLANCE

Conducted by: Building occupants, preventive medicine specialists, veterinary services personnel, and PMPs (in-house and contracted).

Methods: Observations of adult flies at flytraps or at feeding/breeding habitats are the most common survey methods. PMPs may use sticky fly tape. Do not place fly tapes directly over stored food or over food preparation surfaces.

Frequency: Building occupants conduct daily inspections during routine facility use. Preventive medicine specialists and veterinary food inspectors conduct inspections during daily or monthly sanitary inspections at food service facilities. PMPs normally conduct surveys in response to complaints after self-help or contracted work fails.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location:

1) Sticky flypaper may be used to control minor infestations in areas that are not directly over food or food preparation surfaces. Electric fly grids may be used in kitchen and eating areas. Avoid using those fly grids that are designed to electrocute flies that cause them to explode and fragment. Use of flytraps with an attractant may also be used.
2) Screens are used to prevent fly entry when doors and windows are left open. Automatic self-closing devices should be placed on outer doors to reduce fly entry. Air curtains may also be used at entry points, but must be installed and maintained correctly to blowflies away from entrances covering entire door widths. Use fly swatters when necessary, avoiding contaminating food, utensils, and food preparation surfaces.

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

Cultural

Method and Location: Clean spilled food and water from work surfaces, walls, and floors. Wash dirty dishes and cooking containers and do not leave exposed food in the facility overnight. Place garbage in sealed bags and place them in containers with tight fitting lids keeping them closed. Do not place dumpsters within 50 feet of facilities. As a best management practice, dumpsters should be emptied and cleaned biweekly during the fly breeding season.

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.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Unauthorized personnel are not allowed in areas that receive space treatment.
- Do not apply to food, utensils, or on preparation surfaces.

Pesticide: Aerosol insecticide.

Basis for Treatment: Self-help is used when flies are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Close all doors and windows. Point nozzle upward. Direct spray mist to all parts of room, especially windows and other light sources which attract insects. Fill room with mist, then leave treated area immediately. Keep room closed for at least 15 minutes. Ventilate room when treatment is completed. Repeat as necessary.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

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

SUBTERRANEAN TERMITES

PURPOSE

To prevent subterranean termites from damaging cellulose containing materials such as structural lumber, stored pallets, and cardboard boxes or to eliminate termite infestations.

SURVEILLANCE

Conducted by: Incidental surveys are conducted by building occupants and maintenance personnel. Evidence of a possible termite infestation includes termite damage (wood and cellulose material often lined with soil or dried mud), mud tubes, discarded wings along window sills, floors, and in spider webs or termite swarms.

Methods: Inspections are made for the presence of termites, their mud tubes, carton nests, damage, or conditions that could favor infestations such as areas that trap moisture have poor drainage and poor ventilation.

Frequency: Inspections are conducted in conjunction with regular services. Additional inspections are performed when termite damage or swarms are reported.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: The following is a guideline to help prevent termite infestations. Eliminate moisture sources that encourage termite colonies, such as, leaking pipes under buildings, dripping faucets, and incorrect drainage. Crawl spaces should be well ventilated. Termite shields should be used on all new construction. Expansion joints in concrete floors and around plumbing that penetrates slabs are sealed with a latex/silicone sealant. Exposed soil in crawl spaces should be covered with polyethylene sheeting or roofing paper to reduce evaporation from soil and to prevent condensation on floor. Remove below ground rigid-board foam insulation installed below ground when possible. For proper control, accurate termite identification is required.

Conducted by: Facility maintenance or contractors.

Cultural

Method and Location: Replace or repair infested material. Cut or remove vegetation next to foundations that impairs inspection for termite tubes and encourages termite infestations. Use wood chips or other mulches sparingly to eliminate food and moisture sources for termites around foundations. Lumber, pallets, and other cellulose containing materials should not be stored directly on the ground or against buildings. Remove waste lumber from construction sites before final grading. Remove tree and large shrub stumps located near buildings and remove soil at grade level when found within four (4) inches of structures to eliminate earth to wood contact. If termite mud tubes are present, they should be removed before termiticide

application.

Conducted by: Maintenance personnel or contractors.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- It is suggested that control is performed by contractors.
- 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 it has dried and vapor odors have subsided.
- Do not treat soils that are too wet.
- Harmful if absorbed through the skin.
- Do not use baits in food/feed areas.
- Do not place baits in wells.

CHEMICAL PEST MANAGEMENT TECHNIQUES

Pesticide: Baiting Method or equivalent.

Basis for Treatment: To control local infestations in and around structures. This method is especially useful for structures where possible points of termite entry cannot be reached or determined using typical termite control measures.

Method and Location: Bait stations are placed directly on or near active termite mud tubes or infestations. This method may be used in conjunction with other control methods. If this method is used on a structure's exterior, a sealant around the perimeter of the bait station is used to provide a water-tight seal. Follow additional specific directions per package label for the best possible control.

Conducted by: Certified PMPs (in-house, preferably contracted).

Control Standard: Inspections should take place at least every two (2) to four (4) weeks until bait is consumed and/or activity ceases, replacing stations when at least 50% of bait is consumed. After feeding has stopped, the station can be removed. Additional inspections throughout the rest of the structure should take place to evaluate the baits effectiveness and determine if other control methods need to be used.

Pesticide: Liquid Termite Treatments or equivelent.

Basis for Treatment: To control local infestations around structures. This method is especially useful for structures where possible points of termite entry cannot be reached or determined using typical termite control measures.

Method and Location: Liquid treatments are applied as a pre-construction treatment or as a post-construction perimeter treatment around the foundation as a trench and drill treatment. *NOTE: Contractors are required to apply the maximum insecticide rate allowed by the label directions in order to provide adequate horizontal and vertical barriers.*

Conducted by: Certified PMPs (in-house, preferably contracted). *NOTE: Because the applications of termiticides require specialized equipment and a basic knowledge of termite behavior, it is suggested that this method of control be performed by pest control contractors.*

Control Standard: No subsequent termite infestations or damage from treated structures for five (5) 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.

Pesticide: spray insecticide equivalent

Basis for Treatment: To control local infestations around structures.

Method and Location: Apply in a manner to provide a continuous treated zone to prevent further termite infestation. Plug all holes in commonly occupied areas. Do not contaminate heating/air conditioning ducts, floor drains, and heating pipes.

Conducted by: Certified PMPs. *NOTE: Because the applications of termiticides require specialized equipment and a basic knowledge of termite behavior, it is suggested that this method of control be performed by pest control contractors.*

Control Standard: No subsequent termite infestations or damage from treated structures for five (5) 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.

DRYWOOD TERMITES

PURPOSE

To prevent termites from damaging cellulose-containing materials such as structural lumber, stored pallets, and cardboard boxes. To eliminate termite infestations.

SURVEILLANCE

Conducted by: Incidental surveys are conducted by building occupants and maintenance personnel.

Methods: Evidence of an infestation includes termite damage (wood and cellulose), frass pellets, discarded wings along window sills, floors, in spider webs or termite swarms. A building's exterior and interior should be inspected by maintenance personnel.

Frequency: Inspections are conducted in conjunction with other services or when termite damage or swarms are reported.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: The following is a guideline to help prevent termite infestations. Seal openings with caulking such as cracks and joints that may be used for termite entry. Small infested items or infestations can be treated by heating the infested wood to 120° F for 30 minutes. Cold treatment using equipment such as The Blizzard System® (Tallon Pest Control, Union City, CA) can be used for spot treatments. Entire structures can be heat-treated by covering the infested structure and raising the inside temperature to 140° F. This can be an expensive tactic and requires professional pest control assistance. The Electro-Gun™, utilized by pest control companies, provides an electrical current to control wood infested by Drywood Termites.

Conducted by: Facility personnel or contractors use mechanical and physical control methods.

Cultural

Method and Location: Repair and replace infested wood and structural material. Infested wood should be burned if possible, otherwise have it buried in a sanitary landfill.

Conducted by: *Maintenance personnel.*

CHEMICAL PEST MANAGEMENT TECHNIQUES
• **FOLLOW THE DIRECTIONS ON THE LABEL.** • Fumigation must be performed by contractors • Fumigants shall not contain methyl bromide. • 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 it has dried and vapor odors have subsided. • Do not apply to water and do not contaminate water by cleaning equipment or disposing of waste in a manner inconsistent with the label. • Do not use Bora-Care® and Tim-Bor® for Arboreal Termite (*Nasutitermes)* infestations.
Pesticide: Fumigation equivalent. ***Basis for Treatment:*** Small infested piece of wood or non-pressure treated wood to be protected from infestation. ***Method and Location:*** Small unvarnished, bare pieces of wood or wooded boxes, crates, or pallets. Solution is applied as a preventive measure or as a treatment for actual infestations. Item may be sprayed, injected, or dunked. ***Conducted by:*** Certified PMP. *NOTE: Because the application of termiticides requires specialized equipment and a specific knowledge of termite behavior and control it is suggested this method of control be performed by pest control contractors.* ***Control Standard:*** No termite activity after 30 days. No subsequent termite infestations or damage from treated structures for six (6) months after treatment. *NOTE: Contractors are required to apply the maximum insecticide rate allowed by the label directions to provide adequate termite barriers.*
Pesticide: Spray insecticide or equivalent. ***Basis for Treatment:*** Colonies located close to buildings, electrical boxes, telephone boxes, etc. Re-application may be required if acceptable control standards are not met. ***Method and Location:*** Indoor/outdoor treatment with spray insecticide. Termidor 80 WG comes as a dry granular insecticide contained in water-soluble packages. These packages are added to the water in a sprayer. ***Conducted by:*** Certified PMP. ***Control Standard:*** 100% of termites are killed within three (3) months.

FIRE ANTS

PURPOSE

To minimize exposure from bites and stings from turf areas, lawns, and training areas that receive frequent use where soldiers are regularly required to lie or sit on the ground. These pests may infest structures, cause damages to electrical units, threaten protected wildlife species, and interfere with training. Use exterior baits when fire ants are seen foraging. Foraging usually occurs when the soil temperature is above 60°F and air temperature is 70-90°F. Do not use exterior baits if the grass is wet or if rainfall is expected within three (3) hours. Do not irrigate baited turf areas for at least three (3) hours. Baits should not be placed directly on mounds. Drench ant mounds during early morning hours, when the temperature is 65-80°F, and following rainfall, when ants are nearer to the surface.

SURVEILLANCE

Conducted by: Incidental observations by area users. Grounds maintenance personnel using the methods below.

Methods: Incidental observations of fire ants or their mounds. Small amounts (e.g., one teaspoon) of peanut butter can be placed in various locations within a proposed treatment area to determine where ant activity occurs. Surveillance is usually done in conjunction with other maintenance of grassy areas.

Frequency: Daily incidental observations by building occupants and grounds maintenance personnel. PMPs inspect when there is a need to assess if a treatment must be used. Surveys are best accomplished after rainfall when mound development increases.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Caulk cracks and crevices in exterior surfaces and maintain tight-fitting doors.

Conducted by: Maintenance personnel.

Cultural

Method and Location: Ecosystem management can help control Red Imported Fire Ants (RIFAs). Restoration of native tall grasses and forests may reduce some fire ant populations because it favors competing species of ants. RIFA does not do well in heavily shaded areas provided by trees. Restoration of tree cover, native short grass prairies, wetlands, and other habitats that are unfavorable to fire ants can help reduce numbers and limit invasion. In picnic areas and other areas with food, use tight fitting lids on containers and trash receptacles.

Conducted by: Maintenance personnel have the responsibility for grass and forest restoration. Building occupants and area users are responsible for keeping areas free of food for ants.

CHEMICAL PEST MANAGEMENT TECHNIQUES
• **FOLLOW THE DIRECTIONS ON THE LABEL.** • Do not contaminate food by pesticide storage, use, or disposal practices. Read label for additional precautions and prohibited practices. • Do not apply Award or Logic to pastures, or other areas that may be grazed by domestic animals unless specifically permitted by the label. Do not apply liquid pesticide formulations to electrical devices. • Do not apply baits near and in water and in winds that exceed 15 mph.
Pesticide: Ant Bait or equivalent. ***Basis for Treatment:*** Presence of fire ants indoors when rapid control is not required. ***Method and Location:*** Place baits adjacent to active trails and foraging areas. Broadcast application with hand-held granular spreader or with disposable scoop. *NOTE: Baiting is the preferred choice to treat indoors. This reduces pesticide exposure to humans and can achieve total colony mortality. Do not use residual sprays with indoor baits.* ***Conducted by:*** Maintenance personnel. ***Control Standard:*** Bait readily accepted and no live fire ants observed one week after initiating baiting.
Pesticide: Aerosol insecticide or equivalent. ***Basis for Treatment:*** Spray directly on pests. Self-help is used when ants are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved. ***Method and Location:*** Spray trails, nests and points of entry within buildings. Spray directly on ants where possible. Repeat as necessary. ***Conducted by:*** Installation/Facility personnel. PMPs apply pesticides only in rare situations. ***Control Standard:*** Ants are killed on contact.
Pesticide: Drench insecticide or equivalent. ***Basis for Treatment:*** To control local infestations in lawn areas and around structures. ***Method and Location:*** For outdoor use on individual fire ant mounds, apply as a drench treatment on and around fire ant mounds, preferably on warm days after recent rainfall. Pressurized sprays may disturb the ants and cause migration. Repeat treatments may be needed as allowed by label. ***Conducted by:*** Certified PMP. ***Control Standard:*** Significant reduction in ant numbers within two days.

HOUSEHOLD ANTS

PURPOSE

Household ants include odorous house ants, pharaoh ants, and pavement ants. To eliminate ants in or around buildings that may be a nuisance and infest food items. Ants are normally a minor problem. Use of baits is the primary method of chemical control. Boric acid dust will provide control for longer periods when it is kept dry.

SURVEILLANCE

Conducted by: Incidental observations by Installation/Facility personnel or Facility Maintenance personnel.

Methods: Inspections for ant activity (e.g., for live ants, grass, soil from colony development, foraging at bait, etc.). Pre- or post-treatment baiting or sticky trapping may be performed to collect ants for identification, determine bait acceptance, and to determine infestations and nest sites.

Frequency: Installation/Facility personnel may incidentally observe ant activity.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Eliminate ant harborage and entry sites by caulking minor cracks, crevices, and holes in walls or foundations, especially at food service areas. Store food items in tight fitting containers. Maintain tight-fitting windows and doors. Keep tree and shrub branches from contacting buildings. Remove unnecessary ground litter (e.g., lumber, bricks, and leaves) near structures.

Conducted by: Facility Maintenance personnel caulk crevices. Building occupants are responsible for maintaining clean work areas. Facility Maintenance personnel are responsible for pruning vegetation.

Cultural

Method and Location: Clean areas where food is stored, prepared, and served. Clean spilled food immediately. Keep stored food products in sealed containers. Remove garbage from buildings daily, especially where ants are a problem.

Conducted by: Installation/Facility personnel have the primary responsibility for removing food and garbage.

CHEMICAL PEST MANAGEMENT TECHNIQUES
• **FOLLOW THE DIRECTIONS ON THE LABEL.** • Do not apply aerosol spray to food, utensils, and food preparation surfaces. • Do not apply residual insecticides around ant bait stations to prevent ant repellency to baits.
Pesticide: Bait or equivalent. ***Basis for Treatment:*** Ants observed in buildings. ***Method and Location:*** Ant bait stations are the major chemical control method used. Bait chambers are placed in cabinets, along baseboards or trails used by ants, or in areas where ants have been observed. ***Conducted by:*** Installation/Facility personnel. PMP are rarely required to set out bait stations. ***Control Standard:*** Bait acceptance by foraging ants is observed. The number of live ants observed begins to decline within 4 days after the start of treatment with no live ants observed one (1) to five (5) weeks after the treatment start date.
Pesticide: Aerosol insecticide or equivalent, ***Basis for Treatment:*** Ants observed in buildings. ***Method and Location:*** Spray trails, nests and points of entry within buildings. Spray directly on ants where possible. Repeat as necessary. ***Conducted by:*** Installation/Facility personnel. PMPs apply pesticides only in rare situations. ***Control Standard:*** Ants are killed on contact.
Pesticide: Boric acid dust (99%); EPA Registration Num: 56-73 or equivalent ***Basis for Treatment:*** Presence of or a high potential for infestation. Re-application will be required at infestation sites where dust has been removed or wetted. ***Method and Location:*** Place dust directly into cracks, crevices, and at ant trails. Voids under cabinets, appliances, and sinks, voids where plumbing penetrates walls, and behind metal corner protectors should also be dusted. If ants are observed or known to be a problem, remove cover plates of electrical outlets and dust the electrical boxes. ***Conducted by:*** Installation/Facility personnel. ***Control Standard:*** No live ants observed seven (7) days after start of treatment and for a period of nine (9) weeks following the treatment start date.
Pesticide: Spray insecticide ***Basis for Treatment:*** Self-help is used when ants are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved. ***Method and Location:*** Contact treatment with spray insecticide. ***Conducted by:*** Installation/Facility personnel. PMPs apply pesticides only in rare situations. ***Control Standard:*** Ants are killed on contact.

CARPENTER ANTS

PURPOSE

To prevent and eliminate carpenter ant infestations in wooden structures. Adjacent wood piles and hollow trees may be sources of ant invasions.

SURVEILLANCE

Conducted by: Incidental observations by Installation/Facility personnel.

Methods: Surveys using a stethoscope or similar device can be used to locate colonies in walls. Determination of nest sites is critical for proper treatment and control. Look specifically for small sawdust piles created by ants as they carve out nests. They are often attracted to areas that have excessive moisture in wood due to leaks or excess water.

Frequency: Installation/Facility personnel may incidentally observe ants during facility use.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Replace damaged wood. Carpenter ants live in soft, damp wood, reduce moisture sources such as condensation and leaks. Trim vegetation against siding and roofs. Caulk to minimize ant access into buildings. Clean gutters for proper drainage. Keep soffits seated and roofing well maintained.

Conducted by: Facility Maintenance personnel.

Cultural

Method and Location: Do not place firewood or other wood against a building's exterior. Do not allow lawn sprinklers to hit wooden portions of buildings or allow water to puddle next to foundations.

Conducted by: Facility Maintenance personnel.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Do not contaminate food, utensils, food containers, food preparation areas, or water.
- Do not let unauthorized personnel in treatment areas until applied materials have dried and vapor odors subside.

Pesticide: Ant Bait or equivalent.

Basis for Treatment: Presence of ants indoors when rapid control is not required.

Method and Location: Place baits adjacent to active trails and foraging areas. *NOTE: Baiting*

is the preferred choice to treat indoors. This reduces pesticide exposure to humans and can achieve total colony mortality. Do not use residual sprays with indoor baits. ***Conducted by:*** Maintenance personnel. ***Control Standard:*** Bait readily accepted and no live ants observed one week after initiating baiting.
Pesticide: Aerosol insecticide or equivalent. ***Basis for Treatment:*** Spray directly on pests. Self-help is used when ants are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved. ***Method and Location:*** Spray trails, nests and points of entry within buildings. Spray directly on ants where possible. Repeat as necessary. ***Conducted by:*** Installation/Facility personnel. ***Control Standard:*** Ants are killed on contact.
Pesticide: Boric acid dust (35.5%); EPA Registration Num: 499-384 or equivalent ***Basis for Treatment:*** Presence of or a high potential for infestation. Re-application will be required at infestation sites where dust has been removed or wetted. ***Method and Location:*** Place dust directly into cracks, crevices, and at ant trails. Voids under cabinets, appliances, and sinks, voids where plumbing penetrates walls, and behind metal corner protectors should also be dusted. If ants are observed or known to be a problem, remove cover plates of electrical outlets and dust the electrical boxes. ***Conducted by:*** Installation/Facility personnel or PMP. ***Control Standard:*** No live ants observed seven (7) days after start of treatment and for a period of nine (9) weeks following the treatment start date.
Pesticide: Spray insecticide or equivalent. ***Basis for Treatment:*** To control local infestations around structures. This method is especially useful for structures where possible points of entry cannot be reached or determined using typical control measures. ***Method and Location:*** For use as a general surface, crack and crevice and/or spot treatment for residual and contact pest control in, on, and around buildings and structures and their immediate surroundings. Repeat treatments as necessary, but no more than once every seven (7) days. ***Conducted by:*** Certified PMP (in-house, preferably contracted). *NOTE: Because the applications of insecticides require specialized equipment, it is suggested that this method of control be performed by pest control contractors.* ***Control Standard:*** No subsequent ant infestations or damage from treated structures for five (5) years after application.

GERMAN AND BROWN-BANDED COCKROACHES

PURPOSE

To control cockroaches in areas where food is prepared or served and all other locations within the structure. To reduce the potential for transmission of food-borne disease and reduce cockroach allergens present. The German cockroach is one of the most common household pests that typically require control. They prefer warm, humid areas and are typically found in kitchens, or bathrooms.

Brown-banded cockroach prefers slightly warmer and dryer temperatures, but is frequently are found in kitchens and bathrooms and are particularly fond of hiding in electrical appliances, such as clocks and computers.

Cockroaches (and all other living organisms) require three basic elements for survival. These elements are food, water, and a place to live (harborage). Control is compromised where any of these elements are available.

SURVEILLANCE

Conducted by: Installation/Facility personnel, preventive medicine specialists, or PMPs.

Methods: Sticky traps and inspections (preferably at night). Occasionally, a pyrethrin aerosol is applied directly into harborage sites to flush roaches.

Frequency: Building occupants conduct daily inspections. Preventive medicine specialists conduct surveys during sanitary inspections. Sticky traps are used to determine control effectiveness one (1) to two (2) weeks following chemical applications or, at least quarterly in facilities where chemical control methods have not been used. A flushing agent (e.g., pyrethrin) is used only when immediate cockroach populations need to be determined. Flushing agents are rarely used to minimize the potential for cockroach pyrethroid resistance.

COMMUNICATION / TRAINING

Facility Managers must communicate with pest surveyor's specific information such as frequency and precise locations of cockroaches. Pest Controllers of cockroaches must be trained on the biology and habits of cockroaches in addition to the techniques used for surveillance and control. Training is provided to maintenance personnel on site selection and the use of caulking materials to reduce cockroach harborage.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Caulk cracks, crevices, and holes to eliminate cockroach harborage

sites. Vacuum cockroaches and egg capsules during evenings when cockroach activity is the greatest and facilities are typically closed.

Conducted by: Building occupants, facility maintenance personnel, or in-house or contracted PMPs all assist in reducing cockroach harborage areas. In-house personnel or contracted PMPs vacuum.

Biological

Method: Bio-path chamber: There are no products available at this time, but may be available in the future.

Location: Place chambers along junctions between walls and floors, in cabinets, and behind equipment voids for maximum effectiveness.

Conducted by: In-house or contracted PMPs.

Cultural

Food Source Reduction (Sanitation): Eliminating food is the first and foremost important tactic to limit the development of cockroaches. Although stringent sanitary practices alone will not control cockroaches, poor sanitation can prevent the success of other control methods (e.g., chemical).

Water Source Elimination: Of all the cockroach species that commonly invade dwellings, the German cockroach has the highest requirement for water to survive. Therefore, try to limit their access to water. Keep plumbing in good repair, drainage from condensation collection should be plumbed directly into effective drains, floors should be dried as soon as possible, and mops must be hung to dry.

Harborage Reduction: Cockroaches prefer small cracks, crevices, and voids to hide. They are also attracted to these harborage sites by aggregation pheromones given off by other cockroaches. Silicone/latex caulking is available via the self-help program to facility users, military unit maintenance teams, and other maintenance personnel to reduce harborage.

Conducted by: Building occupants clean areas. Maintenance personnel make plumbing repairs.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- The use of an insect growth regulator (IGR) is recommended.
- Do not apply to food, utensils, or on preparation surfaces.
- Do not let unauthorized personnel in treatment areas until insecticides dry and odors subside.
- Do not apply to areas where young children or aquariums are present.

Pesticide: Bait insecticide or equivalent.

Basis for Treatment: Presence of cockroaches indoors when rapid control is not required.

Method and Location: Place baits adjacent to active trails and foraging areas. *NOTE: Baiting is the preferred choice to treat indoors. This reduces pesticide exposure to humans. Do not use residual sprays with indoor baits.*

Conducted by: Maintenance personnel.

Control Standard: Bait readily accepted and no live cockroaches observed one week after initiating baiting.

Pesticide: Aerosol insecticide or equivalent.

Basis for Treatment: Self-help is used when cockroaches are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Spray thoroughly into hiding places such as cracks, crevices, moist areas, openings around pipes and sinks, under refrigerators, baseboards, and storage areas. Spray directly on cockroaches where possible. Remove feed and foodstuffs and thoroughly clean before spraying. Dispose of any infested products. Cover shelves and drawers with fresh shelf paper after spray has dried. Repeat as necessary.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

Control Standard: Cockroaches are killed on contact. Fewer than five (5) living cockroaches observed after treatment indoors for a period of 24 hours.

Pesticide: Boric acid dust (99%) EPA Registration Num: 56-73 or equivalent

Basis for Treatment: Presence of cockroaches. If cockroaches are observed, self-help methods should be used. If two (2) or more cockroaches per trap per day are observed, professional treatment may be initiated. Within four (4) months after professional pest control service, a threshold of no cockroaches is the control standard to achieve. Reapply pesticides when pesticide dust has been removed.

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 penetrate walls, and behind metal corner protectors, etc.). *NOTE: Boric acid containers used for self-help should have spouts and not be more than eight (8) ounces to minimize over-application.*

Conducted by: Building occupants using self-help methods and in-house or contracted PMPs.

Control Standard: No live cockroaches found 30 days following treatment. The number of cockroaches in sticky traps may indicate the effectiveness or limitation of chemical control methods.

Pesticide: Spray insecticide or equivalent.

Basis for Treatment: When a count of two (2) or more cockroaches per trap per night is observed after self-help methods or previous professional treatment did not achieve the control standard.

Method and Location: Crack and crevice application.

Conducted by: Certified PMP.

Control Standard: A threshold of no cockroaches (visual or sticky trap) within four (4) months after professional pest control servicing is the control standard to achieve.

TREATMENT THRESHOLDS

Establishment of Treatment Thresholds:

Facility Managers have the responsibility to control cockroaches. Facility Managers will generate service or work orders as appropriate for those functions that are beyond the self-help program. Facility maintenance will be initiated at the time that conditions conducive to cockroach infestation are discovered. Maintenance will be accomplished as quickly as resources permit.

Preventive and Maintenance Treatments:

Facility Managers will maintain insect sticky traps at sites recommended by pest managers. Traps will be dated with the date of installation. Replace traps, which are damaged, full of insects or dust. Medical, engineer, or contracted pest management personnel will monitor these traps and use additional traps when necessary to accurately assess populations. Pesticides via the self-help program, which include boric acid dust and hydramethylnon, may be applied in facilities as a preventive treatment. These materials are recommended for use to control all population levels of existing infestations.

Corrective Treatments:

Self-Help Program: In addition to all non-chemical control methods used, facility personnel will use self-help materials when cockroaches are present.

Professional Treatment: Professional treatment will be used after non-chemical and chemicals from the self-help program have been tried for 30 days and an average of more than two (2) cockroaches per insect sticky trap per day is determined in a two (2) to four (4) day period. Professional treatment should be used when more than ten (10) cockroaches per sticky trap per day occurs, or if observations (preferably at night) by pest management personnel determine that professional treatment is warranted.

INSECTICIDE ROTATION SCHEME

Rotation should be from one insecticide group to another, incorporating as many different effective groups or insecticides as possible. Suggestions are provided on how long to use each insecticide group before rotating to another group. The suggested usage times are guidelines based on current knowledge of the cockroach's ability to develop resistance to each group. It assumes that the population is being intensively managed with frequent insecticide treatments. In facilities treated infrequently, that is, three or fewer times a year, usage times recommended below may be doubled. Rotating too frequently could encourage the development of multiple resistances. Therefore, insecticides should not be changed more frequently than every four months.

Carbamate Group. Suggested usage time is four (4) to six (6) months because resistance is widespread. Propoxur is an example.

Synergized Carbamate Group. Suggested usage time is six (6) to nine (9) months.

Organophosphate, Single Isomer Group. Suggested usage time is six (6) to nine (9) months.

Organophosphate, Mixed Isomers Group. Suggested usage time is nine (9) to 12 months. They should not follow or precede the use of organophosphates. Propetamphos is an example.

Nonorganic Group. Resistance has not been reported, but probably will develop slowly. When in dust form, these materials remain effective as long as they are kept dry. Suggested usage time of boric acid baits is 12 to 18 months.

Growth Regulator Group. Suggested usage time is 12 to 18 months. It takes several months before control with these compounds is seen. Resistance has not been reported, but may develop slowly. Resume use after one (1) year of no use. An example is hydroprene.

Aminohydrazone Group. The suggested usage time is 12 to 18 months. An example is Hydramethylnon.

Ivermectin Group. Suggested usage time is 12 to 18 months. Avert is an example.

Biological Group. There are no products available at this time, but may be available in the future.

Phenyl Pyrazole Group. The suggested usage time is 12 to 18 months. Fipronil is an example.

PESTICIDE SELECTION

Pesticides will be considered the last option in controlling cockroaches.

- Facility users will use only non restricted use materials authorized in the AFPMB's list of approved chemicals.
- The preferred choices of insecticides for PMPs use will be baits, non-neurotoxic dusts, biological control methods, and insect growth regulators. These materials are generally slow acting but typically use less pesticide, are generally less hazardous to humans, and provide longer control than the faster acting neurotoxic pesticides. When quicker cockroach population suppression is required neurotoxic residual insecticides may be

used to include carbamates, organophosphates, and pyrethroids in conjunction with the previously mentioned methods.

- Future contracts to control cockroaches will recommend the use of 99% boric acid dust and hydramethylnon baits which typically provide at least three (3) months of control. Contracts will also emphasize routine surveillance, mandate non-chemical methods, and provide chemical control only after cockroach populations have exceeded the acceptable threshold.

Acceptable Control Standards: The presence of cockroaches in food service facilities will not be tolerated.

Responsibilities: Facility management is responsible to implement all non-chemical control and self-help chemical control within their responsibility to prevent and control cockroach infestations.

Professional Control Standards:

Begin 14 days after initial treatment:

- Fewer than an average of two (2) cockroaches per sticky trap per day over a two (2) to four (4) day trapping period.
- Fewer than 10 cockroaches per sticky trap per day.
- Fewer than 10 live cockroaches at a harborage site (i.e. crack, crevice, or void).
- Fewer than 100 live cockroaches observed.

In less than 160 days from the initial treatment, there should be on average less than one (1) cockroach per trap per day, which is calculated using at least 12 sticky traps for a two (2) to (4) day period. No sticky traps will exceed two (2) cockroaches per day.

Beginning 161 days and up to eight (8) months following the initial treatment, professional monitoring will continue monthly. Additional insecticides will be applied only to areas where cockroaches are collected in sticky traps or where they are seen.

AMERICAN AND SMOKEY BROWN COCKROACH

PURPOSE

To prevent infestation in sewers, structures, and crawl spaces. American cockroaches in sewers can become a problem if manholes are located near buildings and cockroaches migrate into work areas. Smoky Brown Cockroaches are typically found in drier sites such as attics, storage areas, and utility closets. Insecticide rotation for these larger cockroaches is not normally necessary. It is recommended that future contracts use 99% boric acid dust and hydramethylnon baits. Future contracts should emphasize surveillance, mandate non-chemical control tactics, and provide chemical applications only after populations have exceeded the acceptable threshold.

SURVEILLANCE

Conducted by: Building occupants may incidentally observe cockroaches in their work areas. PMPs may inspect where professional assistance is requested using the following methods.

Methods: Sticky or bottle traps, rare use of a pyrethrin aerosol (as a flushing agent applied into harborage sites). Inspections should be made at food preparation, storage, or serving areas (preferably at night), sewer manholes, and crawl spaces.

Frequency: Daily incidental findings by building occupants. PMPs should inspect in response to service order complaints or as programmed inspections. To determine if an insecticide application has been effective, use sticky traps one (1) to two (2) weeks after application. The presence of cockroaches may indicate an inadequate application. A flushing agent (pyrethrin) is only used when immediate population levels need to be determined. Pyrethrin insecticides are used minimally to discourage pyrethroid resistance.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Eliminate moisture in basements and other below ground areas that could support cockroaches. Ventilate wet or damp areas under buildings. In buildings that experience frequent invasion of 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. Vacuum to remove cockroaches, egg capsules, and potential food indoors. Sticky traps may be used to help control minor infestations. Seal around plumbing that penetrates walls and floors with caulking.

Conducted by: Facility maintenance personnel or PMPs.

Cultural

Food Source Reduction (Sanitation): Eliminating food is the first and foremost important tactic to limit the development of cockroaches. Although stringent sanitary practices alone will not control cockroaches, poor sanitation can prevent the success of other control methods (e.g., chemical).

Water Source Elimination: Try to limit their access to water. Keep plumbing in good repair, drainage from condensation collection should be plumbed directly into effective drains, floors should be dried as soon as possible, and mops must be hung to dry.

Harborage Reduction: Cockroaches prefer small cracks, crevices, and voids to hide. They are also attracted to these harborage sites by aggregation pheromones given off by other cockroaches. Silicone/latex caulking is available via the self-help program to facility users, and maintenance personnel to reduce harborage.

Conducted by: Building occupants clean areas. Maintenance personnel make plumbing repairs.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- The use of an insect growth regulator (IGR) is recommended.
- Do not treat sewers if precipitation is anticipated within 12 hours.
- Do not apply to food, utensils, or on preparation surfaces.
- Do not let unauthorized personnel in treatment areas until insecticides dry and odors subside.

Pesticide: Bait insecticide or equivalent.

Basis for Treatment: Presence of cockroaches indoors when rapid control is not required.

Method and Location: Place baits adjacent to active trails and foraging areas. *NOTE: Baiting is the preferred choice to treat indoors. This reduces pesticide exposure to humans. Do not use residual sprays with indoor baits.*

Conducted by: Maintenance personnel.

Control Standard: Bait readily accepted and no live cockroaches observed one week after initiating baiting.

Pesticide: Aerosol insecticide, or equivalent.

Basis for Treatment: Self-help is used when cockroaches are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Spray thoroughly into hiding places such as cracks, crevices, moist areas, openings around pipes and sinks, under refrigerators, baseboards, and storage areas. Spray directly on cockroaches where possible. Remove feed and foodstuffs and thoroughly clean before spraying. Dispose of any infested products. Cover shelves and drawers with fresh shelf paper after spray has dried. Repeat as necessary.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

Control Standard: Cockroaches are killed on contact. Fewer than five (5) living cockroaches observed after treatment indoors for a period of 24 hours.

Pesticide: Boric acid dust (99%) EPA Registration Num: 56-73, or equivelant

Basis for Treatment: Presence of cockroaches. If cockroaches are observed, self-help methods should be used. If two (2) or more cockroaches per trap per day are observed, professional treatment may be initiated. Within four (4) months after professional pest control service, a threshold of no cockroaches is the control standard to achieve. Reapply pesticides when pesticide dust has been removed.

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 penetrate walls, and behind metal corner protectors, etc.). *NOTE: Boric acid containers used for self-help should have spouts and not be more than eight (8) ounces to minimize over-application.*

Conducted by: Building occupants using self-help methods and in-house or contracted PMPs.

Control Standard: No live cockroaches found 30 days following treatment. The number of cockroaches in sticky traps may indicate the effectiveness or limitation of chemical control methods.

Pesticide: Spray insecticide, or equivalent.

Basis for Treatment: When a count of two (2) or more cockroaches per trap per night is observed after self-help methods or previous professional treatment did not achieve the control standard.

Method and Location: Crack and crevice application.

Conducted by: Certified PMP.

Control Standard: A threshold of no cockroaches (visual or sticky trap) within four (4) months after professional pest control servicing is the control standard to achieve.

TREATMENT THRESHOLDS

Establishment of Treatment Thresholds:

Facility Managers have the responsibility to control cockroaches. Facility Managers will generate service or work orders as appropriate for those functions that are beyond the self-help program. Facility maintenance will be initiated at the time that conditions conducive to cockroach infestation are discovered. Maintenance will be accomplished as quickly as resources permit.

Preventive and Maintenance Treatments:

Facility Managers will maintain insect sticky traps at sites recommended by pest managers. Traps will be dated with the date of installation. Replace traps, which are damaged, full of insects or dust. Medical, engineer, or contracted pest management personnel will monitor these traps and use additional traps when necessary to accurately assess populations. Pesticides via the self-help program, which include boric acid dust and hydramethylnon, may be applied in facilities as a preventive treatment. These materials are recommended for use to control all population levels of existing infestations.

Corrective Treatments:

Self-Help Program: In addition to all non-chemical control methods used, facility personnel will use self-help materials when cockroaches are present.

Professional Treatment: Professional treatment will be used after non-chemical and chemicals from the self-help program have been tried for 30 days and an average of more than two (2) cockroaches per insect sticky trap per day is determined in a two (2) to four (4) day period. Professional treatment should be used when more than ten (10) cockroaches per sticky trap per day occurs, or if observations (preferably at night) by pest management personnel determine that professional treatment is warranted.

INSECTICIDE ROTATION SCHEME

Rotation should be from one insecticide group to another, incorporating as many different effective groups or insecticides as possible. Suggestions are provided on how long to use each insecticide group before rotating to another group. The suggested usage times are guidelines based on current knowledge of the cockroach's ability to develop resistance to each group. It assumes that the population is being intensively managed with frequent insecticide treatments. In facilities treated infrequently, that is, three or fewer times a year, usage times recommended below may be doubled. Rotating too frequently could encourage the development of multiple resistances. Therefore, insecticides should not be changed more frequently than every four months.

Carbamate Group. Suggested usage time is four (4) to six (6) months because resistance is widespread. Propoxur is an example.

Synergized Carbamate Group. Suggested usage time is six (6) to nine (9) months.

Organophosphate, Single Isomer Group. Suggested usage time is six (6) to nine (9) months.

Organophosphate, Mixed Isomers Group. Suggested usage time is nine (9) to 12 months. They should not follow or precede the use of organophosphates. Propetamphos is an example.

Nonorganic Group. Resistance has not been reported, but probably will develop slowly. When in dust form, these materials remain effective as long as they are kept dry. Suggested usage time of boric acid baits is 12 to 18 months.

Growth Regulator Group. Suggested usage time is 12 to 18 months. It takes several months before control with these compounds is seen. Resistance has not been reported, but may

develop slowly. Resume use after one (1) year of no use. An example is hydroprene.

Aminohydrazone Group. The suggested usage time is 12 to 18 months. An example is Hydramethylnon.

Ivermectin Group. Suggested usage time is 12 to 18 months. Avert is an example.

Biological Group. There are no products available at this time, but may be available in the future.

Phenyl Pyrazole Group. The suggested usage time is 12 to 18 months. Fipronil is an example.

PESTICIDE SELECTION

Pesticides will be considered the last option in controlling cockroaches.

- Facility users will use only non registered materials authorized on the AFPMB approved list of chemicals.
- The preferred choices of insecticides for PMPs use will be baits, non-neurotoxic dusts, biological control methods, and insect growth regulators. These materials are generally slow acting but typically use less pesticide, are generally less hazardous to humans, and provide longer control than the faster acting neurotoxic pesticides. When quicker cockroach population suppression is required neurotoxic residual insecticides may be used to include carbamates, organophosphates, and pyrethroids in conjunction with the previously mentioned methods.
- It is recommended that future contracts to control cockroaches use 99% boric acid dust and hydramethylnon baits which typically provide at least three (3) months of control. Contracts will also emphasize routine surveillance, mandate non-chemical methods, and provide chemical control only after cockroach populations have exceeded the acceptable threshold.

Acceptable Control Standards: The presence of cockroaches in food service facilities will not be tolerated.

Responsibilities: Facility management is responsible to implement all non-chemical control and self-help chemical control within their responsibility to prevent and control cockroach infestations.

Professional Control Standards:

Begin 14 days after initial treatment:

- Fewer than an average of two (2) cockroaches per sticky trap per day over a two (2) to four (4) day trapping period.
- Fewer than 10 cockroaches per sticky trap per day.
- Fewer than 10 live cockroaches at a harborage site (i.e. crack, crevice, or void).
- Fewer than 100 live cockroaches observed.

In less than 160 days from the initial treatment, there should be on average less than one (1) cockroach per trap per day, which is calculated using at least 12 sticky traps for a two (2) to (4) day period. No sticky traps will exceed two (2) cockroaches per day.

Beginning 161 days and up to eight (8) months following the initial treatment, professional monitoring will continue monthly. Additional insecticides will be applied only to areas where cockroaches are collected in sticky traps or where they are seen.

BED BUGS

PURPOSE

To control bed bug populations in and around buildings that cause discomforting, itchy, and sometimes painful bites. Bed bugs can get established inside a dwelling when an infested piece of furniture or luggage is moved into the home, and some bed bug infestations originate from bird nests and bat roosts. Bed bugs are secretive insects, and only after their hiding places have been located, can effective control measures be implemented. Good surveillance is fundamental to bed bug identification and elimination. Pesticides should be considered the last option, but are often necessary for bed bug control.

SURVEILLANCE

Conducted by: Building occupants, housekeeping staff, Soldiers and the facility manager(s).

Methods: Visual Inspection.

Description of bites: Characteristic of an infestation. If bites are identified, it can be assumed there is an infestation.

Bed Room and bedding: Inspect mattresses, box frame, bed frame, adjacent furniture, walls, baseboards, door and window casings and trim, wall hangings, cracks and crevices in the wall and/or floor. Look under the edges of carpet and behind picture frames.

Luggage/Baggage: Zippers, seams, and other parts of luggage/baggage that provide places for bed bugs to hide.

Other rooms (living, bath and laundry rooms): Look in cracks and crevices, under and behind furniture, behind picture frames and under the edge of carpet.

NOTE: If during the inspection, bed bugs are found, stop the inspection and initiate control activity. Additional searching will cause bed bugs to disperse and go into hiding, and make them harder to find and control. They may also move to other areas/items which are then moved from the immediate area. This will prevent further spread the infestation.

Frequency: As necessary after an infestation is detected.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Vacuum bed bugs during surveillance to prevent their spread. Do not use a wet/dry vacuum unless it has a bag fitted to collect the bugs and debris. When finished, place the vacuum bag in a plastic garbage bag and dispose.

Conducted by: Occupants, Housekeeping Staff and PMPs.

Method and Location: Use plastic mattress covers, bed bug resistant mattresses, and/or box spring covers to either exclude bed bugs from mattresses, or ensure those on the mattress cannot leave.

Steam, from a commercial steam unit, can be effective in controlling bed bugs in wall/baseboard areas or in mattresses. Smaller, non-commercial units require frequent refilling and may not provide adequate temperature to kill bed bugs and their eggs. Clothing should be washed in hot water and dried on high heat in a dryer.

Conducted by: Occupants, Housekeeping Staff and PMPs.

Cultural

Method and Location: Proper cleaning and surveillance of potential areas of bed bug infestation. Vigilance is required when purchasing used furnishings, especially beds and couches. Avoid curb-side items. Inspect second-hand items closely before bringing them indoors. If possible, launder or dry-clean items before bringing them indoors.

Conducted by: Occupants, Housekeeping Staff and PMPs.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Do not contaminate food, utensils, or preparation surfaces.
- Do not permit personnel in areas until the applied insecticide has dried and odors have subsided.

Basis for treatment: The presence of bed bugs (bites, actual insects or signs, see *Surveillance Section*) necessitates treatment.

Conducted by: Certified in-house or contracted PMP services are used in locations where found.

Control Standard: Elimination of all adult and larval bed bugs. Cleaning and inspecting of all potential harborage sites. Ensuring disposed items are bagged to prevent the spread of bed bugs to adjacent areas.

NOTE: Products identified below are only provided for illustration. These are not recommended as the only products for use, nor is their use being encouraged. Contact the PMP for further guidance.

Pesticide	User
Dusts insecticide:	Applied by certified PMP.
Residual crack and crevice insecticides:	Applied by certified PMP.
Spot treatments to floors, cracks and crevices:	Applied by certified PMP.
Products approved for treating mattresses:	Applied by certified PMP.

ADDITIONAL INFORMATION

Sensitive areas: Do not apply pesticides to areas where aquariums are present. Do not apply

cholinesterase inhibiting pesticides in areas where young children are present.

Prohibited practices: Do not apply to food, utensils, or on preparation surfaces. Do not allow unauthorized personnel in treatment areas until insecticides dry and odors subside.

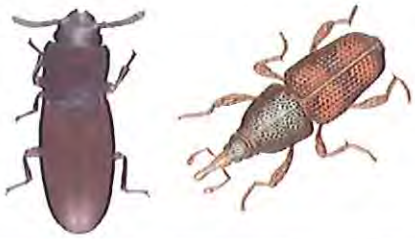
Environmental concerns: See pesticide label for additional concerns and precautions.

Additional comments: Good surveillance is fundamental to bed bug identification and elimination. Pesticides should be considered the last option, but are often necessary for bed bug control.

STORED PRODUCT INSECTS

PURPOSE

Stored product insects include, but are not limited to grain beetles, Indian meal moths, Dermestids, etc. To control insects that damage food and fiber products or jeopardize human health in food storage areas (i.e., Commissaries and Troop Issue Subsistence Activity Warehouses, and other food storage areas).



SURVEILLANCE

Conducted by: Installation/Facility personnel, veterinary services personnel, preventive medicine personnel, and PMPs.

Methods: Inspections for insects or conditions that could favor infestations in stored food products. Particular attention should be given to rodent bait stations because grain-based baits are subject to stored product pest infestation. Using sticky traps or species-specific pheromone traps will enhance inspections.

Frequency: Installation/Facility personnel typically perform initial surveys. Veterinary services personnel conduct daily inspections at the Commissary, Troop Issue Subsistence warehouses, and at least semiannual surveys in these facilities with preventive medicine personnel. Preventive medicine personnel also conduct surveys during monthly sanitary inspections at food service facilities. Pest management personnel conduct surveys based on service order complaints, to validate complaints after contractor performance, and as a part of their quality assurance surveillance plan.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Clean up spilled food that may attract insects. Caulk, seal, or paint cracks and crevices to reduce harborage. Return infested material to the vendor or dispose of it. Windows are screened to reduce pest entry.

Conducted by: Installation/Facility personnel use most mechanical or physical controls. Maintenance personnel may caulk and install or repair screens.

Cultural

Method and Location: Damaged goods should be kept in tight-fitting containers or in freezers. Infested products are removed immediately upon discovery. Use or rotate the oldest food products first. Food items are stored at least six (6) inches above the floor to facilitate cleaning. Items in food warehouses are stored at least 18 inches away from all walls to aid pest surveillance and control. Lighting in warehouses is provided to sufficiently detect pest activity.

Conducted by: Installation/Facility personnel dispose of infested products and practice proper shelving and stock rotation. Facility maintenance personnel paint floors and maintain lights.

CHEMICAL PEST MANAGEMENT TECHNIQUES
• **FOLLOW THE DIRECTIONS ON THE LABEL.** • Do not contaminate food, utensils, or preparation surfaces. • Do not permit personnel in areas until the applied insecticide has dried and odors have subsided.
Pesticide: Aerosol insecticide ***Basis for Treatment:*** Self-help is used when stored product insects are found within the facility. In very rare cases, professional treatment is used based on survey findings by medical, veterinary, or other pest management personnel. Additional professional treatment may be required if control standards are not achieved. ***Method and Location:*** Indoor - Apply as a crack and crevice treatment into cracks and crevices in all hiding places behind baseboards, sinks, cabinets, meter boxes, door frames, windows or as a space treatment at a rate of 20 seconds per 1,000 ft^3. *NOTE: When applying a space treatment in food handling areas, the food handling operation should be shut down. Foods should be removed or covered during treatment.* ***Conducted by:*** Installation/Facility personnel. PMPs apply pesticides only in rare situations. ***Control Standard:*** Insects are killed on contact. Fewer than five (5) living Stored product insects observed after treatment indoors for a period of 24 hours.

EARWIGS, ETC.

PURPOSE

Crawling arthropods include, but are not limited to earwigs, and other crawling arthropods, that are not specifically addressed in other outlines. Exclusion, reduction, and moisture control are the primary control methods.

SURVEILLANCE

Conducted by: Building occupants. PMPs may inspect to validate complaints and determine the correct control measures to use.

Methods: Inspections for pests is the most common method. Sticky traps may be used indoors for crawling arthropod pests.

Frequency: Incidental observations by occupants. PMPs inspect when requested following failure of other non-chemical control methods.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Maintain tight-fitting doors and window screens to prevent indoor infestations. Remove unnecessary plant debris, mulches, trash, leaf piles, boards, and rocks from building perimeters. Eliminate excess moisture around building exteriors (e.g., leaking faucets or improperly installed downspouts or splash guards). Small infestations can be swept or vacuumed.

Conducted by: Building occupants or maintenance personnel.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Do not contaminate food, utensils, or preparation surfaces.
- Do not apply, mix, or store pesticides near open flame.
- Do not permit personnel in areas until the applied insecticide has dried and odors have subsided.

Pesticide: Aerosol pesticide, or equivalent

Basis for Treatment: Crawling arthropods found close to buildings, electrical boxes, telephone boxes, etc. Self-help is used when arthropods are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Spray thoroughly into hiding places such as cracks, crevices, moist areas, openings around pipes and sinks, under refrigerators, baseboards, and storage areas. Spray directly on arthropods where possible. Remove feed and foodstuffs and thoroughly clean before spraying. Dispose of any infested products. Cover shelves and drawers with fresh shelf paper after spray has dried. Repeat as necessary.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

Control Standard: Arthropods are killed on contact. Fewer than five (5) living arthropods observed after treatment indoors for a period of 24 hours.

Pesticide: Boric Acid, EPA Registration Num: 499-384, or equivalent

Basis for Treatment: Crawling arthropods found close to buildings, electrical boxes, telephone boxes, etc. Self-help is used when Arthropods are found within the facility. In very rare cases, professional treatment is used based on survey findings by PMP. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Indoor - Inject with the prescribed dosage into cracks and crevices and void spaces where insects may be harboring. Outdoor - Treat cracks around doors, windows, under siding and voids at foundation level, beneath guards on loading docks, into cracks in foundations and floors and in other places where these pests may enter building.

Conducted by: Installation/Facility personnel. PMPs apply pesticides only in rare situations.

Control Standard: Arthropods are killed on contact. Fewer than five (5) living Arthropods observed after treatment indoors for a period of 24 hours.

Pesticide: Spray pesticide, or equivalent

Basis for Treatment: Crawling arthropods found close to buildings, electrical boxes, telephone boxes, etc. Re-application may be required if acceptable control standards are not met.

Method and Location: Indoor contact treatment with aerosol insecticide. The aerosol spray works effectively to control arthropods as a crack and crevice spray in small area voids and as a spot treatment under large appliances and cabinets where it is difficult to use physical control.

Conducted by: Certified PMPs.

Control Standard: Crawling arthropods are killed within 1/2 hour upon contact and up to 24 hours after application.

MICE AND RATS

PURPOSE

To reduce the possibility of structure damage, to reduce contamination caused by rodent urine or feces, and to minimize the potential for ***hantavirus disease*** transmission to humans. Rodenticides are considered the last option in controlling rodents. Rodenticides must be placed in lockable bait stations. The presence of spilled food, cluttered work areas, and garbage will adversely affect any baiting or trapping program. Cooperation among personnel to store items off floors, away from walls, and keeping areas free of food and garbage is critical in achieving effective rodent control.

SURVEILLANCE

Conducted by: Installation/Facility personnel or Facility Maintenance personnel may incidentally observe rodents. PMP conduct surveys to validate complaints or after treatment to evaluate control methods.

Methods: Inspections for rodents, rodent damage, rub marks, burrows, droppings, or other signs. Rodent glue boards may also be used to monitor rodent populations. An ultraviolet (UV) light source can be used to identify urine stains.

Frequency: Daily incidental observations by Installation/Facility personnel and Facility Maintenance personnel. PMP inspect when requested, during other pest control services, or during specific surveys for rodents. Post-treatment surveys are conducted when heavy infestations are suspected, at sites where control has historically been difficult, or sites where control has a high priority.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Eliminate openings at building exteriors. Give particular attention to loading doors that do not always close tightly. Tightly screen windows and vents to prevent rodent entry. Snap and rodent glue boards may be used to capture. The suggested snap trap bait is peanut butter. Discontinue the use of food baits if they start to attract insects. Check traps and glue boards daily. Glue boards and snap traps will not be used continually in order to prevent trap or glue board "shyness". Mechanical repeating catch traps (e.g., CANTMISS mouse trap) may be used by PMP.

Hand spray dead rodents, droppings, and nesting areas with bleach/water solution before handling. The bleach/water mixture should be a solution of one (1) part bleach to 10 parts water (1.5 cups of bleach in a gallon of water). Ensure that they are thoroughly soaked with the bleach/water solution before handling. Wear latex or rubber gloves when handling all dead rodents. Place dead rodents, droppings, and nesting areas in plastic bag for disposal. Seal the plastic bag and put it inside another plastic bag. Seal the outer bag and dispose of it in the trash.

Conducted by: Facility Maintenance personnel repair weather stripping, doors, and windows. Building maintenance set traps or glue boards for minor infestations. Installation/Facility personnel or PMP set traps and glue boards when extensive trapping is required.

Cultural

Method and Location: Practice good sanitation to reduce food sources especially in food handling facilities and break rooms. Clean spilled food promptly. Use garbage receptacles with tight fitting lids. Vacuum dry food spillage in food service facilities because sweeping places food particles into cracks and crevices. Eliminate water leaks and unnecessary standing water in and around buildings. Remove excess bags, empty boxes, and other potential harborage from food storage areas. Store food items on shelving that 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. Cut vegetation around food handling buildings at least six (6) inches away from buildings.

Conducted by: Installation/Facility personnel should practice good sanitation measures. Facility Maintenance personnel repair and replace plumbing. Facility Maintenance personnel or contractors maintain vegetation.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Rodenticides are used only to supplement unsuccessful non-chemical control methods.
- Do not place rodenticides where they will be accessible to children or pets.
- Unused baits should be placed in tamper proof containers.
- Do not use rodenticides where there is a possibility of contaminating food or food preparation surfaces.
- To reduce possible ***Hantavirus*** pathogens from becoming airborne and inhaled by personnel, do not sweep rodent droppings.
- Wet mopping, wet rags, or spraying will be used (with detergent and bleach) to disinfect rodent contaminated surfaces.
- Use vacuums equipped with high efficiency particulate air (HEPA) filters to remove rodent droppings or dry food spillage where rodent contamination is possible.
- Disinfect surfaces with a mixture of three tablespoons of household bleach (or other disinfectant) to one gallon of water.
- Keep rodenticides out of lakes, streams, or ponds.
- Do not contaminate water by cleaning of equipment or disposing of wastes.

Pesticide: Rat and Mouse Bait

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

Method and Location: Read label for directions.

Conducted by: Installation/Facility personnel following label and MSDS familiarization.

Pesticide: Baits

Basis for Treatment: A heavy infestation of rodents is present or use of traps, glue boards, and other control methods have failed to provide control. In very rare cases, professional treatment is used based on survey findings by medical, veterinary, or other pest management personnel. Additional professional treatment may be required if control standards are not achieved.

Method and Location: Read label for directions.

Conducted by: Certified PMP.

BATS

PURPOSE

Bats can be carriers of rabies. It is important to prevent them from entering and roosting in buildings. Roosting bats produce an accumulation of guano that causes odors, corrosion of some materials, and serve as a media for fungal diseases such as histoplasmosis, mycosis, and cryptococcosis.

Contact with bats can result in serious medical problems. All efforts must be made to protect one's self from airborne pathogens and avoid bat contact. PMPs who control bats must receive rabies prophylaxis and wear PPE during handling bats and bat products.

Personnel that are responsible for cleaning bat guano are required to wear PPE.

NOTE: Bats will not be killed except for rabies examination.

SURVEILLANCE

Conducted by: Incidental observations by Installation/Facility personnel. PMP conduct surveys to validate complaints, identify bat species, and perform post-treatment surveys to monitor control methods using the methods below. Properly identify the bat to make sure it is not on the Endangered Species List.

Methods: Inspections are made for bats, bat sounds, or bat droppings. Bat control will not be performed until the species has been identified because law may protect some species. Close examination of the bat(s) may be required for proper identification.

Frequency: Surveys are performed when requested by Installation/Facility personnel. Inspect bat exclusion devices to ensure that they are properly installed at all bat exits. Post-treatment surveys are often required to ensure that all bat accesses have been properly sealed.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES
Mechanical and Physical – Exclusion ***Method and Location:*** Exclusion is the only ecologically viable method to eliminate bats from a structure. Four phases are used in this method: • Phase 1 is to confirm bat presence and identify the bat species (it is possible to have more than one species in a structure). Contact the Environmental Office to inquire if threatened or endangered bat species are present. Species identification is also critical because different species have young at different times of the year. Control will not be performed during periods when young, non-flying bats are present. • Phase 2 will not begin until all juvenile bats are capable of flight so they are not trapped inside structures. Drape netting over bat exits to serve as a baffle that permits bats to exit but prevents access into the structure through holes, cracks, or other gaps in the building exterior. • Phase 3 is to wait two (2) to (4) weeks, ensure bats are no longer gaining access into the structure and then to remove the netting. On the same day of netting removal, seal or cover all bat entrances and exits. Netting or other suitable material may also have to be used at sites such as large bay doors, rafters, etc. to prevent bat access to roosting sites within structural elements. All doors and windows should be kept closed or should be screened to prevent accidental bat entry. • Phase 4 is to install bat houses in the general area of the installation/facility that had the infestation. ***Conducted by:*** PMP
Physical – Capture ***Method and Location:*** Building occupants should never attempt to capture live bats. Contact the PMC for immediate assistance. Installation/Facility personnel should open windows and doors as soon as possible to allow bats to escape. They should minimize the amount of time they spend in rooms that contain a live bat to reduce the possibility of rabies transmission. The capture of bats by a qualified contractor may be required when they become trapped indoors. All bats captured indoors or known to touch, bite, urinate on, or scratch any personnel will be delivered to a veterinary or public health services for rabies examination (even if bites or scratches do not occur). All personnel who were in an enclosed room with a live bat, touched, bitten, urinated on, or scratched by a live bat should be identified by name, unit, and telephone number to the Occupational Health and Safety Personnel. In the event that the bat(s) is positive for rabies, all personnel who were in the room with the bat, touched, bitten, urinated on, or scratched must receive rabies treatment unless otherwise recommended by a physician. Any health concerns should be directed to the Occupational Health and Safety Office. ***Conducted by:*** PMP

DEER AND ELK

PURPOSE

To remove animals that may cause ornamental plant damage, and driving hazards in other areas. Pesticides are not permitted to control deer or elk.

Do not feed deer or elk.

State wildlife officials provide permits and approval of killing or relocation of deer or elk.

SURVEILLANCE

Conducted by: Environmental Office personnel conduct surveys.

Methods: Observation for deer or elk, plant damage, tracks, and droppings. Spotlights are used when conducting a night census.

Frequency: Infrequent.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location:

1) Use plastic or wire screens around ornamental plants to prevent deer or elk damage. Install fences to exclude from specific sites.
2) Herd management includes hunting under state regulations during hunting season.
3) Trapping is expensive and time consuming but may be used. Survival of trapped (or netted) animals is often low.

Conducted by: Grounds Maintenance personnel conduct exclusion work. Only authorized personnel may trap deer. Contact the Environmental Office for further details.

Cultural

Method and Location:

Minimize the use of plants that attract deer or elk. Food plots may be used to lure deer or elk away from areas where damage occurs.

Conducted by: Grounds Maintenance personnel or Environmental Office personnel.

SKUNKS

PURPOSE

To reduce odor problems, turf damage, associated flea infestations, and the potential for rabies exposure. Personnel who detect skunks will contact Environmental Office personnel or security personnel to determine if skunks can be trapped, relocated, or killed all personnel who live-trap must receive rabies prophylaxis. Trapping skunks requires a State trapping license. Currently there is no season or limit. Please check with the Oregon Department of Fish and Wildlife for the most current regulations. Wear heavy-duty leather gloves when handling live traps and skunks. Contact local health or animal control officials to determine if skunks, showing signs of rabies (acting sick, signs of aggression, very nervous activity, or salivation), should be examined. Report all skunk bites or scratches to medical authorities. All skunks that have bitten or scratched must be examined for rabies by veterinary services or local public health officials. If present, treat for fleas under buildings where skunks were removed. Any necessary exclusion work is completed after all skunks have been removed from structures.

NOTE: Do not use pesticides to kill skunks. Do not feed skunks.

SURVEILLANCE

Conducted by: Installation/Facility personnel or Facility Maintenance personnel may incidentally detect skunks at the building site. PMP conduct surveys to validate complaints or to determine control effectiveness. Contact the PMC to evaluate problems where numerous skunks are involved at a specific site. The Oregon Department of Fish and Wildlife's website has list of licensed trappers.

Methods: Surveys involve odor detection and observation for animals, burrows, tracks, foraging activity, and scat.

Frequency: Installation/Facility personnel or Facility Maintenance personnel incidentally detect skunks. PMP inspect when requested or during pest control services.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Live traps (wire, barrel, or wood box traps) are used. Exclusion from buildings is also conducted by installing hardware cloth, skirting, or other materials around structures. Fill existing burrows at the conclusion of control operations. Avoid sealing burrows April through August when young skunks may still be in burrows. Eliminate brush piles, stacked lumber, woodpiles, etc.

Conducted by: Facility Maintenance personnel install barriers and fill burrows. Some exclusion work for specific sites may be contracted. Trapping or removal should only be performed by PMP.

Cultural
Method and Location: Remove trash and use tight fitting lids on receptacles. Do not feed stray or wild animals.
Conducted by: Installation/Facility personnel and Facility Maintenance personnel.

OPOSSUMS, RACCOONS, AND TREE SQUIRRELS

PURPOSE

To remove nuisance animals in or under buildings and, to reduce the possibility of structural damage, exposure to rabies, and occurrence of flea infestations. Pesticides are not permitted to control opossums, raccoons, and tree squirrels. Trapping opossums and raccoons requires a State trapping license. Currently there is no season or limit on opossums. Currently there is a season for raccoons. Please check with the Oregon Department of Fish and Wildlife for the most current regulations. Eastern grey squirrels, and eastern fox squirrels are invasive species that are displacing the native western grey squirrels. These two eastern invaders should be destroyed if trapped. Do not attract these animals by the deliberately feeding these wild animals. Personnel who detect these animals will contact environmental personnel to determine if animals can be trapped and relocated. All personnel who live trap these animals must receive a rabies prophylaxis. Heavy-duty leather gloves are worn when handling live traps and animals. Contact local health or animal control officials to determine if animals suspected of having rabies (acting sick, signs of aggression, or very nervous activity) should be examined for rabies.

NOTE: Opossums salivate heavily and therefore may be misjudged as rabid.

Any animals that have caused bites or scratches are submitted to the state health department for a rabies examination. All bites or scratches from these animals are reported to the local medical authority. Areas under buildings where animals are removed are treated for fleas if an infestation exists.

SURVEILLANCE

Conducted by: Building occupants or maintenance personnel incidentally observe pests. PMPs (in-house or contract) may conduct surveys as a part of other services and rarely in response to service requests. The Oregon Department of Fish and Wildlife's website has list of licensed trappers.

Methods: Observations for live animals, tracks, structural damage, and scat. Occasionally live animals can also be heard in attics during their peak activity periods.

Frequency: Daily incidental observations by occupants during facility use or maintenance personnel. Surveys by PMPs are very rare.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES
Mechanical and Physical ***Method and Location:*** Live traps (wire, barrel, or wood box traps) are used. Live traps for tree squirrels may be baited with peanut butter or other nut products. Exclusion from buildings is also conducted by installing hardware cloth, sheet metal, or other materials around structures, chimneys, and vents. PMPs respond to service orders. ***Conducted by:*** Building occupants or maintenance personnel install excluders. Some exclusion work for specific sites may be contracted.
Cultural ***Method and Location:*** Remove trash and use tight fitting lids on trash receptacles. Exclusion from buildings is also conducted by installing hardware cloth, skirting, or other materials around structures. Roof vents and holes under eaves should be screened or blocked. Do not feed stray or wild animals around buildings. Remove unnecessary brush piles, stacked lumber, woodpiles, etc. that may be used as shelter by these animals. Remove tree branches that reach buildings. ***Conducted by:*** Building occupants, maintenance, or contract personnel.

FERAL CATS AND DOGS

PURPOSE

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

Pesticides are not permitted to control cats and dogs. Do not deliberately feed stray or wild animals.

All personnel who trap and handle these animals should receive rabies prophylaxis. Wear heavy-duty leather gloves when handling live traps and animals. Local health or animal control officials will determine if rabies examinations of animals displaying rabid behavior are necessary (acting sick, signs of aggression, or very nervous activity). Animals that have caused bites or scratches must be taken to the health department for rabies examinations and reported to the local medical authorities. Areas under buildings where animals have been removed should be treated for fleas if there is an infestation. Bury or incinerate dead animals.

SURVEILLANCE

Conducted by: Installation/Facility personnel or maintenance personnel incidentally observe pests. Security personnel are the primary surveyors and controllers for these pests. PMPs (in-house or contract) may conduct surveys as a part of other services and rarely in response to service requests.

Methods: Observations for live animals, tracks, structural damage, and scat.

Frequency: Daily incidental observations by occupants during facility use or maintenance personnel. Surveys by PMPs are very rare.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Live traps (wire, barrel, or wood box traps) are used. Exclusion from buildings is also conducted by installing hardware cloth, sheet metal, or other materials around structures, chimneys, and vents. Security officers are contacted for assistance if necessary. PMPs respond to service orders. All feral cats and dogs that are trapped will be turned into animal control unless they caused a bite, scratch, or show signs of rabies symptoms.

Conducted by: Building occupants or maintenance personnel install excluders. Some exclusion work for specific sites may be contracted.

Cultural

Method and Location: Remove trash and use tight fitting lids on trash receptacles. Do not feed stray or wild animals around buildings. Remove unnecessary brush piles, stacked lumber, woodpiles, etc. that may be used as shelter by these animals. Remove tree branches that reach buildings.

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

BEAVERS

PURPOSE

To remove animals that have damaged landscape trees, burrowed into water impoundment structures, or created flooding that threatens structures, military training, or wildlife habitats. Pesticides are not used to control beavers. Coordination is made with installation personnel who determine control methods to use for killing or relocating beavers. Trapping beavers requires a State trapping license. Please check with the Oregon Department of Fish and Wildlife for the most current regulations. Contracted personnel shall remove nuisance beavers. The Oregon Department of Fish and Wildlife's website has list of licensed trappers.

NOTE: Leg-hold, conibear traps, and snares will not be used in areas where they endanger humans or pets.

SURVEILLANCE

Conducted by: Incidental observations by area users. Environmental personnel conduct surveys in response to service requests or during other duties.

Methods: Inspections for animals, plant damage, tracks, and flooding. Observe nocturnal activity by using a red filtered spotlight.

Frequency: As needed.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location:

1) When evidence of damage begins, install barriers of sheet metal or hardware cloth around ornamental plants to exclude animals. These barriers extend from the ground up to four (4) feet.
2) Trapping is an effective method used for controlling beavers.

Conducted by: Contract personnel, or facility maintenance

Cultural

Method and Location: Habitat may be altered near ponds or other reservoirs to prevent beavers. Clearing trees and shrubs near ponds and planting crops no closer than 100 yards from reservoirs can prevent beavers from moving into an area.

Conducted by: Environmental personnel.

BIRDS

PURPOSE

To control birds that nest or roost in warehouses, loading docks, and other buildings where they are a nuisance, damage or contaminate areas, or pose a hazard to flying and landing aircraft. Ectoparasite control may be necessary where bird nesting has occurred.

Control methods should be in accordance to the Endangered Species Act (ESA), the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. All birds and their eggs, except starling, house sparrow and rock pigeon are protected by federal and/or state laws. Black tailed pigeons are a game bird and can only be taken during their hunting season. See the Oregon Department of Fish and Wildlife's website for details. The preferred method of control is modifications preventing access to nesting or roosting sites.

SURVEILLANCE

Conducted by: Installation/Facility personnel or Facility Maintenance personnel may incidentally observe bird problems. PMP conduct surveys in response to complaints or as post-treatment surveys to determine control effectiveness. The Flight Safety Officer (FSO) monitors areas for obstructions on airfields.

Methods: Observation of birds, droppings, or nests.

Frequency: Installation/Facility personnel and Facility Maintenance personnel may make incidental observations. PMP inspect at random to validate complaints, during the performance of other pest control services, or before and after treatment for birds.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

1) Habitat modifications that exclude birds from buildings are primarily used. Exclusion devices include screens, netting, high-tension wires using stainless steel posts, and spring-tensioned wires.
2) Repellents are not typically used because they are often ineffective and only provide short-term control. Additional examples of repellents include chemical, porcupine wires, ultra sound, auditory alarms, distress calls, and flashing lights, owl decoys, and rubber snakes.
3) Trapping is the preferred method for reducing pest birds at a specific area. Use funnel traps for capturing starlings and house sparrows. Bob-type traps are used when controlling rock pigeons. Advantages of trapping include: 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 bird pests, starlings, house sparrows, and rock pigeons, are humanely killed. Inhumane treatment of captured birds is prohibited.
4) Nest destruction before eggs are laid.
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 of starling, house sparrow and rock pigeon. Because shooting is hazardous and labor intensive it is rarely used. Night shooting is practiced because fewer people are in control areas and birds are found at roost sites. Birds are placed in plastic bags and properly disposed of the day they are shot. Nuisance game birds may only be taken during their hunting season by a licensed hunter. See the Oregon Department of Fish and Wildlife's website for details.

Conducted by: Facility Maintenance personnel install bird barriers. Some exclusion work for specific sites may be contracted, especially for new construction. PMP trap, remove nests, and shoot pest birds.

Biological

Method and Location: None. Although chemosterilants exist for some species, they are expensive, they must be frequently applied, and may be ineffective due to the irregular feeding behavior of birds.

Cultural

Method and Location: Close loading doors, unscreened windows, or other openings when not in use. People should be discouraged from feeding birds.

Conducted by: Installation/Facility personnel.

GRASSES AND WEEDS

PURPOSE

To reduce vegetative damage to paved surfaces, poles, signs, hydrant bases, sidewalk edging, fuel sites, electrical substations, fences etc., 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.

Herbicides should only be used in areas of high aesthetic value, preferably as a "spot" treatment rather than broadcast treatment. This includes weed-and-feed products. Presidential Order 13514 requires a 20% reduction in landscaping water consumption by the end of fiscal year 2020 relative to a 2010 baseline. Therefore conversion of lawns to native vegetation is a priority.

SURVEILLANCE

Conducted by: Installation/Facility personnel may incidentally observe turf problems. Facility Maintenance personnel may conduct surveys in response to service requests.

Methods: Inspections for undesirable plants in turf.

Frequency: Inspections are conducted by grounds maintenance personnel. Grounds maintenance personnel inspect when requested, during other grounds maintenance services (e.g., mowing), or during specific surveys for weeds. Inspections conducted during the previous growing season may determine if pre-emergent herbicides are necessary. Surveys to determine the need for pre-emergent herbicides are generally conducted May through August the previous year. Post-emergent herbicide surveys are conducted April through September during the current year. Surveys to determine the need for pre-emergent herbicides to control Winter broadleaf weeds are conducted November through February the previous year. Surveys to determine the need for post-emergent herbicides to control Winter broadleaf weeds are conducted November through February the current year.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Mechanical control facilitates chemical control by reducing leaf cover and therefore less herbicide is required.

Method and Location:

1) Cut grasses at the recommended height. This means removing no more than 1/3 of the total leaf surface. Raise the mowing height during periods of drought to maintain turf vigor.
2) Mechanically remove grass and broadleaf weeds with 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 provided only short-term control. Mechanical control may also be performed with other maintenance equipment such as graders and backhoes when used in conjunction with other duties (i.e., road grading or ditch cleaning). Use of latex/silicone caulking in sidewalk and pavement crevices is encouraged to reduce herbicide use. The use of hot water (195-210°F) has been proven effective in total vegetation control by disrupting the leaf's waxy coat, thus desiccating the plant. Some perennials may need additional applications. Commercially

available machines that heat the water and pump it through specially designed applicator heads deliver the hot water to right-of-ways, around signs and shrubs, along walkways, as a spot treatment or in ditches.

Conducted by: Installation/Facility personnel or Facility Maintenance personnel.

Cultural

Method and Location:

1) Grass selection is most important in developing and maintaining a high quality, problem-free turf. Grass selection is based on the environment, expected turf use, and expected management intensity. Certified seed or turf is used. Native grasses are preferred.
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) Turf irrigation requirements depend on grass species, turf maintenance level, soil type, and weather. Most turf require one inch of water per week. Irrigate after sunset and before sunrise.
4) Apply lime to selected areas 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 that remove plugs of soil two (2) to three (3) inches and 1/2 to 3/4 inch in diameter. Fertilization 10 to 14 days before cultivation increases the turf recovery rate.
6) Use of mulches (organic and synthetic) is encouraged to provide vegetation control. Place mulch around desirable vegetation such as trees and shrubs and along fence lines.

Conducted by: Installation/Facility personnel or Facility Maintenance personnel.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Herbicides should only be used in areas of high aesthetic value, preferably as a "spot" treatment rather than broadcast treatment.
- Do not allow personnel on treated turf until sprays have dried.
- Do not apply pre-emergent herbicides if targeted weeds have already germinated.
- Do not apply herbicides when winds may create undesirable drift. See the pesticide label additional concerns.
- Only licensed pest applicators can use powered sprayers. Ready to use applicators, aerosols, or hand pumped applicators can be used for self help.

Pesticide: Post-Emergent herbicide such as Roundup or equivalent

Basis for Treatment: Vegetation or potential vegetation around the bases of hydrants, utility poles, and targets, vegetation along fence lines, vegetation on or along sidewalks and building perimeters, or around fuel sites and in electrical substations.

Method and Location: Hand sprayer. Some formulations that are ready to use may be dispensed using a provided pistol grip pump sprayer. Pesticide is applied IAW label directions to unwanted vegetation. Proper application of Glyphosate allows seeding or planting soon after pesticide application because it leaves little residue in soils.

Conducted by: Facility/installation personnel

Control Standard: Plants showing signs of mortality (chlorosis) usually 7-10 days after treatment and killed within 21 days. No re-growth from rhizomes or stolons for one (1) month.

Pesticide: Post-Emergent herbicide such as Roundup or equivalent

Basis for Treatment: Vegetation or potential vegetation around the bases of hydrants, utility poles, and targets, vegetation along fence lines, vegetation on or along sidewalks and building perimeters, or around fuel sites and in electrical substations. ***Method and Location:*** Power sprayer. Pesticide is applied IAW label directions to unwanted vegetation. Proper application of Glyphosate allows seeding or planting soon after pesticide application because it leaves little residue in soils. ***Conducted by:*** Certified PMP following label and MSDS familiarization. ***Control Standard:*** Plants showing signs of mortality (chlorosis) usually 7-10 days after treatment and killed within 21 days. No re-growth from rhizomes or stolons for one (1) month.
Pesticide: Post-Emergent broadleaf herbicide or equivalent ***Basis for Treatment:*** Numerous broadleaf weeds observed in high visibility lawn grass areas. ***Method and Location:*** Hand sprayed as a spot treatment. Pesticide is applied IAW label directions to unwanted broadleaf weeds. ***Conducted by:*** Facility/installation personnel. ***Control Standard:*** Treated broadleaf weeds have retarded growth or are killed at targeted sites within three weeks.
Pesticide: Post-Emergent broadleaf herbicide or equivalent ***Basis for Treatment:*** Numerous broadleaf weeds observed in high visibility lawn grass areas. ***Method and Location:*** Power sprayed as a spot treatment. Pesticide is applied IAW label directions to unwanted broadleaf weeds. ***Conducted by:*** Certified PMP following label and MSDS familiarization. ***Control Standard:*** Treated broadleaf weeds have retarded growth or are killed at targeted sites within three weeks.
Pesticide: Grass specific herbicide ***Basis for Treatment:*** Tall weedy European grasses need to be controlled to reduce mowing, or as a pretreatment before seeding native vegetation. ***Method and Location:*** Herbicide is applied using a sprayer. ***Conducted by:*** Facility/installation personnel. ***Control Standard:*** Targeted grasses are controlled within three (3) weeks following treatment and fail to produce seed.
Pesticide: Grass specific herbicide ***Basis for Treatment:*** Tall weedy European grasses need to be controlled to reduce mowing, or as a pretreatment before seeding native vegetation. ***Method and Location:*** Herbicide is applied using a power sprayer. ***Conducted by:*** Certified PMP. ***Control Standard:*** Targeted grasses are controlled within three (3) weeks following treatment and fail to produce seed.
NOTE: There are many pesticides that will achieve adequate weed management at facilities, and it will be left up to the discretion of the certified applicator as to the best available product to use as long as the product is listed on the approved AFPMB list located on the AFPMB website.

POISON OAK/IVY

PURPOSE

To reduce potential risk to training.

SURVEILLANCE

Conducted by: Installation/Facility and Training personnel.
Methods: Visual observation.
Frequency: Throughout the growing season.

NON-CHEMICAL PEST MANAGEMENT TECHNIQUES

Mechanical and Physical

Method and Location: Mowing or physical removal can be effective against seedling plants but mowing will need to be repeated due to re-sprouting.

Conducted by: Installation/Facility personnel or Facility Maintenance personnel.

Cultural

Method and Location:

Reduce the forest fringe, through mechanical, chemical, or burning.

Conducted by: Installation/Facility personnel or Facility Maintenance personnel, Fire personnel.

CHEMICAL PEST MANAGEMENT TECHNIQUES

- **FOLLOW THE DIRECTIONS ON THE LABEL.**
- Do not apply herbicides when winds may create undesirable drift. See the pesticide label additional concerns.
- Fall is the best time for application just as the leaves start to change color. The plant will carry the poison to its roots as it changes color.

• Only licensed pest applicators can use powered sprayers. Ready to use applicators, aerosols, or hand pumped applicators can be used for self help.
Pesticide: Post-Emergent herbicide such as Roundup or equivalent ***Basis for Treatment:*** Presence of poison oak. ***Method and Location:*** Hand sprayer. Some formulations that are ready to use may be dispensed using a provided pistol grip pump sprayer. Pesticide is applied IAW label directions to unwanted vegetation. Proper application of Glyphosate allows seeding or planting soon after pesticide application because it leaves little residue in soils. ***Conducted by:*** Facility/installation personnel ***Control Standard:*** Plants showing signs of mortality (chlorosis) usually 7-10 days after treatment and killed within 21 days. No re-growth from rhizomes for one (1) month.
Pesticide: Post-Emergent herbicide such as Roundup or equivalent ***Basis for Treatment:*** Presence of poison oak. ***Method and Location:*** Power sprayer. Pesticide is applied IAW label directions to unwanted vegetation. Proper application of Glyphosate allows seeding or planting soon after pesticide application because it leaves little residue in soils. ***Conducted by:*** Certified PMP following label and MSDS familiarization. ***Control Standard:*** Plants showing signs of mortality (chlorosis) usually 7-10 days after treatment and killed within 21 days. No re-growth from rhizomes for one (1) month.
Pesticide: Post-Emergent broadleaf herbicide or equivalent ***Basis for Treatment:*** Presence of poison oak. ***Method and Location:*** Hand sprayed as a spot treatment. Pesticide is applied IAW label directions. ***Conducted by:*** Facility/installation personnel. ***Control Standard:*** Treated poison oak retarded growth or is killed at targeted sites within three weeks.
Pesticide: Post-Emergent broadleaf herbicide or equivalent ***Basis for Treatment:*** Presence of poison oak. ***Method and Location:*** Power sprayed as a spot treatment. Pesticide is applied IAW label directions. ***Conducted by:*** Certified PMP following label and MSDS familiarization. ***Control Standard:*** Treated poison oak has retarded growth or is killed at targeted sites within three weeks.

Annex B

Annual Pesticide Use Proposal

Annex C

Points of Contact

Gerald Elliott: Environmental Program Manager, 503 584 3868, gerald.elliott@us.army.mil

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Annex D

Certificates of Training or Competency

ANNEX E
PESTICIDE APPLICATION RECORD
(replaces DD Form 1532)

Job Number: _____ Facility: _____ Application Date: _____

Pesticide Applied For: _____ (requesting unit/agency)

Was this an emergency public health, safety and mission critical service order? Yes ___ No___

Location of Area Sprayed: _____
_____

Time of Application: _____ am / pm to _____ am / pm Total Hours: _____

Weather Conditions: ..... Clear ____ Overcast ____ Other _____

Wind Conditions: .....(wind from?, e.g., NW) . N__ S__ E__ W__ MPH _____

Temperature: ..... _____ degrees F.

Pesticide Applied by: _____ License # : _____

_____ License #: _____

Specific Property/Building/Surface Treated: _____
_____
_____

Estimated square footage or acreage of area treated: _____

Pest(s) Controlled: _____

EPA registration number: _____
Trade Name of Pesticide: _____
Active ingredients and %: _____
_____
_____
_____

Total Amount Applied (undiluted): _____
Pesticide Supplied by: _____

Method of Application: _____
Equipment Used: _____

Annex F

FONSI and REC

ARNG RECORD OF ENVIRONMENTAL CONSIDERATION

1. PROJECT NAME:
ORARNG-Integrated Pest Management Plan-2012

2. PROJECT NUMBER:	**3. DATE:**
12-09-41OMD	7-Feb-12
4. PROJECT START DATE (dd-mmm-yy):	1-Mar-12
5. PROJECT END DATE (dd-mmm-yy):	28-Feb-15

6. DESCRIPTION AND LOCATION OF THE PROPOSED ACTION:
The proposed action is the five year update and implementation of the ORARNG Integrated Pest Management Plan. No significant changes have been made to the plan and the actions described in the plan fall within the analysis included in the NGB's 2004 Programmatic Environmental Analysis for Integrated Pest Management Plans.

7. CHOOSE **ONE** OF THE FOLLOWING:

☑ An existing **Environmental Assessment** adequately covers the scope of this project.
EA Date (dd-mmm-yy) 9-Aug-04 Conducted By: PEA FNSI by National Guard Bureau

☐ An existing **Environmental Impact Statement** adequately covers the scope of this project.
EIS Date (dd-mmm-yy Conducted By:

☐ After reviewing the screening criteria and completing the ARNG Environmental Checklist, this project qualifies for a **Categorical Exclusion** (select one below).
Categorical Exclusion Code:
See 32 CFR 651 App. B

☐ This project is exempt from NEPA requirements under the provisions of:
Cite superseding law:

8. REMARKS:
This REC is tiered off of the 2004 Programmatic EA/FONSI for Integrated Pest Management Plans in accordance with 32 CFR 651.14(c)(2), and documents NEPA review of the ORARNG Integrated Pest Management Plan (2012).

Signature of Proponent (Requester)

Roy D. Swafford
Printed Name of Proponent (Requester)

7 Feb 12
Date Signed

Concurrence:
Environmental Program Manager

Gerald E. Elliott
Printed Name of Env. Program Manager

7 FEB 2012
Date Signed

Finding of No Significant Impact (FNSI)
For the
Army National Guard
Pest Management Program

A. Description of Proposed Action and Alternatives.

The National Guard Bureau (NGB), as a major command under the Department of Army, has taken the general guidelines from the Department of Defense (DOD) Pest Management policy and is continuing to develop the Pest Management Program for the Army National Guard (ARNG). The ARNG's pest management program objective is to use an integrated pest management approach for the judicious use of both non-chemical and chemical control techniques to achieve effective pest controls with minimal environmental impacts. Integrated pest management, as used by the ARNG, is a decision making process designed to (1) identify the conditions causing a particular pest problem to occur; (2) devise ways to change those conditions to discourage recurrence of the problem; and (3) select the least-toxic mix of strategies and tactics to directly suppress the pest populations.

The ARNG proposes to use the integrated pest management approach by developing Installation Pest Management Plans (IPMPs) to reduce the use of chemical treatment techniques by 50% over historic usage levels while also achieving effective pest control. These plans cover certification, reporting, and all other pest management activities. The reduction of chemical control techniques will, in some cases, be accompanied by an increase in the use of mechanical, cultural, and biological approaches. The goals of the pest management plans are (1) to promote health, safety, and welfare of unit personnel through an effective pest management program; (2) to promote installation protection; (3) to ensure a professionally trained pest management force while supporting the mission of the ARNG to provide combat ready units for the national defense; and (4) minimize impacts on the natural and human environment.

The affected environment of the proposed action includes facilities administered by the National Guard of the 50 states, the District of Columbia, and the territories of Puerto Rico, the Virgin Islands, and Guam.

The analysis of the potential environmental impacts is provided in the Programmatic Environmental Assessment (PEA) for the ARNG Pest Management Program. Alternative B is the preferred alternative. This alternative is an integrated approach that provides for the protection of personnel and the environment, while offering the greatest long-term potential for effective pest control. Areas considered in this document include: land use, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomic resources, environmental justice, infrastructure, hazardous materials and toxic wastes, and cumulative impacts. Other alternatives considered in the analysis include strict non-chemical pest management (Alternative A) and strict chemical pest control techniques (Alternative C), as well as the No Action Alternative (Alternative D). Alternative A was not considered to be an effective pest management technique under most circumstances and Alternative C would have greater potential negative impacts on personnel and the environment. The No Action Alternative

would also be a less effective means of pest management in lieu of more effective, integrated approaches proposed by the Preferred Alternative.

B. Potential Environmental Impacts.

The preferred alternative would have minor, but not significant, negative impacts on the following:

1. Air resources. Air resources may be affected by temporary and limited site-specific impacts due to non-chemical management techniques such as mechanical removal or prescribed burns, and chemical techniques such as hand-spraying. In order to minimize these effects the ARNG would utilize Best Management Practices (BMPs) such as coordinating mechanical removal or control burn operations with appropriate government agencies and performing spray operations in strict accordance with product labels and EPA-approved guidance. Pesticides would not be sprayed when wind speeds exceed 15 mph.

2. Noise: Noise levels may temporarily increase to non-significant levels, caused by outside weed management techniques.

3. Soils: Soil erosion may occur from mechanical vegetation removal. However, using appropriate pest management practices would minimize impacts. Soils that are subjected to substantially increased surface water runoff, or wind- or water-induced soil erosion because of weed removal would be reseeded with native seed stocks according to ARNG policy. Pesticide use could potentially contaminate local soils. These risks would be lowered by using and applying the pesticide as specified by the manufacturer, properly disposing of it, and making an appropriate choice of pesticides with short residual times.

4. Water resources: Water resources may be affected by minor, site-specific soil erosion caused by increased sediment runoff resulting from the mechanical removal of vegetation. To minimize these effects the ARNG would use BMPs such as reseeding effected areas with native seed stock. Using and applying pesticides as specified by the manufacturer and choosing pesticides with short residual effects would further minimize risks. During any aquatic or wetlands application of pesticides a buffer would be established around floodplains and areas of surface waters. Techniques, such as spot application, using short residual pesticides, and avoiding sensitive areas would be employed to reduce pesticide runoff and leachate.

5. Biological resources. The introduction of exotic species for pest control could potentially have a local impact on flora and fauna. However, impacts from introducing exotic species would be minimal. Only biological materials approved by the U.S. Department of Agriculture would be used, and their use would be coordinated with the appropriate Federal and State officials.

There is a potential for short term impacts caused by the mechanical removal of vegetation located in and around wetlands. Impacts would be mitigated through the use of BMPs such as establishing buffer zones around such sensitive areas.

Direct impacts to threatened or endangered individuals could occur at the site-specific level. To reduce this potential, no pesticides would be applied within 100-feet of known threatened or endangered species unless use in such a site is specifically approved by the agency with jurisdiction by law. When compared to current practices, impacts to non-target species, endangered and threatened species, and wetlands would be less likely to occur.

C. Commitment to Implementation.

The National Guard Bureau (NGB) affirms its commitment to implement this PEA in accordance with NEPA. Implementation is dependent on funding. The NGB will ensure that adequate funds are requested in future years' budgets to achieve the goals and objectives set forth in this PEA.

D. Public Review and Comment.

The Draft Environmental Assessment was made available for public comment from 15 April – 15 May 2004. No comments were received. The Final Environmental Assessment and the Draft FNSI were made available for public review from 15 June through 15 July 2004. Copies of the Final Environmental Assessment and DFNSI were made available be obtained on the Internet at http://www.arng.army.mil/nepa/, or by calling MAJ Steve Morgan at (703) 607-7958 or emailing MAJ Steve Morgan at Stephen.Morgan@ ngb.army.mil. No comments were received.

E. Finding of No Significant Impact.

A careful review of the Programmatic Environmental Assessment has concluded that the implementation of the preferred alternative for the ARNG Pest Management Program would not constitute a major federal action significantly affecting the quality of the natural or human environment. This analysis fulfills the requirements of the National Environmental Policy Act (NEPA) and the Council on Environmental Quality regulations. An Environmental Impact Statement will not be prepared and the National Guard Bureau is issuing this Finding of No Significant Impact.

9 August 2004
Date

Gerald I. Walter
Lieutenant Colonel, US Army
Chief, Environmental
Programs Division