

INTEGRATED PEST MANAGEMENT PLAN OCTOBER 2017

MARINE CORPS BASE CAMP PENDLETON,
CA



Prepared by
Naval Facilities Engineering Command Southwest,
San Diego, CA



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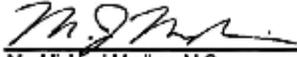
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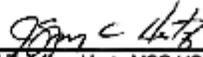
**Marine Corps Base Camp Pendleton Integrated Pest Management
Plan Technical Review**

The Integrated Pest Management Plan has been reviewed in accordance with DoD 4150.07.



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INTEGRATED PEST MANAGEMENT PLAN REVIEW RECORD

Year	Integrated Pest Management Coordinator (Annual)	Pest Management Consultant On-Site Review (as arranged)
15		
16		
17		On-site program review
18		
19		IPMP rewrite

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ABBREVIATIONS

3rd MAW	3 rd Marine Aircraft Wing
AB	Applied Biology
AFPMB	Armed Forces Pest Management Board
APHIS	Animal and Plant Health Inspection Service (USDA)
APP	Application of Pesticides Plan
BASH	Bird Aircraft Strike Hazard
BHC	Branch Health Clinic
BO	Base Order
BOS	Base Operation Support
BOSC	Base Operation Support Contract
BUMED	Navy Bureau of Medicine and Surgery
CAA	Clean Air Act
CAC	County Agricultural Commissioner
Cal/EPA	California Environmental Protection Agency
CALTRANS	California Department of Transportation
CCR	California Code of Regulations
CDC	Centers for Disease Control and Prevention
CDFA	California Department of Food and Agriculture
CDPH	California Department of Public Health
CFR	Code of Federal Regulations
CO	Commanding General
CNO	Chief of Naval Operations
COMPACFLT	Commander, Pacific Fleet
COR	Contracting Officer Representative
CWA	Clean Water Act
CWP	Contractor Work Plan
DeCA	Defense Commissary Agency
DFW	California Department of Fish and Wildlife
DH	Department Head
DivO	Division Officer
DoD	Department of Defense
DoN	Department of the Navy
DoT	Department of Transportation
DPR	California Department of Pesticide Regulation
DVEP	Disease Vector Ecology Profile
EA	External Assessment
EC	Emulsifiable Concentrate
ECE	Environmental Compliance Evaluation
EH	Environmental Health
EHO	Environmental Health Officer
EIS	Environmental Impact Statement
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
EPS	Environmental Protection Specialist
ES	Environmental Security
ESA	Endangered Species Act

ET	Endangered and threatened
EVDPCP	Emergency Vector-borne Disease Control Plan
FAP	Functional Assessment Plan
FDA	U.S. Food and Drug Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMD	Facilities Maintenance Department
FMF	Fleet Marine Force
FQPA	Food Quality Protection Act
FSC	Facility Support Contract
HMMS	Hazardous Materials Management System
HQMC	Headquarters Marine Corps
HSWA	Hazardous and Solid Waste Act
I MEF	First Marine Expeditionary Force
IAP	Internal Assessment Plan
ICP	Integrated Contingency Plan
ICRMP	Integrated Cultural Resources Management Plan
IECP	Integrated Environmental Compliance Plan
IEPM	Installation Environmental Program Manager
IHO	Industrial Hygiene Officer
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Plan
KO	Contracting Officer
MAD	Mosquito Abatement District
MCBCP	Marine Corps Base Camp Pendleton
MCCES	Marine Corps Communications Electronic School
MCCS	Marine Corps Community Services
MCI	Marine Corps Installations
MCO	Marine Corps Order
MCX	Marine Corps Exchange
MFH	Military Family Housing
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSC	Medical Service Corps
MSDS	Material Safety Data Sheet
MTF	Medical Treatment Facility
NAFI	Non-appropriated fund instrumentality
NAVFAC	Naval Facilities Engineering Command
NAVOSH	Navy Occupational Safety and Health
NB	Naval Base
NDSL	Navy Drug Screening Laboratory
NECE	Navy Entomology Center of Excellence
NEPMU FIVE	Navy Environmental and Preventive Medicine Unit FIVE, San Diego, CA
NH	Naval Hospital
NMCI	Navy and Marine Corps Intranet
NMCPHC	Navy and Marine Corps Public Health Center
NMCSD	Naval Medical Center San Diego
NOI	Notice of Intent
NOPRS	NAVFAC Online Pesticide Reporting System
NOSC	Navy Operational Support Center

NPDES	National Pollutant Discharge Elimination System
OIC	Officer in Charge
OPNAVINST	Chief of Naval Operations Instruction
ORM	Operational Risk Management
OSHA	Occupational Safety and Health Agency
P2	Pollution Prevention
PAC	Private Applicator Certification
PAP	Pesticide Application Plan
PAUL	Pesticide authorized use list
PCO	Pest control operator
PHD	Public Health Department
PMC	Pest Management Consultant
PMO	Provost Marshal Office (Security)
PMPAR	Pest Management Performance Assessment Representative (formerly QAE)
PMR	Preventive Medicine Representative
PMSP	Pest Management Service Provider
PMT	Preventive Medicine Technician
POC	Point of contact
PPA	Pollution Prevention Act
PPE	Personal protective equipment
PPMP	Partner Pest Management Plan
PPV	Public, Private Venture
PW	Public Works
QAC	Qualified Applicator Certificate
QAL	Qualified Applicator License
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
ROICC	Resident Officer in Charge of Construction
RT	Residual toxicity
RTA	Range Training Area
RUP	Restricted use pesticide
SA	Special Area
SECNAVINST	Secretary of the Navy Instruction
SOP	Standard Operating Procedure
SPAR	Senior Performance Assessment Representative
SPCB	Structural Pest Control Board
SPCC	Spill Prevention, Control and Countermeasure Plan
StaO	Station Order
SWDMP	Stormwater Discharge Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TG	Technical Guide
TOC	TriCare Outpatient Clinic
TSCA	Toxic Substances Control Act
ULV	Ultra Low Volume
USA	United States Army
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USMC	United States Marine Corps
USN	United States Navy
USPHS	U.S. Public Health Service

VA	Department of Veteran's Affairs
VCD	Vector Control District
WP	Wettable Powder
XO	Executive Officer

Executive Summary

The Integrated Pest Management Plan (IPMP) is a comprehensive, long-range document that captures all the pest management and pesticide-related activities conducted on the Marine Corps Base Camp Pendleton (MCBCP) property. Pest management activities on the MCBCP provide Force Health Protection, maintain facilities, protect environmental resources, and improve personnel quality of life to ensure that MCBCP accomplishes its mission of supporting the I Marine Expeditionary Force and its subordinate and supporting commands. The pest management program includes pest control and grounds maintenance for administrative and industrial facilities, lessee pest control, and natural resources protection. This plan adds value by developing compliance systems and streamlining operations involving the use of pesticides including applications, storage, reporting, and archiving records, all of which are tightly regulated by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), state and local laws, Department of Defense (DoD), and Department of Navy (DoN) regulations. As a planning document, the IPMP is also a vital component of effective integrated pest management (IPM) and conforms to the installation's Environmental Management System (EMS) and environmental policy.

This Plan is the rewrite of the IPMP that was written in 2005. The Naval Facilities Engineering Command Southwest (NAVFAC Southwest) Applied Biology (AB) Program, San Diego, California, prepared this plan from September 2012 – February 2013. Significant changes to the installation that have required this rewrite include the privatization of military family housing, changes to pest management service providers, use of an online pest management reporting system, implementation of a Clean Water Act permit for pesticide applications to water, regulatory updates, support agreement changes, sources of supply for procurement and changes to the pest control and grounds maintenance contracts. Added to the plan is greater detail of pests being controlled and pesticide use. This document provides comprehensive information on the installation's pest and pesticide management program for installation staff and internal and external compliance auditors. It incorporates specific pest management practices and local, state, federal and DoD regulations. The Plan conforms to the requirements of DoD Instruction 4150.07 and MCO P5090.2A.

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1 Introduction

1.1 Background

1.1.1 Mission

Marine Corps Installations West (MCIWEST) commands and controls assigned Marine Corps Installations in order to support the operating forces, tenant commands, military personnel and families. Marine Corps Base Camp Pendleton (MCBCP) operates a training base that promotes the combat readiness of the operating forces and the missions of other tenant commands by providing training venues, facilities, services and support in order to be responsive to the needs of Marines, Sailors and their Families.

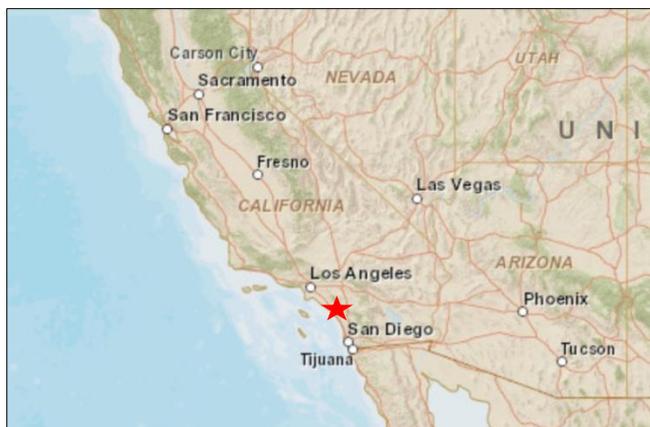


Figure 1. Location of MCB Camp Pendleton.

1.1.2 Location and Facilities

MCB Camp Pendleton, located in northern San Diego County, California, occupies approximately 125,000 acres of mostly natural areas and 17 miles of coastline bordering the Pacific Ocean. Camp Pendleton is situated between two major metropolitan areas: Los Angeles, 82 miles to the north, and San Diego, 38 miles to the south. Nearby communities include Oceanside to the south, Fallbrook to the east and San Clemente to the northwest. Camp Pendleton shares approximately 8 miles of its northern border with the Cleveland National Forest and its eastern border with the Naval Weapons Station Seal Beach Detachment (NWSSB Det) Fallbrook. Aside from the undeveloped natural areas of NWSSB Det Fallbrook, surrounding land use includes urban development, rural residential development, wild lands and active farms and ranches.

Scattered throughout the base are cantonment and housing areas that contain over 2,800 buildings or other structures and occupies 9,400 acres. These areas contain and are generally surrounded by undeveloped natural areas. Much of the center of the base (approximately 32,000 acres) is impact areas that are used for live firing of ordnance. Several areas along the coast are used for amphibious landing exercises. Two recreational areas, Del Mar beach in the south, and San Onofre beach in the north, are also located on the coast.

Some areas of the base are leased to outside agencies. A section of the north coast is leased to Southern California Edison which operates the San Onofre Nuclear Generating Station while an adjacent area is leased to the California State Parks for San Onofre State Park and San Mateo State Park. The California Transportation Department operates an easement through which US Interstate 5 borders the western edge of the Base.

1.2 The Integrated Pest Management Plan

1.2.1 Scope

The MCBCP IPMP is a long-range, comprehensive planning, and operational document that establishes the procedures for conducting a safe, effective, and environmentally sound integrated pest management program. This IPMP covers all pest management and pesticide-related activities conducted by DoD personnel and commercial pest management service providers

(PMSP) on MCBCP land including housing lessees and tenant commands. The Plan does not cover MCAS Camp Pendleton or leased lands other than Housing.

1.2.2 Implementation Authority

DoDINST 4150.07 and MCO P5090.2A, Chapter 14 require all Marine Corps activities that conduct pest management operations to have an IPMP. Pest management programs at Marine Corps activities shall be conducted under an IPMP in accordance with DoDINST 4150.07 and MCO P5090.2A. NH Camp Pendleton performs pest management related activities in accordance with OPNAVINST 6250.4C in addition to the requirements of the previous directives.

1.2.3 DoD Measures of Merit

This Plan provides the framework for the MCBCP to meet the DoD's annual goals or measures of merit (MoM). Per DoDI 4150.07, the MoMs are:

- Goal 1. 100% of DoD installations will have current pest management plans. The MCBCP helps meet this goal by the implementation (by Commanding Officer signature) of this Plan.
- Goal 2. Maintain the 55% pesticide use reduction achieved from 1993-2003 (in pounds of active ingredient). The MCBCP provides data for this MoM through the reporting requirement (Section 2.6.2)
- Goal 3. 100% of all DoD installation pesticide applicators will be appropriately certified. The MCBCP ensures proper certification of all applicators through regular verifications and maintains a list of certifications in Appendix K of this Plan. See section 2.4 for training and certification requirements.

1.2.4 Using the IPMP

The IPMP provides a comprehensive overview of pest management and pesticide related operations on MCBCP. It can be used as a reference by all installation personnel and can be provided to external regulators. The IPMP is divided into the core plan and appendices. The Plan is provided in a hard copy and electronic form.

1.2.4.1 Core

- Chapter 1. **Introduction:** Provides an overview of the IPMP and the installation pest management program. Federal and State regulatory compliance is described to provide the source of the compliance requirements in the rest of the Plan.
- Chapter 2. **Administration:** Describes the organization of the pest management program and identifies the staffing and their roles and responsibilities. This section also lists and describes the primary DoD requirements for DoD and contract PMSPs.
- Chapter 3. **Operations:** Provides descriptions of pests, integrated pest management practices, and the management of pesticides. Compliance requirements for all the pesticide management practices are provided.
- Chapter 4. **Health and Safety:** Describes the potential health hazards for the pesticide applicators as well as the public due to pest management operations on the installation. Hazard abatement practices and medical emergencies are also discussed.
- Chapter 5. **Environmental Considerations:** Describes the pest management program within the framework of EMS including a description of hazards to the environment of chemical and non-chemical practices.
- Chapter 6. **Emergency Pest Management:** Provides a description of and resources in the event of public health or agricultural pest management emergencies.
- Chapter 7. **Resources:** A list of DoN and local resources for pest management issues.

Each chapter contains a reference section with publications and websites used to prepare the Plan and others that provide additional information. Where appropriate references are cited in the text of the chapter and indicated by the reference number in parentheses at the end of the sentence. Most of the publications can be found on the CD that is included with the IPMP.

1.2.4.2 *Appendices*

The contents of the appendices are designed to be modified depending on the needs of the pest management service provider (PMSP) or stakeholder that possesses the IPMP. Some of the contents are included in the binder while others are in electronic form on the CD.

- Appendix A. Includes space for installation maps.
- Appendix B. Contains a list of definitions for words and terms used in the IPMP.
- Appendix C. Provides a list of federal laws, state regulations, DoD instructions, and installation instructions / orders related to pest management. Copies of DoDI 4150.07 and MCO 5090.2A are included. Other regulatory and policy documents related to the installation program are also included.
- Appendix D. Provides space for copies of pest management program reviews and compliance inspection reports. DoD and state compliance checklists and IPMP update forms are also included.
- Appendix E. The approved pesticides lists for each of the installation's PMSPs are included in this appendix. Pesticide labels and MSDSs can be added to this appendix.
- Appendix F. A list of equipment used by PMSPs is included. This appendix can be used for equipment maintenance records, manuals, or other related documents.
- Appendix G. Use this appendix to keep contract information including contract specifications and the contractors' work plans.
- Appendix H. Integrated Pest Management Project Summaries for each of the pests or pest groups found on the installation are included here. Add partner PMPs and/or any other activity pest management plans or procedures.
- Appendix I. Contains installation-specific EMS documents. Installation environmental plans or excerpts of plans that pertain to pesticides and pest management are included as well.
- Appendix J. Contains the installation Emergency Vector-borne Disease Control Plan (EVDCB) and other documents related to vector surveillance and control. If the installation has a pest control shop, reports of industrial hygiene surveys may also be included.
- Appendix K. Space is provided for applicator licenses and certifications and training records.
- Appendix L. An installation point of contact sheet is provided. Additional resources can be added.
- Appendix M. This appendix includes information on mosquito management including an Integrated Mosquito Management Plan and related references.

1.2.4.3 *CD-ROM*

Electronic versions of the Plan are provided. These include the core plan and all appendices as well as the full contents of the NAVFAC Southwest Pest Management Resource CD-ROM which includes downloadable forms and templates, pest management technical guides and handbooks, DoD directives, and pest management website links. Only the IPM Coordinator receives the "Master" CD-ROM that contains a Microsoft® Word™ version of the core plan. PMSPs will receive the "Provider" version that contains the core plan in Adobe® Acrobat™ format. Both versions will contain forms and templates in their original format.

1.2.5 Plan Maintenance

The IPMP must be reviewed and updated annually (DoDI 4150.07). The IPM Coordinator is responsible for coordinating with PMSPs and stakeholders to review and update the plan. The schedule for Plan and Program review is:

Table 1: Pest Management Program Review Schedule

March 2015	Annual internal review and update of the IPMP by the IPM Coordinator. Use the NAVFAC Online Pesticide Reporting System (NOPRS).
March 2016	Off-site review where the IPM Coordinator forwards the IPMP to the NAVFAC Southwest Pest Management Consultant (PMC) who reviews and updates the plan in coordination with the Navy Bureau of Medicine and Surgery (BUMED) PMC to ensure the IPMP is current.
March 2017	On-site program review of the entire pest management program shall be conducted by the NAVFAC Southwest PMC.
March 2019	Rewrite / major update of IPMP.

An IPM plan and program review and maintenance checklist is found in Appendix D.

1.3 Pest Management Program Overview

1.3.1 Overview

The MCB CP pest management program consists of the following categories of operations:

1. **Ornamental and Turf** – Control and management of weeds and arthropod, vertebrate, nematode, and disease pests in landscaped areas and on turf.
 2. **Right-of-Way** – Weed control along fence lines, roadways, airfield runways, taxiways, parking lots, cleared areas around buildings and structures, and sidewalks.
 3. **Noxious / Invasive Weed Control** – Control of weeds that are detrimental to the environment, including endangered and threatened species’ habitats
 4. **Industrial, Institutional, Structural, and Health-Related** – Control and management of pests in and around buildings. Pests include rodents, flies, ants, spiders and a variety of household pests. This also includes resolving conflicts with wild birds, mammals and reptiles.
 5. **Public Health** – Control and management of human and animal disease vectors such as rodents and mosquitoes.
 6. **Aerial Spray** – Application of mosquito larvicides to ponds, lakes and wetlands.
- Pest management service providers conducting these operations are listed in Table 2.

Table 2: MCB Camp Pendleton DoD and Commercial Pest Management Service Providers

DoD / Commercial	PMSP	Type	Facilities / Areas Serviced
DoD	FMD Pest Control	Industrial and structural pest control; public health mosquito control	Commissary (52 Area), Lake O’Neil rec area, beaches (mosquitoes), clinics, right-of-ways
Commercial	Chugach Government Services subcontract to Knott Pest Control	Landscape/grounds pest control (weeds, gophers, ground squirrels)	Improved and semi-improved grounds around facilities

DoD / Commercial	PMSP	Type	Facilities / Areas Served
Commercial	Acepex Management subcontract to Hummingbird, Inc.	Aerial spray larviciding for mosquitoes	Basewide
Commercial	Acepex Management subcontract to Western Exterminator	Structural pest control, bed bugs	Basewide
Commercial	Agricultural Pest Control Services (AgPest)	Structural pest control	Commissary (20 Area)
Commercial	Agri Chemical & Supply	Invasive weeds	Natural areas
DoD	Animal Control (Provost Marshal's Office)	Domestic animal control	Basewide
Commercial	Apex Contracting	Habitat enhancement/restoration	Unimproved grounds Natural areas
Commercial	Brickman Landscaping	Residential landscape maintenance	DeLuz Family Housing
Commercial	Eco Star Pest Solutions	Structural pest control	San Onofre Cottages & Campsites
Commercial	EcoTech Pest Control	Structural pest control	MCCS food service and entertainment facilities; including Subway, Pizza Hut
DoD	Game Warden	Wildlife conflict management	Basewide
DoD	MCCS (Semper Fit) Fields and Grounds	Grounds maintenance, rodent & weed management	Lake O'Neil rec area, stables, gyms, recreational fields
DoD	MCCS Golf Course Maintenance	Turf pest management	Marine Memorial Golf Course
DoD	Naval Hospital Preventive Medicine Department	Food service and habitability inspections; vector survey	All food service and other facilities; basewide
Commercial	Orkin	Structural pest control	Del Mar Cottages & Campsites, Bowling Alley
Commercial	Payne Pest Management	Housing residential and landscape pest control	Lincoln Military Housing, DeLuz Family Housing

DoD / Commercial	PMSP	Type	Facilities / Areas Serviced
Commercial	Pestmaster Services	Housing residential and landscape pest control	Lincoln Military Housing
Commercial	Terminix	Structural pest control	Domino's Pizza, Commissary (Bldg 20850)
Commercial	Valley Crest Landscaping	Residential landscape maintenance	Lincoln Military Housing

In addition to the PMSPs, individual personnel including employees and housing tenants have a responsibility for preventing pest infestations in their workplace and/or berthing/residence areas. This IPMP encompasses all of the activities of the PMSPs and individuals.

1.3.2 Pest Management Objectives

The pest management objectives for the MCBP are:

1. Force health protection for military personnel, dependents, DoD and contractor employees, retirees, and visitors.
2. Protect all buildings, training areas, other real property, aircraft, and equipment from damage caused by pests.
3. Enhance Force Protection and wildfire protection through weed management.
4. Protect federally-listed species as required by the Endangered Species Act (ESA) and protect and enhance natural habitats through management and control of invasive plant and animal species.
5. Protect and enhance quality of life through pest prevention.
6. Support the Commanding General's Environmental Policy (section 5.1.1.1)



Figure 2. MCB Camp Pendleton provides training facilities for Marines and Sailors preparing to deploy. USMC Photo by Lance Cpl. Trevon S. Peracca.

1.4 Regulatory Compliance

1.4.1 Policy

The Department of Defense policy is to ensure DoD pest management programs achieve, maintain, and monitor compliance with all applicable Executive Orders and applicable federal, state, and local statutory and regulatory requirements. When there is a conflict between federal and local regulations, the installation will comply with the more stringent of the two. This commonly occurs with pesticides limited for use by the State of California, which are not necessarily restricted by the EPA. In this case, the installation must comply with California regulations.

1.4.2 Laws and Regulations

1.4.2.1 *Primary Pesticide Regulations*

- Federal: U.S. Code of Federal Regulations (CFR) at 40 CFR Section E, 152-180: Pesticide Programs.
- DoD, Navy and Marine Corps: DoDI 4150.07, DoD Pest Management Program; MCO P5090.2A, Environmental Compliance and Protection Manual
- California: California Code of Regulations (CCR) Title 3 Division 6

1.4.2.2 *The Pesticide Label*

The primary source of pesticide regulations for the pesticide applicator is found on the pesticide label in accordance with 40 CFR 156. California may add supplementary labels, which are regulations that must be complied with in the State. **It is a violation of federal and/or state law to use a pesticide in a manner inconsistent with the label.** Note, however, that the pesticide label does not provide specific information for each site where the pesticide may be applied. For example, the pesticide label may allow application of an herbicide to unimproved grounds, but if those grounds are within an endangered species habitat, then pesticide use may be restricted under the ESA. Pesticide applicators must be aware of environmentally sensitive areas before beginning any new pesticide application and should contact the Natural Resources Manager in Environmental Security (ES). See Chapter 5 for specific environmental restrictions and requirements.

1.4.2.3 *Recent Regulatory Changes*

- California Pesticide Regulation Preventing Surface Water Contamination with Pesticides. Effective 19 Jul 2012 DPR amended section 6000 and adopted sections 6970 and 6972 of Title 3 California Code of Regulations (3 CCR) which identifies pesticides that have a high potential to contaminate surface water in outdoor nonagricultural settings, and require pest control businesses, including maintenance gardeners, that apply these pesticides to take actions to minimize that contamination. http://www.cdpr.ca.gov/docs/legbills/rulepkgs/11-004/text_final.pdf
- Expanding Use Restrictions to Reduce Risks of Aluminum and Magnesium Phosphide. To better protect people from dangerous exposures, EPA expanded restrictions on aluminum and magnesium phosphide products that are used to control burrowing rodents. Aluminum and magnesium phosphide products for the burrowing rodent use are formulated as tablets and pellets that are rapidly transformed to highly toxic phosphine gas when exposed to moisture. Phosphine fumigants have been associated with accidental poisoning incidents, and their use is restricted to specially trained pesticide applicators. <http://www.epa.gov/oppsrrd1/reregistration/alphosphide/aluminum-magnsm-phos-fs.html>
- Final Risk Mitigation Decision for Ten Rodenticides. After fully assessing human health and ecological effects, as well as benefits, EPA announced measures to reduce risks associated with ten commonly-used rodenticides. This includes how rodenticides can be applied. <http://www.epa.gov/pesticides/reregistration/rodenticides/finalriskdecision.htm>
- NPDES Permits for Aquatic Pesticide Applications. Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES) Permit coverage for aquatic pesticide applications are now required. EPA issued a final permit on 31 Oct 2011 and other States followed suit by issuing their permits. If pest management operations are conducted without permit coverage then enforcement or legal action may be taken against the installation. See section 5.3.4 for detailed information.

1.4.2.4 *Other Regulations*

Other applicable directives, laws, and regulations concerning pesticide applications and pest management operations are listed and described in Appendix C.

1.4.3 Pesticide Regulation and Enforcement

1.4.3.1 *Pesticide Regulation*

The EPA has the primary authority to regulate pesticides in the U.S. The EPA delegates pesticide enforcement authority to states through cooperative agreements. In California, the Department of Pesticide Regulations (DPR), a department of the California Environmental Protection Agency (Cal/EPA), provides the enforcement infrastructure, which is delegated to the County Agricultural Commissioners (CAC). However, the DPR and CACs have only limited authority to regulate pesticides on federal facilities including military installations on DoD property. It is DoD policy (DoDI 4150.07) for Navy and Marine Corps installations to voluntarily comply with the substantive portions of state pesticide and pest management laws and regulations when such compliance does not adversely impact DoD missions. However, the state or county cannot directly enforce pesticide use under FIFRA by DoD employees on DoD facilities nor can the state impose civil penalties against DoD or personnel for violations of state pesticide laws on DoD facilities. However, persons using pesticides in a manner not in compliance with the label are not completely absolved from responsibility for misuse of a toxic material. Private personnel contracted to apply pesticides on DoD property are subject to the state laws and policies and are not protected in this manner. DPR policies on pesticide use regulations on federal facilities are stated in DPR Enforcement Letter ENF 99-037 (see Appendix C) of 01 Oct 1999. This policy states that the DPR and CACs do have authority to directly regulate private (non-federal) persons who conduct pest control activities on DoD installations under contract to the DoN or other federal agency or the operator of the installation. DPR and CACs can impose penalties on private persons for violations of state pesticide laws.

Executive Order 12088, "Federal Compliance with Pollution Control Standards", does not provide DPR or CACs with authority to compel federal agencies' compliance with state pesticide laws or to take civil penalty actions. It does, however, allow state and local agencies to request the Administrator of EPA to resolve conflicts that arise concerning federal agency compliance with state and local pollution control standards. DPR policy states that the following pollution control standards are within the context of the Executive Order:

- The pesticide registration program;
- The restricted material permit program;
- The pesticide storage, transportation, and disposal program;
- The general standards of care regarding pesticide applications listed in Title 3 of the California Code of Regulations (CCR), sections 6600, and 6602-6616;
- The ground and surface water protection programs; and
- The toxic air contaminants program.

States can enforce pesticide use as regulated by other state-enforced federal Laws such as the Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA), Migratory Bird Treaty Act (MBTA), Endangered Species Act (ESA), and Clean Air Act (CAA). Also, current immunity from state regulation of pesticide use does not preclude the possibility of legal ramifications in the future. Base Realignment And Closure (BRAC) may result in the transfer of DoD properties to state, county, or private entities. Contamination of these properties resulting from improper past pesticide use may result in high costs associated with environmental remediation or legal actions against the DoD.

1.4.3.2 *Compliance Assessments*

Internal program assessments should be conducted by the IPM Coordinator. Pest Management Performance Assessment Representatives (PMPAR) are required to monitor contractor regulatory compliance in accordance with the contract specifications. Appendix I contains an Internal Assessment Plan (IAP) and Appendix D contains compliance self-assessment checklists. Environmental Compliance Evaluations (ECE) are conducted by Headquarters Marine Corps (HQMC). The NAVFAC Southwest PMC has no enforcement authority but can provide the installation with technical assistance for compliance. The PMC is required to conduct a review of pest management operations every 36 months per MCO P5090.2A. The purpose of this review is to monitor conformance with the IPMP and to provide assistance in updating the plan. The

reviews can also be used to provide recommendations for preparing for compliance inspections / assessments and to correct findings and deficiencies from past ECEs.

1.4.3.3 *Enforcement*

Since the state does not have the authority to enforce FIFRA for DoD-certified pesticide applicators on the installation, the responsibility for compliance and enforcement lies with ES. As the installation's pest management advisor, the IPM Coordinator shall be familiar with federal, state and local pesticide use regulations and ensure that the PMSPs conduct operations in compliance with these regulations. Regulatory enforcement for each of the PMSPs is provided.

- Commercial applicators: Pest Management Performance Assessment Representatives (PMPAR) shall provide assistance by monitoring contract PMSPs for compliance with all applicable regulations as specified in the contract and will recommend appropriate actions to the contracting officer if the contractor does not comply. The installation is encouraged to report violations by contractors to the County Agricultural Commissioner (CAC), therefore the IPM Coordinator should maintain liaison with the CAC. The CAC will investigate pesticide-poisoning incidents and will take appropriate compliance or enforcement action against commercial applicators found responsible for an incident. PMTs conducting inspections of food service facility pest management programs can also ensure compliance for safe pesticide use and applicator licensing / certification (Inspection guidelines are found in NAVMED P-5010 Chapters 1 and 8).
- DoD certified applicators: The pesticide applicator's immediate supervisor, with the assistance of the IPM Coordinator, shall also ensure that pesticide use is in compliance. Under the authority of DoDI 4150.07 and DoDD 5134.01 and per DoD 4150.07-M, Vol. 1, the DoD may deny, suspend, or revoke the certificate of any DoD employee who violates any provision of FIFRA or falsifies records under DoD 4150.07-M, Vol. 1. In accordance with DoD 4150.07-M, Vol. 1, the installation CO may initiate a formal review if FIFRA violations are suspected. Violations shall be reported through appropriate command channels to the NAVFACSW certifying authority for review. The certifying authority shall determine if further action is required. That action may include suspension of the applicator's certification. See DoD 4150.07-M, Vol. 1 for more information.

1.5 Program Requirements

1.5.1 Administration

Administration of the pest management program involves the documentation of pest management activities on the installation for the purpose of implementing IPM and ensuring that only qualified personnel apply pesticides. Table 3 outlines the pest management program requirements.

1.5.2 Operations

Operations are the actual execution of pesticide and pest management activities. Each of these operations must meet requirements that are listed and described in Table 4.

1.6 References

1. Armed Forces Pest Management Board Pest Management Measures of Merit - <http://www.afpmb.org/content/2010-measures-merit>
2. Armed Forces Pest Management Board (AFPMB) Technical Guide (TG) 18: *Installation Pest Management Program Guide* - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg18.pdf> (CD)
3. California Code of Regulations (CCR) Title 3, Division 6: Pesticides and Pest Control Operations - <http://www.cdpr.ca.gov/docs/legbills/calcode/subchp6.htm>
4. California Department of Pesticide Regulation - <http://www.cdpr.ca.gov/index.htm>
5. California Department of Pesticide Regulation Laws and Regulations - <http://www.cdpr.ca.gov/docs/legbills/opramenu.htm>
6. DoD Instruction 4150.07: DoD Pest Management Program - http://www.afpmb.org/sites/default/files/pubs/directives_mous/DOI4150.07.pdf (Appendix C, CD)

7. DoD 4150.07-M, Volume 1, DoD Pest Management Training: The DoD Plan for the Certification of Pesticide Applicators - http://www.afpmb.org/sites/default/files/pubs/directives_mous/DoDM4150.07.pdf (CD)
8. EPA, Pesticides, Read the Label First - <http://www.epa.gov/pesticides/label/>
9. Marine Corps Base Camp Pendleton website - <http://www.pendleton.marines.mil/>
10. MCO P5090.2A: Environmental Compliance and Protection Manual. Chapter 14 (CD)
11. OPNAVINST 5090.1C, Chapter 17: Environmental Readiness Program Manual, Pesticide Compliance Ashore - (Appendix C, CD)
12. San Diego County Agricultural Commissioner - <http://www.sdcountry.ca.gov/awm/>
13. MCB Camp Pendleton Environmental Policy - http://www.pendleton.marines.mil/Portals/98/Docs/MCB_ENV_01_CO_Env_State_Policy_Letter_2009%5B1%5D.pdf
14. NAVMED P-5010: Manual of Naval Preventive Medicine - <http://www.med.navy.mil/directives/Pages/Publications.aspx>
15. U.S. Code of Federal Regulations (CFR) at 40 CFR Section E, 150-80 - http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=401d1fa5a85e820674e669b8a3edf23b&c=ecfr&tpl=/ecfrbrowse/Title40/40cfrv23_02.tpl
16. U.S. Environmental Protection Agency Pesticide Program - <http://www.epa.gov/pesticides/>

Table 3: Pest Management Program Administration Requirements

Requirement	Description	Reference	Responsibility	Locator
PLANNING	Prepare, review and revise the Pest Management Plan annually.	DoDI 4150.07	IPM Coordinator	Section 1.2
CERTIFICATION	Ensure that all personnel applying pesticides on installations have current DoD pesticide applicator certification or EPA-approved State applicator license	DoDI 4150.07	PMPARs and supervisors; IPM Coordinator tracks	Section 2.3
PESTICIDE APPROVAL	Compile and submit list of new pesticides to be used on the installation to NAVFAC Southwest for approval.	DoDI 4150.07	IPM Coordinator	Section 2.4
RECORD KEEPING	Record all pest management operations conducted at the installation after each operation.	DoDI 4150.07	PMPAR and supervisors	Section 2.5.1
MAINTAIN RECORDS	Maintain records of all pest management operations conducted at the installation on-site indefinitely.	DoDI 4150.07	IPM Coordinator	Section 2.5.3
REPORTING	Compile and report all pest management operations to NAVFAC Southwest quarterly.	DoDI 4150.07	IPM Coordinator	Section 2.5.2
COMPLIANCE	Ensure that pest management is conducted in compliance with county, state, federal and DoN and DoD regulations.	DoDI 4150.07	IPM Coordinator	Section 1.4
CONTRACT REVIEW	Review pest management contract specifications for compliance with the IPMP and submit to NAVFAC Southwest PMC for final review and approval prior to submitting for bidding.	DoDI 4150.07	Contracting Officer	Section 2.6.1

Requirement	Description	Reference	Responsibility	Locator
PERMIT	California Vector and Weed Control NPDES permits reporting requirement to State Water Resources Control Board (SWRCB). "Reference"	Water Quality Order No 2012-0003-DWQ, General Permit No. CAG 990004 (Vector) and No 2004-0009-DWQ, General Permit No. CAG 990005 (Weed)	Environmental Security	Section 5.3.4

USC: U.S. Code

CFR: Code of Federal Regulations

CCR: California Code of Regulations

Table 4: Pest Management Program Operations Requirements

Requirement	Description	Reference	Responsibility	Locator
INTEGRATED PEST MANAGEMENT (IPM)	Federal agencies shall use IPM techniques in carrying out pest management activities and shall promote IPM through procurement and regulatory policies, and other activities.	USC Title 7, Chapter 6, Subchapter II, Sec. 136r-1	IPM Coordinator	Section 3.1
CONTAINERS	All pesticide containers, including service containers, must have the original or copy of the original label attached.	CCR 6676 and 6678	Pesticide applicators	Section 3.4.7.2
PEST CONTROL VEHICLES	Pesticides shall be properly stored on pest control vehicles. Pest control vehicles shall meet federal, state, and local regulatory requirements.	CCR 6682	Pesticide applicators	Section 3.4.8
APPLICATION	Applications of pesticides must be performed in accordance with the pesticide container label.	CA Food and Ag Code 12995; CCR 6600 and 6602	Pesticide applicators	Section 3.4.7
APPLICATOR SAFETY	DoD pesticide applicators must be enrolled in a medical surveillance program and be provided with properly fitted personal protective equipment	CCR Ch. 3, Subchapter 3	Pesticide applicator, PMPAR and supervisors	Section 4.1
CLEANING AND DISPOSAL	Rinsate from container and equipment rinsing should be prevented from entering storm drains and water bodies. Dispose of empty containers properly.	40 CFR 165; CCR 6608	Pesticide applicators	Section 3.4.9 and 3.4.10
SPILLS	Spill kits should be maintained in pest control shops and on pest control vehicles. All personnel should be familiar with the installation's spill contingency plan.	MCO P5090.2A	Pest control shop supervisor and pesticide applicators	Section 5.3.1.3

USC: U.S. Code

CFR: Code of Federal Regulations

CCR: California Code of Regulations

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2 Administration

2.1 Roles and Responsibilities

The success of the IPMP depends largely on a clear understanding of the roles and responsibilities for the organizations and personnel involved. The following is a listing of the key organizations and personnel and their duties as presented in DoD guidance documents for the implementation of the IPMP. The installation pest management organization is illustrated in the organization chart in Appendix L.

2.1.1 Commanding General (CG)

The CG's responsibilities are to:

- Designate an IPM Coordinator in writing;
- Approve and support the IPMP; and
- Ensure appropriate funding of pest management programs to provide for effective and safe control of pests based on pest management priorities for the MCBCP.

2.1.2 Integrated Pest Management Coordinator (IPM Coordinator)

Designated by the CG in writing to coordinate all installation pest management activities. The IPM Coordinator has the responsibility to:

- Coordinate the review and approval of the IPMP;
- Review and update the IPMP annually;
- Coordinate with and ensure that all PMSPs have access to, are aware of the requirements of, and comply with the IPMP;
- Ensure that PMSPs are aware of and conduct operations in accordance with the CO's safety and environmental policies;
- Ensure all pesticide applicators conducting operations on the installation and PMPARs have current pest management training, qualification and certification;
- Ensure that all PMSPs are using only pesticides listed on the installation authorized use list and submit new pesticides to PMC for approval and addition to pesticide authorized use list;
- Coordinate reporting of pest management and pesticide use on the installation to the NAVFAC Southwest PMC;
- Act as liaison between the MCBCP and NAVFAC Southwest and federal, State of California, and local agencies for pest management and pesticide regulatory issues; and
- Act as the CO's advisor for pest management issues.

2.1.3 AC/S Facilities (GF) Department, Facilities Maintenance Division (FMD) Pest Control

FMD Pest Control provides routine pest management services (including, but not limited to household and industrial pest control, mosquito control, and right-of-way weed control) basewide. It is the responsibility of the shop supervisor to:

- Comply with all requirements set forth in Federal, State, and DoD laws and regulations;
- Ensure all pesticide applicators practice IPM;
- Ensure all shop pesticide applicators document and maintain accurate records of all pesticide applications;
- Report pesticide use to the IPMC;
- Obtain and maintain adequate supplies of pesticides, pesticide dispersal equipment and personal protective equipment (PPE), and ensure that equipment is properly maintained;
- Submit list of new pesticides for approval to NAVFAC Southwest PMC;
- Maintain effective liaison with the Preventive Medicine Department (PMD) and Environmental Security; and
- Provide pest control training for tenants as needed.

2.1.4 AC/S Facilities (GF) Department, Public Works Division, Facilities Support Contracts (FSC) Branch

FSC prepares, manages and assesses pest control and grounds maintenance contracts and has responsibilities to:

- Coordinate pest management contract specification review prior to bidding with the IPM Coordinator and then submit to the NAVFAC Southwest PMC for review and final approval;
- Monitor pest management contractors ensuring effective and safe application of pest management practices and identify and document discrepancies and seek corrective action with contractor in accordance with the contract;
- Coordinate with the Game Wardens to ensure that contracted pest controllers are properly permitted for wildlife trapping and use humane methods for bat exclusion; and
- Ensure that the contractors record all pest management activities and submits reports including actual pesticide use to the IPM Coordinator on a monthly basis.

2.1.5 AC/S Facilities (GF) Department, Housing Division, (Base Housing/Military Housing Managers)

Ensures that government and private housing managers provide pest control and landscape maintenance to military family housing residents. Specific responsibilities of the housing managers are to:

- Perform pest management services in accordance with their lease agreement and ensure safe and effective service;
- Ensure that only current state-licensed businesses and pesticide applicators apply pesticides;
- Ensure the contractors use only pesticides authorized for use on the installation;
- Maintain their Partner's Pest Management Plan, including applicator licensing information and pesticides to be applied, and submit updated plans to the installation IPM Coordinator;
- Ensure that contractors provide pesticide application records after each service and that they are made readily available for inspection to the IPM Coordinator and other government officials.

2.1.6 Military Barracks Residents

All residents should:

- Apply good sanitary and exclusionary practices to prevent pest infestations;
- Use pesticides in accordance with the pesticide label if permitted for personal use; and
- Coordinate and cooperate fully with PMSPs in scheduling pest management and preparing the areas for pesticide treatment if necessary.

2.1.7 AC/S Environmental Security (ES) Department

ES provides oversight on base-wide environmental protection and compliance. They also conduct programs that involve pest management which are described in the installation's Integrated Natural Resources Management Plan (INRMP). ES responsibilities are to:

- Manage federally endangered or threatened species, noxious or invasive species, and environmentally-sensitive sites;
- Conduct environmental review of new pest management projects and pesticides that may have an adverse impact on the environment;
- Perform internal environmental compliance evaluations;
- Coordinate, compile and report (Annually, due 1 March) as specified in Attachment C of the Water Quality Order No 2012-0003-DWQ, General Permit No. CAG 990004, NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Application;
- Maintain the Pesticide Application Plan (PAP) that is submitted as part of the requirement for the above NPDES Permit;
- Review, approve, and support the IPMP; and
- Perform pesticide compliance inspections for all PMSPs and pesticide users.

2.1.8 AC/S Environmental Security, Game Warden Office

The Game Warden office is the Resource Enforcement / Compliance Section of the Natural Resources Division of ES. Their responsibilities and services are:

- Removing wild animals from buildings that are causing conflicts with people including snakes, birds, and mammals.
- Advising, coordinating, and performing exclusion of wildlife that live in or near buildings and cause a conflict. Examples included bat colonies, raccoon families, vulture roosts, and bird nests.
- Monitoring for injuries and poisoning of wildlife including lead and rodenticide.
- Monitoring and enforcing compliance with natural resource laws when people are managing pests and resolving wildlife conflicts. An example is telling residents not to disturb occupied nests to avoid violating the MBTA.

2.1.9 Commanding Officer, Naval Hospital, Camp Pendleton

Personnel from the hospital provide public health support to MCBCP in accordance with OPNAVINST 6250.4C and Chapters 1 and 8 of NAVMED P-5010 and have responsibilities to:

- Act as advisor and liaison to CG for public health pest prevention and management;
- Conduct surveys for pests of medical importance, such as cockroaches, mosquitoes, bedbugs, etc., through habitability and food service sanitation inspections;
- Provide surveys and surveillance for mosquitoes and other disease vectors.
- Establish and maintain liaison with local health agencies as they pertain to vector management and vector-borne and zoonotic disease prevention;
- Serve as liaison with the local public health agencies including San Diego & Orange County vector control programs;
- Maintain current certification as DoD Category 8 (public health) pesticide applicator;
- Develop and maintain an emergency plan for vector and pest control during a vector-borne disease outbreak or disaster;
- Provide occupational health services to DoD pesticide applicators; and
- Conduct industrial hygiene services for pest control shops.

2.1.10 AC/S Logistics Department, Consolidated Material and SVC Center (CMSC)

CMSC has operational oversight of the GSA store aboard Camp Pendleton. This oversight includes the approval of hazardous material prior to it being placed in the store for sales. The GSA Store displays and sells pesticides and pest control materials for self-help to installation units and commands. As part of the oversight responsibility, CMSC will ensure that GSA:

- Maintains and sells only ready-to-use pesticides in accordance with an approved self-help pest control program;
- Ensures that pesticides are displayed safely on shelves;
- Ensures employees are properly trained on the emergency procedures in the event of a pesticide spill; and
- Ensures that pesticide material packaging includes application instructions

2.1.11 AC/S Logistics Department, Base Food Services

The Base Food Services (BFS) Department representatives provide contractual oversight, surveillance and supervision of the subsistence contractor's work performance and management at Camp Pendleton's 12 garrison mess halls and two satellite facilities. As part of this oversight surveillance, BFS will:

- Ensure Messhall facilities are clean at all times and free of pests; and
- Ensure contractor reports pest or vector problems to FMD Customer Service (725-4368) for action by FMD Pest Control.

2.1.12 U.S. Army Veterinary Services

The Veterinary Services provides clinical support for military working dogs and services for privately owned pets and animals. Veterinary technicians also provide food inspection for the Commissary and other food items delivered to the Base. The Veterinary Services' responsibilities are to:

- Conduct surveillance for pests which damage, destroy, and contaminate food stored in the Commissary and installation facilities;
- Ensure stored field rations (i.e. MREs and T-rats) are free from pests;
- Advise medical department and IPM Coordinator of any zoonotic diseases (i.e. West Nile Virus in horses) that may require pest management;
- Inform IPM Coordinator of any pesticide poisonings of pets that may have occurred on the Base; and
- Provide advice and education to pet owners on preventing pest infestations.

2.1.13 Marine Corps Community Services (MCCS) Division, Family Leisure and Hospitality Services

MCCS FHD oversees commercial food concessions and has the responsibility to:

- Ensure the PMSPs provide proof of applicator licensing and a list of proposed pesticides for use in the facility to the IPM Coordinator; and
- Ensure that the PMSPs submit records of pesticide applications to the IPM Coordinator.
- Communicate pest management issues with the installation IPM Coordinator.

2.1.14 MCCS Division, Semper Fit Division (SFD)

The SFD fields and grounds branch manages the athletic fields, gyms, stables, and Lake O'Neill recreational area. Specific responsibilities are to:

- Ensure landscape cultural management practices that maintain the health of plants and turf to prevent disease and pest infestations; and
- Conduct pest management in compliance with DoD, Federal, State and local laws and regulations.
- Use only pesticides authorized for use on the installation; and
- Ensure pesticide application records are reported to the IPM Coordinator using the NOPRS.



Figure 3. MCCS Semper Fit maintains turf on recreational fields. USMC Photo.

2.1.15 MCCS, Retail Division

The Marine Corps Exchange (MCX) stores and displays household and garden pesticides for retail sale and are responsible to:

- Ensure that food concessions provide list of pesticides for approval and pest management records to IPM Coordinator;
- Ensure that pesticides for sale are safely displayed on shelves; and
- Ensure that store employees are properly trained on the emergency procedures in the event of a pesticide spill.

2.1.16 Defense Commissary Agency (DeCA)

Commissary personnel are responsible to:

- Ensure that pesticides for retail sale are safely displayed on shelves;
- Ensure delivered food products are free from pest infestation;
- Ensure proper sanitation and hygiene to prevent pest problems;
- Ensure that pests are adequately controlled; and

- Ensure contracted pest management operations are performed in accordance with contract specifications or lease agreements, the IPMP, and are in compliance with Federal and State laws and regulations.

2.1.17 Contract Pest Management Service Providers (PMSP)

Contract PMSPs have the responsibilities to:

- Conduct pest management operations in accordance with the contract specifications or lease agreements, the IPMP, and in compliance with federal and State of California laws and regulations;
- Submit a list of pesticides proposed for use on the installation to their government representative for approval and inclusion on the Base pesticide authorized use list;
- Communicate all pest management issues and requirements via the government representative; and
- Submit pest management records to the government using the NAVFAC Online Pesticide Reporting System (NOPRS).

2.1.18 Building Occupants

Occupants of tenant and command activities such as Defense Logistics Agency Disposition Services (DLA), Training and Education Command (TECOM), School of Infantry (SOI), Edson Range, etc. have the responsibility to:

- Apply good sanitary and exclusionary practices to prevent pest infestations;
- Use pesticides in accordance with the pesticide label if permitted for personal use;
- Request authorization for self-help pest control programs through the installation IPM Coordinator and, if authorized, use only approved ready-to-use pesticides; and
- Coordinate and cooperate fully with PMSPs in scheduling pest management and preparing the areas for pesticide treatment if necessary.

2.2 Staffing and Facilities

2.2.1 FMD Pest Control

The FMD Pest Control office is located in Bldg. 220109 and is staffed by a Pest Control Supervisor and three DoD-certified applicators. Several pesticide storage lockers are located adjacent to the office. Facilities for maintaining and cleaning pest control equipment are available at this site.

2.2.2 Public Works Division, FSC Branch

The Public Works Division Facilities Support Contracts office is located in Bldg.2291 and monitors contracts for pest control and grounds maintenance services for the installation. FSC employs two PMPARs.

2.2.3 Environmental Security

ES is located in Bldg. 22165 and oversees all environmental compliance, planning, and remediation programs on the installation. Per MCO P5090.2A, Chapter 14, ES maintains a pesticide compliance program. Staffing includes several ecologists that manage the invasive weed program, a wildlife biologist who is responsible for resolving wildlife conflicts, and an environmental engineer who prepares and coordinates the compliance with the State Water Resources Control Board's Pesticide General Permits. Additionally ES includes the Game Warden staff who are federal conservation law enforcement officers charged with enforcing compliance with federal and state laws including the ESA and MBTA.

2.2.4 Marine Corps Community Services

The Marine Memorial Golf Course has two certified pesticide applicators (one State licensed and one DoD certified). A pesticide storage locker is located adjacent to Bldg. 180412 where equipment is stored and maintained. Fields and grounds also has a state-licensed pesticide applicator and operates from and stores herbicides at Bldg. 1255.

2.2.5 Naval Hospital, Camp Pendleton

The NH is in Bldg. H-100 on MCBCP.

2.2.5.1 *Preventive Medicine*

Preventive Medicine is located in Bldg. H-143 and provides environmental health support including conducting food service and habitability inspections of installation facilities and preventing vector-borne diseases and other human health threats due to animals (i.e. bed bugs, cockroaches, rodents, etc.) on the installation. Environmental Health Officers (EHO) and PMTs at NHCP provide support to the installation. NHCP can request specialized entomology and vector surveillance and control support from active duty entomologists at Navy Environmental and Preventive Medicine Unit (NEPMU) FIVE at Naval Base San Diego.

2.2.5.2 *Industrial Hygiene*

Industrial Hygiene provides workplace monitoring and conducts industrial hygiene surveys of pest control operations performed by DoD pesticide applicators to ensure a safe working environment.

2.2.5.3 *Occupational Health*

Occupational health provides physical exams, respirator qualification exams, and medical surveillance for DoD pesticide applicators and is located in Bldg. H-100.

2.3 Training, Certification and Licensing

2.3.1 General Requirements

Only DoD-certified or state-licensed applicators shall apply pesticides on the installation (DoD 4150.07, Para. 5.4.20.5) unless personnel are authorized to apply ready-to-use pesticides in an approved self-help program. Pest management requires personnel who are properly trained to investigate and diagnose pest problems, select the appropriate pest management method, apply the proper pesticide, perform these operations so that they are safe to humans and the environment, and educate and advise their customers on pest prevention methods. All installation pest management personnel who apply or supervise the application of pesticides shall be trained and certified within two years of employment in accordance with the DoD Plan for the Certification of Pesticide Applicators of Restricted Use Pesticides or an EPA-approved state certification plan (DoDI 4150.07). Additionally, professional pest management personnel shall be certified if their duties include (DoDI 4150.07):

- Making recommendations for the use of pesticides, applying pesticides, or directly supervising the application of pesticides.
- Conducting demonstrations on the proper use and techniques of pesticide application or the supervision of pesticides.
- Conducting field research that includes using or supervising the use of pesticides.

Other personnel who do not apply pesticides, such as the IPM Coordinator and PMPARs, shall be properly qualified and must attend the appropriate training within 12 months of their assignment.

2.3.2 Requirements for DoD pesticide applicators

DoD applicators may be certified in the following categories:

- Cat. 2. Forest
- Cat. 3. Ornamental and Turf (landscape arthropod and vertebrate pests)
- Cat. 5. Aquatic (aquatic weeds in lakes, ponds, rivers, streams, irrigation canals)
- Cat. 6. Right-of-Way (weeds on sidewalks, along fence lines, parking lots, road ways, storage tank grounds)
- Cat. 7. Industrial, Institutional, Structural, and Health-Related (termites and other wood-destroying insects; cockroaches; crickets and other invading organisms; fumigation of rodent burrows and commodities)
- Cat. 8. Public Health (mosquitoes, ticks, fleas, rodents)

- Cat. 11. Aerial Application (application of pesticides for any pest by fixed or rotary-wing aircraft)

Two FMD pest control operators are certified in Categories 3,5,6,7, and 8; one is also certified in Category 2. One golf course pesticide applicator is certified in Categories 3, 5, and 6 and conducts turf grass pest control. PMTs supporting the installation are required to be certified only in Category 8 and receive their certification during Hospital Corpsmen C School, PMT School. Initial certification in Categories 3, 5, 6, 7, and 8 for civilian employees is a three week course conducted by a designated DoD training agency. The Navy initial certification course is conducted onsite and at remote sites by the Navy Entomology Center of Excellence (NECE) in Jacksonville, Florida and NEPMU FIVE, San Diego, California in conjunction with NAVFAC. Initial certification and recertification in Category 11 is a one week course conducted by the Air Force Reserve in Vienna, Ohio. Certification for all categories is valid for three years. With proper justification, certifications can be extended for an additional six months by the applicator's certifying authority for civilians; twelve months for PMTs. Recertification courses for civilians in all categories except Category 11 are conducted annually by NAVFAC. PMTs may recertify in Category 8 at NEPMU FIVE. Initial and recertification course schedules can be viewed at <http://www.afpmb.org/content/training-and-certification>.

2.3.3 Requirements for commercial contract applicators

"Contractor employees performing pest management on the installation shall be certified prior to the beginning of the contract under the state plan. The contractor shall provide evidence of training and experience in the specific pest control category(s) for services that they provide" (DoDI 4150.07).

2.3.3.1 *Grounds and golf course maintenance*

This applies to all personnel performing weed control and ornamental plant pest control including leased property such as housing. Per California regulations, commercial applicators may apply pesticides if:

- They hold a "Qualified Applicator Certificate" (QAC) issued by the California Department of Pesticide Regulation (DPR); or
- They hold a "Qualified Applicator License" (QAL) issued by DPR

Applicators with a QAC or QAL must be licensed in Category B, landscape maintenance, and/or Category C, right of way and may apply restricted use pesticides (RUP). Certifications and licenses must be renewed every two years through a continuing education program. For more information on pesticide applicator licensing in California go to <http://www.cdpr.ca.gov/docs/license/liccert.htm>.

2.3.3.2 *Structural Pest Control*

This applies to housing and facilities pest control contractors. Applicators applying pesticides inside and outside buildings to control household or structural pests must have a license as an "Operator" (OPR) or "Field Representative" (FR) from the California Structural Pest Control Board (SPCB). Contractor employees may also be licensed as a "Registered Applicator" (RA), but must work under the supervision of an OPR or FR. Applicators must be licensed in Branch 2: General Pests. If they will be controlling wood-destroying pests, excluding fumigation, then they must be licensed in Branch 3. Persons supervising fumigations must be licensed in Branch 1: Fumigation. For more information go to <http://www.pestboard.ca.gov/>.

2.3.4 Requirements for Natural Resource Management Applicators

Supervising commercial applicators applying herbicides for invasive weed control or habitat restoration must hold a QAC or QAL in category B, Landscape Maintenance. Employee applicator of these commercial companies must also be certified. At a minimum they must have a QAC in category Q, Maintenance Gardener. Wildlife managers that use pesticides for control must hold a QAC or QAL in category D (Plant Agriculture) and/or I (Animal Agriculture).

2.3.5 Requirements for Mosquito Control

DoD personnel conducting mosquito control must be certified in DoD Category 8: Public Health. Commercial pesticide applicators (i.e. contractors) applying insecticides to water that is not part of a building or the building's landscaping for mosquito larvae or conducting outdoor adulticiding by fogging must be certified by the DPR in category K: Public Health. Commercial applicators controlling mosquitoes around a structure, such as application of a residual insecticide to walls or landscape vegetation, are covered under their SPCB Branch 2 license. Public agencies, such as a county vector control district, that perform mosquito control must use vector control technicians certified by the California Department of Public Health (DPH).

2.3.6 Requirements for Performance Assessment Representatives

PMPARs assess the performance of contractors in the Performance Based Acquisition (Contracting) Program. The MCBCP is required to train personnel who provide performance assessment for commercial pest control services as PARs and send them to refresher training every three years (DoDI 4150.07 and MCO P5090.2A, Para 14104.1.i.). NAVFAC provides initial and refresher PMPAR training annually. Go to <http://www.afpmb.org/pubs/courses/courses.htm#pestmgmtquaassurance> for initial training schedules. PMPARs may attend the DoD pesticide applicator recertification course for refresher training. Go to <http://www.afpmb.org/pubs/courses/courses.htm#pestapprecert> for refresher training schedules.

2.3.7 Requirements for the IPM Coordinator and Environmental Personnel

"The IPM Coordinator shall have the educational background, technical knowledge, and management skills to implement and oversee the pest management program." (DoDI 4150.07, Para. E4.4.1) New IPM Coordinators are required to receive training on the administrative and operational requirements of installation pest management. Environmental personnel who have compliance oversight of pesticides on the installation should also receive training. The initial PMPAR and IPM Coordinator course provides the necessary training. NAVFAC Southwest conducts this course annually. Go to <http://www.afpmb.org/pubs/courses/courses.htm#pestmgmtquaassurance> for training schedules. If the IPM Coordinator will be applying pesticides or recommending pesticide applications, then they must be certified as a DoD pesticide applicator.

2.3.8 Verification of Qualifications

Copies of certifications or licenses should be obtained from all PMSP personnel applying pesticides on the MCBCP. Their certification status shall be verified annually and can be done through the following sources:

- DPR applicator certification / license: <http://www.cdpr.ca.gov/docs/license/currlic.htm>.
- SPCB applicator license / business license: <http://www.pestboard.ca.gov/license.shtml>.
- CDPH Vector Control Technician Certification:
<http://www.cdph.ca.gov/certlic/occupations/Pages/VectorControlTechnicianProgram.aspx>
- DoD applicator license / IPM Coordinator and PMPAR accreditation: Contact the NAVFAC Southwest PMC at (619) 532-1157 or michael.j.medina1@navy.mil.

A list of applicators and their certification / license numbers as well as a list of business licenses is found in Appendix K.

2.3.9 Continuing Education

Although recertification is required every three years, there are no continuing education requirements to maintain the DoD pesticide applicator certification. However, pesticide applicators, IPM Coordinators, and PMPARs should take advantage of the many educational opportunities that are provided to civilian pesticide applicators. Information on continuing education and a list of approved courses, classes, and symposiums are found in <http://www.cdpr.ca.gov/docs/license/conted.htm>. Additional educational and training resources are available in Appendix L.

Table 5: Summary of MCBCP Pest Management Licensing and Recertification Training Requirements

Position	Initial training	Recertification or refresher training
DoD Pest Control and Grounds Maintenance Applicators	Attend DoD Pesticide Applicator Certification Course; pest control applicators attend Core and Phases II-III; grounds maintenance applicators attend Core and Phase II.	Attend DoD Pesticide Applicator Recertification Course every 3 years; pest control recertify in Core and Phases II-III; grounds maintenance recertify in Core and Phase II.
IPM Coordinator	Attend DoD PMPAR / Installation Pest Management Coordinator Course (IPM Coordinator)	Attend Navy Pesticide Applicator Recertification Course / PMPAR Refresher Course every 3 years
PMPAR	Attend DoD PMPAR / Integrated Pest Management Coordinator Course (IPM Coordinator)	Attend Navy Pesticide Applicator Recertification Course / PMPAR Refresher Course every 3 years
PMT	Initial DoD Pesticide Applicator Certification Course (Core and EPA Category 8)	Attend Navy Pesticide Applicator Recertification Category 8 Course every 3 years
Contract Pest Control PCOs	SPCB licensed as Operator, Field Representative, or Registered Applicator in the appropriate branches.	License renewal every 3 years. Renewed by acquiring continuing education hours (number of hours dependent on number of branches for which qualified) during the renewal period.
Contract Grounds Maintenance PCOs and MCCS Golf Course Applicators	QAL or QAC from DPR; take exams in appropriate categories for initial licensing	License or certificate renewed every 2 years. Renewed by acquiring 20 continuing education hours within the 2 year renewal period.
Self-help Applicators	Initial safety training	None

2.4 Pesticide Approval

DoD and DoN directives require installations to submit a list of pesticides that will be used on MCBCP property to the NAVFAC Southwest PMC for review and approval (MCO P5090.2A). The purpose of this approval process is to ensure that only registered pesticides which are safe, effective and appropriate for the application site and target pest will be used on the installation. Requests for pesticide approval will be submitted to the PMC via the installation IPM Coordinator using the NAVFAC Online Pesticide Reporting System (NOPRS) (see section 2.5.2.). Some pesticides, particularly those that are broadcast applied outdoors may also be reviewed by ES before final approval by the PMC. Refer to section 5.3.6 regarding environmental review of pest management projects. The pesticide authorized use lists (PAUL) for the

MCBCP and BBRF in Appendix E. Once a pesticide is approved, it may be used onsite by licensed / certified, or in the case of self-help programs, authorized, applicators per the label directions. Addition of new pesticides to the pesticide AUL can be requested using NOPRS.

2.5 Records and Reporting

“Marine Corps must maintain on site complete, daily records of pesticide applications and nonchemical pest management operations using DD Form 1532-1 or a computer-generated equivalent.” (MCO P5090.2A, Para. 14209,1.)

2.5.1 Pest Management Record Keeping

All PMSPs shall record pest management operations daily. Records shall include all pest management operations including pesticide applications, surveys and non-chemical control operations performed on the installation by commercial contractors, lessees, self-help and other agency applicators. The records will include the following information: date of application, location and site, type of operation, target pest, amount of area treated, name of applicator, pesticide information (trade name, active ingredient, and formulation), amount of pesticide applied, final concentration, and calculated pounds of active ingredient applied. The following operations are excluded from the recordkeeping requirement:

- Personal use of insect repellent.
- Application of repellent by deployable units during mass treatment of clothing and tentage.
- Application of pesticides for personal relief by residents of military housing.
- Application of pesticides for flea and tick control to pets by pet owners and veterinary services.

PMSPs may create and maintain records in a format that they choose, however, the records shall be submitted to the IPM Coordinator by the NOPRS (section 2.5.2.) so it is recommended that NOPRS be used for recordkeeping.

2.5.2 PMSP Reporting Procedures

All PMSPs shall use the NOPRS (<https://clients.emainc.com/PestManagementNET/PesticideLogon.aspx>) to report pest management operations. This system is also used to maintain the installation pesticide authorized use list, update the IPMP, and will, in the future, be used to manage applicator licensing. NOPRS eliminates the need to e-mail electronic records to the PMC. The system is readily accessible by all PMSPs on the internet. The records are entered directly into a central database that can be accessed by the PMC and the IPM Coordinator. Records can be exported to a spreadsheet. The only computer requirement is a reliable internet connection. Contact the NAVFAC Southwest PMC to establish log in accounts.

2.5.3 Maintaining Pest Management Operations Records

MCBCP must archive on site indefinitely complete daily pest management operation records (MCO P5090.2A, Para. 14209,1.). Pesticide applications for each building, structure, or outdoor site must be accounted for. Past hardcopy records must be archived to prevent them from being destroyed. Electronic records shall be stored to prevent destruction or loss; back-up copies are recommended. All records reported on NOPRS will be stored on external servers maintained by NAVFAC and may be used as a back-up. Downloading of records from NOPRS and maintaining them on-site is highly recommended.

2.6 Government Contracts

This section pertains to government contracts such as facilities support contracts. It also includes contracts in which the government or non-appropriated fund (NAF) agency contracts directly with a PMSP such as for invasive weeds and MCCS and DeCA contracts. This also includes inter-service agreements. Current government pest management contracts include:

- Facilities pest control: Acepex subcontracts to Western Exterminator
- Base grounds maintenance: Chugach subcontracts to Knott Pest Control
- MCCS Food Service: EcoTech Pest Control, Terminix, Orkin

- Natural Resources Vegetation Management: Agri Chemical and Supply, Inc. and Apex Contracting
- Mosquito larvicide aerial spray: Acepex subcontracts to Hummingbird, Inc.

2.6.1 Contract Specifications and Review

Pest management contract specifications must be written to ensure effectiveness, safety, and regulatory compliance. Specifications should state that the contractor:

- Shall comply with federal, state, and local laws and regulations which also includes DoD, DoN and USMC directives and this IPMP;
- Shall ensure that all pesticide applicators are licensed / certified and provide copies of applicator and business licenses to verify that they are current;
- Shall request approval of all pesticides to be used on the installation prior to their use;
- Shall use pest control vehicles that are properly marked and provide secure storage for pesticides;
- Shall report pesticide use and all pest management operations using NOPRS to the installation IPM Coordinator via the Government Representative; and
- Shall not store, mix, dispose of pesticides or clean pest control equipment on the installation. (If the contractor is allowed to store, mix, dispose of pesticides or clean equipment then the specifications should be specific for location and procedures)

Facilities Support Contract / Base Operation Support (FSC/BOS) performance-based contract templates for pest control (Sub-annex 1503020) and grounds maintenance (Sub-annex 1503050) are available from NAVFAC Southwest. The MCBCP facilities contracting officer (KO) or contracting officer representative (COR) can provide additional information. The KO shall ensure that the contract specifications are in compliance with the IPM Plan and send the contract specifications to the NAVFAC Southwest PMC for final review and approval prior to sending the contract out for bid (DoDI 4150.07).

2.6.2 Government Representatives

Contractors will communicate and submit required pest management reports via their Government representative. For the FSC, the representative is the PMPAR who is responsible for assessing the contract. For NAFI (i.e. MCX, MCCS) contracts the representative is the local NAFI organization manager. In cases where a Government representative is not available, then the installation IPM Coordinator may liaison with a contractor's representative.

2.6.3 Contract Requirements

DoD and DoN regulations, this IPMP and California regulations strictly regulate the application of pesticides by contractors. DoD regulations are more stringent than state regulations and companies bidding on contracts involving pesticide applications must be made aware of this. Contract requirements apply to all pesticide applications including insecticides, herbicides, fungicides, molluscides, etc. to turf, ornamentals, trees, and all indoor work. These requirements apply to any size contract (small purchase or facility-support contract generated) and services acquired by any other means including government purchase cards (EBUSOFFINST 4200.1, Para.7). The specific requirements for contracted pest control operators working on Marine Corps properties are:

- Contractor Work Plan (CWP): If required by the contract, a CWP shall be submitted as part of the contractor's proposal. The CWP specifies how the contractor will meet the contract requirements. The CWP should be included in this IPMP in Appendix H.
- Pesticide Applicator Certification: All contractor personnel, who apply pesticides (which include all herbicides), shall be state-certified / licensed in the appropriate applicator category in accordance with section 2.3.3 of the IPMP. All contractors who will apply pesticides shall, prior to the start of work, supply a copy of the certificate(s) / license(s) in accordance with contract specifications. A list of applicators and their license or certificate numbers is included in Appendix K.
- Pesticide Approval: Pesticides used by contractors must be approved, before use, by the NAVFAC Southwest PMC as described in section 2.4. The list of proposed pesticides shall

be included in the CWP or submitted to the designated government representative using the procedures in the contract specifications.

- Pesticide Mixing, Storage, and Disposal: Contractors are required to mix, store and dispose of excess pesticide and empty containers and will assume generator status in accordance with contract specifications.
- Pesticide Applications: Only approved pesticides shall be used and applied in a manner consistent with the pesticide label.
- Pest Management Reporting: Contractors shall submit reports in accordance with the reporting requirements in section 2.5.2.
- Contractor Vehicles:
 - Vehicles used to transport pesticides shall be equipped with a fire extinguisher and a spill and decontamination kit, capable of handling the maximum amount of pesticide transported at any given time.
 - All pesticides carried on the vehicles shall be secured in locked compartments at all times. Vehicles shall not be left unattended at any time unless properly locked and secured.
 - Vehicles will be clearly identified as a pest control vehicle.
 - All vehicles shall be maintained with a clean and orderly appearance, free from observable pesticide spills, residues, or build-up.
 - Pesticide application equipment shall be in good working order and shall not be leaking.
 - Pesticides shall not be transported in the cab or occupied part of any vehicle. They shall always be carried in a separate compartment from the occupied cab.
- Compliance Assessment: All contractors are subject to regulatory compliance assessments by the PMPAR, IPM Coordinator, environmental compliance staff, and other authorized government personnel. Commercial contractors are also subject to inspection on the installation by state inspectors. Pest control vehicles, pesticide applications, and administrative requirements are subject to inspection. Government personnel may order work stoppage if the observed pest control operations are determined to be an immediate hazard to the applicator or public or to the environment. Work may also be stopped if there is a regulatory violation.

2.6.4 Contract Performance Assessment

Contracts shall be assessed by a trained PMPAR to ensure environmental and contractual compliance. For FSCs, Functional Assessment Plans (FAP) for pest control and grounds maintenance are required to be developed and implemented. FAP templates are available from the KO or NAVFAC Southwest. Assessments for pests prior to, during, and after pest control operations should be conducted to ensure efficacy of the services. Pest survey methods for contract performance assessments are found in Appendix H on each of IPM project sheets. Inspection of the contractors during pesticide application should also be conducted to ensure safety measures are being taken. The contractors' vehicles and equipment must be made available for inspection when requested. In the absence of a PMPAR, the installation PMT can provide information on the efficacy of pest control in some facilities. The PMT conducts monthly inspections that include pest surveys of food service facilities and child development centers. The PMPAR and the IPM Coordinator should liaison and coordinate performance assessment activities with the PMT.

2.7 Private Housing Leases

2.7.1 Current Housing Leases

Lincoln Military Housing and Hunt (DeLuz Family Housing) manage housing on the MCBCP. The main offices for Lincoln Military Housing and DeLuz Family Housing are located at 200008 San Jacinto Road and 108 Marine Drive, respectively. Pest control services for Lincoln Military Housing are contracted to Payne Pest Management and Pestmaster Services, and landscaping to Valley Crest Landscaping. Pest control services for DeLuz Family Housing are contracted to Payne Pest Management and landscaping to Brickman Landscaping.

2.7.2 Requirements for Housing Contracts

The requirements in this section apply only to housing located on DoD/DoN-owned land. Pest management operations on housing located on privately owned land shall comply with the property management agreement guidelines and state and local regulations. DoD does not provide PMPARs for housing contracts; the management company is responsible for the performance of the contractors. Under the lease agreement the private housing manager manages all aspects of the housing area, however, some DoN oversight is necessary to ensure that military personnel and their dependents and the environment are protected from disease vectors and harm due to misuse of pesticides. Therefore, all housing pest management contractors that perform work on DoD/DoN-owned land must comply with the regulatory requirements of the lease and the management plan. All requirements shall be coordinated through the housing manager. The following requirements apply:

- Partner Pest Management Plan: The PPMP shall be included in the housing management plan. It specifies how the housing manager's pest control contractors will perform pest control. If the landscape maintenance contractor applies pesticides, they must also prepare and submit a PPMP. The PPMP(s) shall be reviewed by the NAVFAC Southwest PMC prior to establishment of the lease. A PPMP template is available from the PMC. The housing manager must ensure that the plan is updated as needed and remains current. Any updates to the plan shall be forwarded to the IPM Coordinator. A copy of the current pest control PPMP is located in Appendix H.
- Certified Pesticide Applicators: All contractor personnel who apply pesticides (which include all herbicides), shall be certified / licensed in the appropriate applicator category in accordance with section 2.5.3 of this Plan. A list of all applicators and their applicator certification / license numbers and categories shall be included in the PPMP.
- Pesticide Approval: The NAVFAC PMC shall review the pesticides listed in the PPMP that are proposed for use in housing. If authorized for use, they will be added to the installation pesticide authorized use list (PAUL). The contractor shall update the pesticide list as needed and submit requests to add new pesticides to the installation PAUL.
- Pesticide Mixing, Storage, and Disposal: Housing contractors are prohibited from mixing or storing pesticides, storing pest control equipment, disposing of pesticide rinse water, leaving pesticide containers, or leaving any other pesticide articles on the MCBCP property unless specifically permitted in the lease agreement. All pesticides shall be carried onto the MCBCP in ready-to-use form, previously mixed off the installation. Excess pesticide and pesticide containers shall be transported and disposed of off the property and the contractor will assume generator status. Current information regarding these operations shall be included in the PPMP.
- Pesticide Applications: Only pesticides listed in the PPMP shall be used and shall be applied in a manner consistent with the label directions.
- Reporting Pest Control Applications: In accordance with the PPMP, written reports and recommendations will be provided and reviewed with the housing manager following each service visit. Pest management operations including pesticide use shall be recorded and reported to the installation IPM Coordinator as described in section 2.5.
- Contractor Vehicles:
 - Vehicles used to transport pesticides shall be equipped with a fire extinguisher and a spill and decontamination kit, capable of handling the maximum amount of pesticide transported at any given time.
 - All pesticides carried on the vehicles shall be secured in locked compartments at all times. Vehicles shall not be left unattended at any time unless properly locked and secured.
 - Vehicles will be clearly identified as a pest control vehicle.
 - All vehicles shall be maintained with a clean and orderly appearance, free from observable pesticide spills, residues, or build-up.
 - Pesticide application equipment shall be in good working order and shall not be leaking.
 - Pesticides shall not be transported in the cab or occupied part of any vehicle. They shall always be carried in a separate compartment from the occupied cab.
- Compliance Assessment: Commercial contractors are subject to inspection on the installation by state inspectors and authorized Government personnel including the IPM

Coordinator and FSC personnel. Pest control vehicles, pesticide applications, and administrative requirements are subject to inspection. Government personnel may order work stoppage if the observed pest control operations are determined to be an immediate hazard to the applicator or public or to the environment. Work may also be stopped if there is a regulatory violation.

2.8 Other Leases

2.8.1 Current Leases

A section of the north coast is leased to Southern California Edison which operates the San Onofre Nuclear Generating Station while an adjacent area is leased to the California State Parks for San Onofre State Park and San Mateo State Park. The California Transportation Department operates an easement through which Interstate 5 passes the length of the base along the coast.

2.8.2 Requirements for Lessees

Lessees must comply with pest management requirements of their lease agreement. Some activities, such as invasive weed management, should be coordinated between the lessees and MCBCP to ensure effective control. General requirements are:

- The lessee must comply with all federal, state and local regulations;
- Establish liaison with the MCBCP IPM Coordinator with regard to pest management activities;
- Use properly trained and qualified personnel to conduct pest management;
- Apply pesticides in accordance with the product label; and
- Report pesticide use in accordance with federal and state regulations.

2.9 References

1. AFPMB TG 39: *Guidelines for Preparing DoD Pest Control Contracts using Integrated Pest Management* - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg39.pdf>
2. California Department of Pesticide Regulation (CDPR) Licensing and Certification Program - <http://www.cdpr.ca.gov/docs/license/liccert.htm>
3. California Department of Pesticide Regulation List of DPR Licensees - <http://www.cdpr.ca.gov/docs/license/currlic.htm>
4. California Department of Public Health Vector Control Technician Certification - <http://www.cdph.ca.gov/certlic/occupations/Pages/VectorControlTechnicianProgram.aspx>
5. California Structural Pest Control Board (SPCB) - <http://www.pestboard.ca.gov/>
6. EBUSOFFINST 4200.1: Department of the Navy Policies and Procedures for the Operation and Management of the Government Commercial Purchase Card Program - http://www.acq.osd.mil/dpap/Docs/pcard/DoN_OI_4200-1a.pdf (CD)
7. Food and Drug Administration (FDA) 2009 Food Code - <http://www.fda.gov/Food/FoodSafety/RetailFoodProtection/FoodCode/FoodCode2009/default.htm>
8. DoDI 4150.07-M: DoD Pest Management Training and Certification – http://www.afpmb.org/sites/default/files/pubs/directives_mous/4150-7-M.pdf (CD)
9. DoDM 4150.07, Volume 1, DoD Pest Management Training: The DoD Plan for the Certification of Pesticide Applicators - http://www.afpmb.org/sites/default/files/pubs/directives_mous/DoDM4150.07.pdf (CD)
10. San Diego County Agricultural Commissioner - <http://www.co.san-diego.ca.us/awm/>
11. SPCB Applicator License Look up - <http://www.pestboard.ca.gov/license.shtml>
12. SPCB: How do I renew my license? - <http://www.pestboard.ca.gov/howdoi/renew.shtml>

3 Operations

3.1 Integrated Pest Management

By Presidential Executive Order 13514 of October 5, 2009, federal agencies are required to promote pollution prevention and eliminate waste by implementing integrated pest management and other appropriate landscape management practices. US Code states "federal agencies shall use Integrated Pest Management techniques in carrying out pest management activities and shall promote Integrated Pest Management through procurement and regulatory policies, and other activities." (7 USC Title 7, Chapter 6, Subchapter II, Sec. 136r-1) It is DoD policy to "incorporate sustainable Integrated Pest Management (IPM) philosophy, strategies, and techniques in all aspects of DoD and Component vector control and Integrated Pest Management Planning, training, and operations including installation Integrated Pest Management Plans and other written guidance to reduce pesticide risk and prevent pollution." (DoDI 4150.07).

3.1.1 What is IPM

"A planned program, incorporating continuous monitoring, education, record-keeping, and communication, to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, material, or the environment. IPM uses targeted, sustainable (effective, economical, environmentally sound) methods, including education, habitat modification, biological control, genetic control, cultural control, mechanical control, physical control, regulatory control, and where necessary, the judicious use of least-hazardous pesticides" (DoDI 4150.07).

In IPM programs, treatments are not made according to a predetermined schedule. Rather, they are made only when and where monitoring has indicated that the pest will cause unacceptable economic, medical, or aesthetic damage. Treatments are chosen and timed to be most effective and least-hazardous to non-target organisms and the general environment. IPM is the primary means of the pest management program to meet the installation's environmental goal of pollution prevention.

Under an IPM program, execution of individual pest management practices involves the following steps:

- **Identify** pests and possible natural enemies;
- **Develop plans/strategies**, an integration of treatment methods, that are effective against the pest, least disruptive to natural controls, and least hazardous to human health and the environment;
- **Establish action thresholds for pests** when control will be initiated. In determining threshold levels, the amount of aesthetic or economic damage that can be tolerated must be correlated with the population size of pests, natural enemies, time in the season, and/or life stage of the pest or host;
- **Monitor pest population** for regular sampling of pest and natural enemy populations. Monitoring is an ongoing activity;
- **Control pest** (optional);
- **Document results**; and
- **Evaluate/redesign plan** to determine the outcome of treatment actions.

Controlling pests has traditionally been the responsibility of the pest control operator. **In IPM, preventing and controlling pests is the responsibility of all personnel on the installation.** The involvement of all installation personnel in managing pests is emphasized in the IPM project sheets in Appendix H.

3.1.2 IPM Compliance

FMD and MCCS management personnel, contract PARs, and housing management shall assess their PMSP's compliance with IPM. This may include:

- Reviewing the approved pesticide list for use of less toxic pesticides, baits with sustainable control, short-residual and pest-specific products, and products used for spot treatment rather than broadcast application.
- Contractor work plans and partner pest management plans that incorporate IPM.
- Reviewing pest management records to ensure that only approved pesticides are used, spot applications are performed, non-chemical methods are used, and routine surveys are being performed.
- Observing pest control service calls to ensure pest control operators identify conditions conducive to pest infestations, provide information to building occupants on how they can prevent pests, use only approved pesticides, perform spot treatments, properly apply baits, conduct routine surveys, and monitor baits / bait stations / traps.

3.1.3 Integrated Pest Management on MCBCP

The IPM program includes of the following:

- Integrated Pest Management Plan. This Plan documents the integrated pest management program on the MCBCP and identifies the strategies for controlling pests. IPM is emphasized in Partner Pest Management Plans and in Pest Management Project Sheets (see Appendix H).
- Survey and monitoring. Pest survey and monitoring is conducted routinely by all PMSPs to determine the presence of pests and the most effective control methods. Rodent control requires extensive monitoring to identify entry points in buildings and runways to determine rodenticide or trap placement.
- Exclusion. Exclusion is used to keep rodents, birds and insect pests out of buildings.
- Non-chemical control. Trapping is a frequently used control method for rodents and birds.
- Vegetation maintenance. Xeriscaping, using native and drought-tolerant plants, is used for landscaping for many existing buildings and are required for all new buildings. Weed control in landscaped areas is primarily by mechanical methods. Measures are taken to prevent planting invasive plants.
- Communication. The PMSPs communicate pest control issues with customers. The pest controller also communicates with facility managers regarding sanitation and pest prevention.
- Pesticide use. Less toxic and short residual pesticides are used preferentially by pest control and the housing contractors.
- Records. All PMSPs use the NOPRS to record and report pest management operations. These records provide useful historical documentation of both chemical and non-chemical control and data for analyzing the effectiveness of control measures

3.1.4 Integrated Pest Management Project Sheets

The IPM project sheets in Appendix H provide guidelines for the integrated control of pests at the MCBCP. They may be used as a reference for surveillance and non-chemical and chemical control alternatives. Additional surveillance and control guidelines for public health pests are located in the Disease Vector Ecology Profile (DVEP) for California in Appendix J.

3.2 Pests on MCBCP

Figure 6 illustrates the pest management service records reported from Oct 2011 through Sep 2012. The number of pests and pest groups are illustrated to show how installation pest management efforts are distributed. This graph does not include golf course operations. "All pests" were pesticide applications made around and in the interior of buildings to prevent invading household pests. Vertebrate pests include, but are not limited to, ground squirrels and gophers.

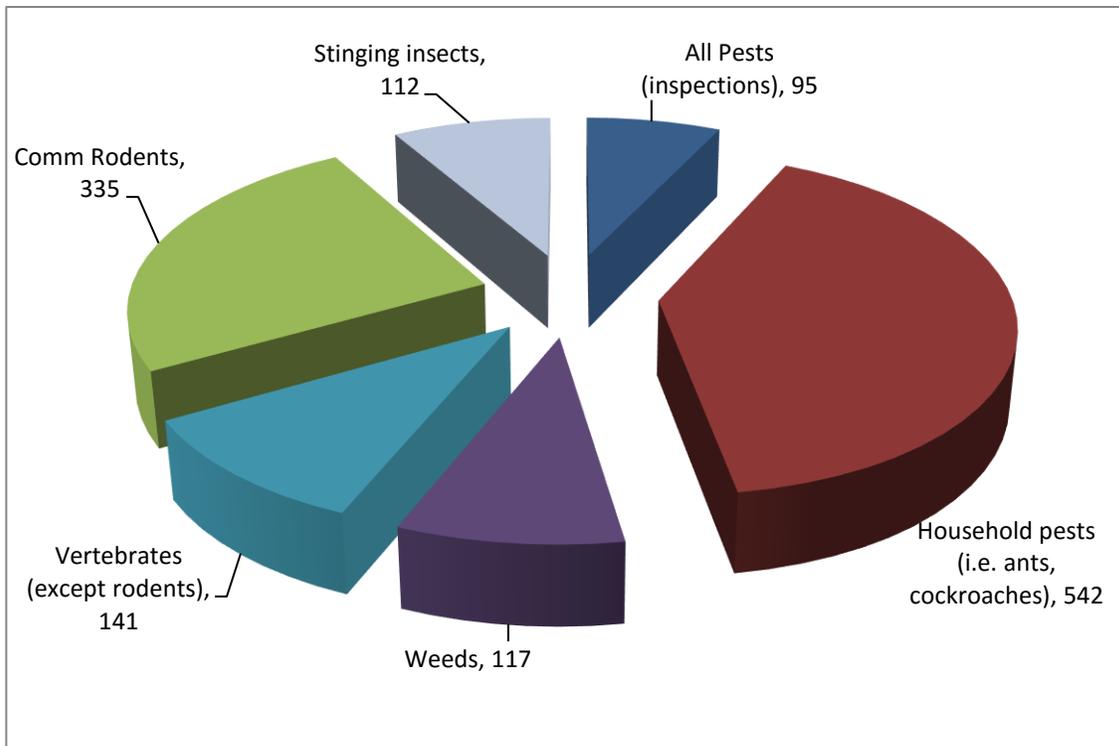


Figure 4. Pests / pest groups controlled on MCB Camp Pendleton from Oct 2011-Sep 2012. (Total pest management service records = 1,342)

3.2.1 Weeds

Most weed control is done on unimproved grounds including ranges and training areas and semi-improved grounds such as right-of-ways including roads, fence lines and storage areas. Weeds can cause operational hazards such as providing harborage for bird and animal strike hazards and being a source for foreign object debris (FOD) on the airfield. Overgrown weeds are also a fire hazard around buildings and at fuel storage sites. Along fence lines the plants can obscure line-of-site that can impact anti-terrorism force protection (ATFP). Non-native Invasive weeds are a threat to the environmentally sensitive habitats, particularly those of endangered and threatened species (ETS) on the installation. Weeds that have been controlled in the past include artichoke thistle, fennel, yellow star thistle, chrysanthemum, fountain grass, pampas grass, and giant reed. Invasive weed management is described in section 3.3.8.

3.2.2 Commensal and Native Rodents

Ninety four percent of the commensal rodent records (316/335) were for mice. Rodents infest food service areas as well as barracks. Mice, specifically deer mice, are associated with hantavirus transmission to humans and can also cause equipment and facilities damage. Much of the control effort for rats has occurred around buildings using rodenticides to prevent rodent infestation in buildings. Rats pose a low risk for disease transmission, but can cause real property damage and can cause contamination of food. Besides the damage that they can cause inside buildings, rats can also be a source of mites and other parasites of rodents.

3.2.3 Household Pests

Household pests include, but are not limited to, cockroaches, ants, bed bugs, crickets, earwigs, fleas, horse flies, house flies, mosquitoes, beetles, pill bugs, scorpions and spiders.

- Cockroaches, usually German cockroaches, are primarily a pest of food service areas and can contaminate food and in large infestations can cause asthma and other allergies due to

the allergens that they carry on their bodies. Cockroaches are also a nuisance that affects morale and is a sign of poor sanitation.

- Argentine ants are the primary pest ant in landscaping and turf in southern California but readily enter buildings to look for food making them a nuisance. They are invasive and displace all other ant species in an area. They form “mega-colonies” that make them difficult to control.
- Bed bugs are an increasing public health pest problem on military installations especially in barracks and other transient quarters such as guest lodges and housing. There were 6 service requests for bed bugs during the reporting period. Although bed bugs do not transmit disease, they can cause injury due to bites and can impact operational missions when they are carried onto and infest ships. Bed bugs are usually introduced into buildings in infested bedding materials and personal belongings.
- There were only 55 records of mosquito control for FY12, but mosquitoes are the primary public health pest on the installation. Mosquitoes can carry and transmit West Nile virus and can cause allergic reactions due to their bites (For more information on mosquito and other vector-borne disease see the Disease Vector Ecology Profile in Appendix J) Mosquitoes can breed in most water that is standing for more than a couple of days. (See “Mosquito Control” in Section 3.3.3)
- Scorpions and spiders are generally secretive and unobtrusive, but when personnel encounter them, they usually elicit a pest control request. Scorpions and certain spiders (i.e. black widows) can cause injury through envenomation and when they conflict with humans, they require control.
- Houseflies are common peri-domestic pests around homes and food service facilities, The primary sources of flies are trash cans and dumpsters. Houseflies can contaminate food with bacteria and other food-borne pathogens.

Other household pests listed above are nuisance problems.

3.2.4 Stinging Insects

Bees, wasps and yellowjackets are the primary stinging insects on the installation. All of these can sting and cause envenomation or allergic reactions. Some people have serious allergic reactions that can result in death. All feral bees should be considered “Africanized” meaning that they should be approached with caution as they can exhibit the aggressive defensive behavior of Africanized honey bees.

3.2.5 Vertebrate Pests

Gophers and ground squirrels are the primary vertebrate pests controlled. Both of these damage lawns in landscaped areas and recreational fields. The holes and mounds created by the burrowing of these animals can be a trip hazard that can cause serious injury. Ground squirrel burrowing can cause damage to roadways, sidewalks, earthen berms for ordnance storage, and other structures. No service requests for birds were reported, however, birds can have significant impact on operations due to bird aircraft strike hazards on the airfield. Birds on facilities can deface buildings and walkways with their feces and they may carry parasites and diseases that can affect humans. Raccoons are an infrequent pest that are attracted to human habitation and the available food that comes with it. Although extremely rare, they have been known to carry a roundworm that can infect humans and cause serious illness. Camp Pendleton also conducts control efforts on non-native invasive animals (see Paragraph 3.3.9).

3.3 Pest Management Operations

3.3.1 Requesting Pest Management Services

Pest control service requests for the Base are made through the MAXIMO system. Housing residents request service through their housing management. Wildlife conflicts are reported to the Game Warden.

3.3.2 Inspections

Inspections are a key component to IPM and routine inspections provide early detection of pests. Pest inspections are routinely done at all food service facilities and at food sales and storage sites. PMTs from the Preventive Medicine Department conduct food safety inspections including surveys for pests and pest signs at the chow halls, MCCS and commercial food concessions each month. They also inspect the child development center, exchanges, and barber shops. USA veterinary technicians conduct food quality inspections that include examining food items for pests at the Commissary and at food service and sales locations.

3.3.3 Structural and Industrial Pest Control

Several PMSPs conduct structural and industrial pest control for different organizations on the installation. Rodents are a significant pest and when monitoring results indicate that control is needed, methods of rodent control include trapping (snap traps preferred to glue traps) and rodenticide baits. Service in MFH for household pests is provided by Payne Pest Management and PestMaster Services. For a more complete listing of PMSPs, see Table 2. Where children and pets may be present, pesticide use may be restricted by the product label requirements.



Figure 5. An ultra-low volume (ULV) fogger is used for applying insecticides for adult mosquito control. Photo by Mr. M. Medina.

3.3.4 Mosquito Control

FMD Pest Control conducts both larval and adult mosquito control based on service requests. Acepex subcontracts to Hummingbird, Inc for monthly aerial application of larvicides to aquatic mosquito breeding sites that are difficult to reach by ground. Larval control operations must be conducted proactively to prevent adult mosquitoes from emerging and becoming a biting nuisance or vector. Control operations begin with surveillance and identification of mosquito larval habitats and breeding sites. NHCP Preventive Medicine can conduct surveys for mosquitoes of public health importance as needed. Survey methods include “dipping” for larvae and trapping adult mosquitoes. Thorough control of larvae using primarily biorational insecticides (i.e. *Bacillus thuringiensis var. israelensis*, methoprene) will eliminate the need for adult control. Application of all pesticides into

vernal pools containing endangered fairy shrimp is prohibited. Mosquito control operations on MCB Camp Pendleton require coverage under the California National Pollutant Discharge Elimination System (NPDES) Vector Control Permit. Details of the mosquito surveillance and control program are included in Appendix M.

3.3.5 Grounds Maintenance

FMD Pest Control performs weed control on right-of-ways, including roadways, sidewalks and around buildings. MCCS personnel maintain the grounds of their facilities. Knotts Pest Control controls weeds in landscaped areas. Valley Crest and Brickman Landscaping control weeds on military family housing property. Grounds maintenance personnel use traps and rodenticides for gophers and ground squirrels.

3.3.6 Military Family Housing

Most housing is managed by Lincoln Military Housing which maintains about 6,800 homes on MCB Camp Pendleton. DeLuz Family Housing is the only base housing managed by Hunt. Pest control is provided to Lincoln Military Housing by Payne Pest Management and Pestmaster Services, and landscape maintenance is provided by Valley Crest Landscaping. Pest control is provided to DeLuz Family Housing by Payne Pest Management and landscape maintenance is

provided by Brickman Landscaping. Residents are responsible for maintaining their backyards. All other grounds in the housing area are maintained by the landscape contractor.

3.3.7 Marine Memorial Golf Course

The golf course employs two personnel (one DoD certified and one state licensed) to perform pest management on the golf course. The primary pest problems are turf fungus and Rapid Blight disease which are prevented through cultural practices such as maintaining healthy turf and controlled by the use of fungicides. Ground squirrels and Black Turfgrass Ataenius (BTA) beetles are the primary vertebrate and insect pests, respectively, that do damage to turf. Current control practices for weed management include application of the active ingredients glyphosate and pre-emergents (i.e. prodiamine and oryzalin). Pesticides are applied by cart-mounted hydraulic boom sprayers and hand-compressed backpack sprayers. Pesticide application equipment is maintained at the maintenance facility at Bldg 180412, and pesticides are stored in an adjacent storage unit.

3.3.8 Termiticide Pre-treatments During Construction

In accordance with Section R318 of CCR Title 24, Part 2, Volume 2.5 (<https://bulk.resource.org/codes.gov/bsc.ca.gov/gov.ca.bsc.2010.02.5.html#p100>), in areas subject to damage from subterranean termites, one or a combination of the following methods shall be used to provide the structure with protection:

1. Chemical termiticide treatment.
2. Termite baiting system installed and maintained according to the *label*.
3. Pressure-preservative-treated wood.
4. Naturally durable termite-resistant wood.
5. Physical barriers such as metal or plastic sheeting specifically designed for termite prevention.
6. Cold-formed steel framing.

Residual insecticides applied provide long term protection. The use of repellent insecticides is prohibited. Facilities must coordinate with the IPM Coordinator to ensure regulatory compliance, including licensing and pesticide reporting, of the project and proper application.

3.3.9 Non-native Invasive Species

Invasive weeds can encroach upon essential habitats for endangered and threatened plant and bird species at MCB Camp Pendleton. The Natural Resources Program is responsible for invasive weed control but the program is limited by budget constraints. Priority has been given to control of invasive weeds where they impact ETS and, thus, control of weeds is done as part of habitat restoration. Several companies are contracted by ES to conduct weed control. Additionally non-native invasive animals such as the beaver, brown-headed cowbird, bullfrog, and the red swamp crayfish are controlled. Invasive species management is described in the Integrated Natural Resources Management Plan (INRMP) for MCB Camp Pendleton (<http://www.pendleton.marines.mil/StaffAgencies/EnvironmentalSecurity/NaturalResourcesManagementPlan.aspx>)

3.3.10 Wildlife Conflict Management and Animal Control

The game warden staff enforce conservation laws involving endangered and threatened species and migratory birds. They also prevent human-wildlife conflicts often through vertebrate pest management. Such conflicts on MCBCP include encroachment of coyotes and rattlesnakes in housing and other inhabited areas. Methods for preventing conflict include public education and awareness, exclusion, trapping, and lethal control, if necessary. The Game Warden is conducting toxicology monitoring for rodenticide exposure in birds and mammals. Domestic animal control is performed by the Provost Marshal and controls stray domestic animals including feral cats and dogs.

3.3.10.1 *Animal Trapping and Disposition*

The California Department of Fish and Wildlife (CDFW) regulates animal trapping, in part, ensure that trapped animals are treated humanely. Regulations include:

- Body-gripping traps are prohibited; steel-jawed leghold traps are prohibited unless this is the only method available to protect human health or safety (Fish and Game Code §3003.1). This does not include common rat and mouse traps.
- It is unlawful to pursue, drive, or herd any bird, or mammal with any motorized water, land, or air vehicle (Fish and Game Code §3003.5)
- It is unlawful to fail to visit and remove all animals from traps at least once daily. (Fish and Game Code §4004)
- It is unlawful to remove or disturb the trap of any licensee while the trap is being used by the licensee on public land or on land where the licensee has permission to trap (Fish and Game Code §4009).
- All furbearing and nongame mammals that are legal to trap must be immediately killed or released. Unless released, trapped animals shall be killed by shooting where local ordinances, landowners, and safety permit. This regulation does not prohibit employees of federal, state, or local government from using chemical euthanasia to dispatch trapped animals (California Code of Regulations §465.5). LIVE ANIMALS SHALL NOT BE RELOCATED.
- Pest controllers that charge a fee for trapping animals such as skunks, raccoons and opossums are required to have a valid CDFW trapping permit. (Fish and Game Code §4152)

Euthanasia of wildlife is performed by Game Wardens. Euthanasia will be performed within the guidelines of the AVMA Guidelines for the Euthanasia of Animals (<https://www.avma.org/KB/Policies/Documents/euthanasia.pdf>; also on CD). Additional regulations are found in Appendix C. The Game Warden Office monitors the activities of contractors performing nuisance wildlife trapping to ensure that they have valid trapping permits and comply with CA Dept of Fish and Wildlife regulations.

3.3.11 Bird/Wildlife Aircraft Strike Hazard (BASH)

Although the MCAS is not included in this IPMP, management of birds and wildlife surrounding the airfield are crucial to preventing BASH. For more information, go to



<http://www.safetycenter.navy.mil/aviation/operations/bash/default.htm>

3.3.12 Self-help

DoDI 4150.07 (Para.E4.7.7.3) allows self-help pest control programs on DoD installations when cost effective and when IPM monitoring indicates the need for control. Self-help pest control allows uncertified personnel to use low-toxicity, ready-to-use (RTU) pesticides for small scale pest control operations. Self-help pesticides and traps are available for purchase by installation units at the GSA Retail store, also known as "Servmart." Requirements for unit self-help are:

Figure 6. Units and commands on the installation can purchase pesticides and pest control items from the Consolidated Material and SVC Center for self-help use. Photo by Mr. C. Martin.

- The program shall be reviewed and approved by the IPM Coordinator and then by the NAVFAC PPMC.
- A program leader who will be responsible for the program and the primary point of contact shall be designated.
- All personnel that will be applying pesticide must be trained and their training documented.
- Use only RTU pesticides approved for use by the NAVFAC PPMC as described in section 2.4.

- Store all pesticides in a storage site as described on the product label.
- Report all pesticide use in accordance with section 2.5.
- The area(s) to be treated should be small enough to be practically treated with RTU pesticides.
- The program shall be documented in the IPMP.

3.3.13 Pest Management by Deployable Units

Deployable units may require treatment of field uniforms and tentage with permethrin insect repellent. Both woodland and desert USMC Combat Utility Uniforms are pre-treated during the manufacturing and do not require re-treatment. The Navy Working Uniform and camouflage utility uniform are not pre-treated and may require treatment prior to deployment. For mass treatment of uniforms, the uniforms are usually laid out on the ground and sprayed with the repellent. Only PMTs or other DoD-certified pesticide applicators may mix and apply liquid permethrin to uniforms. Non-certified persons may apply personal-use aerosol permethrin. Although the repellent used is an EPA-registered pesticide, its use by deployable units does not have to be reported. Permethrin is highly toxic to aquatic organisms. Mixing, spraying, and equipment cleaning operations should not be performed near waterways and storm drains. Prior to conducting uniform spraying the unit should coordinate with ES to ensure environmental compliance and protection. A spill kit must be readily available at the uniform treatment site.

3.3.14 Retail Sale of Pesticides

3.3.14.1 *Locations of Pesticide Sales*

Pesticides for personal residential use by DoD personnel and their dependents are sold at the Marine Corps Exchange (MCX; Bldg 2010), and MCX Country Store (Bldg 15100). The Main MCX sells several ready-to-use formulations of household insecticides and herbicides. The MCX Country Store sells primarily aerosol and bait formulations of pesticides for household pest control and pet care. The commissaries (DeCA) may also carry read-to-use formulations of household pesticides and pet pest control products. GSA Retail Store currently displays and sells pesticides and pest control materials to units with a government purchase card. Pesticides are displayed and sold in Bldg. 2280.

3.3.14.2 *Display of Pesticides*

The U.S. Food Code Chapter 7 (7-201.11) states that poisonous or toxic pesticides “shall be stored so they cannot contaminate food, equipment, utensils, linens, and single-service and single-use articles.” This can be accomplished by 1) “Separating the poisonous or toxic materials by spacing or partitioning;” and 2) “Locating the poisonous or toxic materials in an area that is not above food, equipment, utensils, linens, and single-service or single-use articles.” Pesticide containers “shall bear a legible manufacturer’s label” (Food Code (7-101.11)). The following restrictions apply to pesticides displayed for retail sale:

- No Category I pesticide products marked “Danger, Poison” on the label shall be procured, displayed or sold for retail sale (DoDI 4150.07)
- Pesticides sold in retail stores will only be used for personal relief in Center housing or outside of the Center only. They should not be used by uncertified personnel in workspaces or on other DoD property (DoDI 4150.07).

Details on storage of retail sale pesticides are found in the AFPMB TG 45: *Storage and Display of Retail Pesticides*.

3.3.15 Prohibited Operations and Devices and Precautions

3.3.15.1 *Paints and Coatings Containing Pesticides and other Biocides*

“The Marine Corps explicitly prohibits the use of paints containing insecticides on Marine Corps property.” (MCO 5090.2A Para. 14205.7) This includes interior and exterior paints. Approved marine antifouling compounds or coatings may be applied to protect surfaces of watercraft.

3.3.15.2 *Preventive or Scheduled Pesticide Treatments*

“DoD policy prohibits the use of regularly scheduled, periodic pesticide applications except in situations where the installation pest management plan clearly documents that no other

technology or approach is available to protect personnel or property of high value.” (DoDI 4150.07)

3.3.15.3 *Electrically Operated Devices*

“It is DoD policy to not use electromagnetic exclusion or control devices, ultrasonic repellent or control devices, and outdoor devices for electrocuting flying insects on DoD installations, except as noted in AFPMB TG 29: *Integrated Pest Management in and Around Buildings*. However, indoor devices for electrocuting flying insects can be used when selected, purchased, located, and used in accordance with AFPMB TG 29.” (DoDI 4150.07). Ultrasonic devices are not effective against birds, bats or rodents.

3.3.15.4 *Other Pest Control Products*

The following products are prohibited on MCBCP:

- Snake Away (<http://www.nixalite.com/snakeaway.aspx>) is prohibited in California since the active ingredients can contaminate water when applied outdoors.
- Bird-B-Gone gel (<http://www.nixalite.com/snakeaway.aspx>) is a very sticky gel that, if a bird gets caught in it, is likely to cause a violation of the MBTA.

Precautions must be taken when using rodent sticky traps. In addition to mice and rats, these traps unintentionally catch snakes, birds, lizards and bats. Using these traps for deer mice also increases the risk for exposure to hantavirus. Sticky traps should not be used outdoors or must be placed in a enclosed station that excludes non-target animals. Snap traps or multi-catch traps (i.e. Tincat®) should be considered for indoor control before selecting sticky traps.

3.4 Pesticide Management

Proper management of pesticides will ensure a safe and cost-effective pest management program. Management of pesticides includes the proper selection of pesticides, pesticide approval, procurement, storage, mixing, use of pesticide application equipment, and clean-up. The pesticide label provides most of the information needed to manage pesticide use and must be affixed to the container at all times.

3.4.1 Pesticide Use

Overall pesticide use is tracked by DoN through NOPRS and the total pounds of active ingredient (pai) is included in the annual DoD Measures of Merit (see section 1.2.3). Table 6 lists pesticide active ingredients by PAI, from highest to lowest. The data was compiled from NOPRS records. The table provides MCBCP with a tool to identify pesticides that might be targeted for reduction in use. Herbicides containing glyphosate comprise 46% of the total pesticides used on the installation. Most of it is used for unimproved grounds, right-of-way and landscape weeds. Rodenticides are also used frequently.

Table 6: Pesticide use (in pounds of active ingredient, PAI) on the MCBCP, Oct 2011 – Sep 2012

Type	Active Ingredient	PAI
Herbicide	Glyphosate	659.809
Insecticide	Bacillus thuringiensis	346.12
Insecticide/ Rodenticide	Aluminum Phosphide	277.941
Insecticide	Resmethrin	108.889
Insecticide	Chlorfenapyr	10.734
Insecticide	Deltamethrin	5.924
Rodenticide	Zinc Phosphide	4.459
Insecticide	Fipronil	3.948
Insecticide	D-Trans Allethrin, Phenothrin	1.023

Type	Active Ingredient	PAI
Rodenticide	Diphacinone	0.362
Insecticide	Propetamphos	0.334
Rodenticide	Brodifacoum	0.273
Rodenticide	Strychnine	0.153
Rodenticide	Chlorophacinone	0.14
Insecticide	Bifenthrin	0.057
Insecticide	Pyrethrin/ Piperonyl Butoxide	0.052
Insecticide	Cyfluthrin	0.038
Insecticide	Hydramethylnon	0.028
Insecticide	Esfenvalerate	0.016
Rodenticide	Bromadiolone	<0.01
Herbicide	Mecoprop-p-potassium	<0.01
Insecticide	Cypermethrin	<0.01
Insecticide	Dinotefluran, Diatomaceous earth	<0.01
Insecticide	Chloronicotinyl	<0.01
Herbicide	Isoxaben	<0.01
	Total:	1420.32

For detailed information on these active ingredients consult reference 11 at the end of this section.

3.4.2 Minimum Risk Pesticides

Minimum risk pesticides, such as those marketed under EcoEXEMPT® and other brands, may be used by some pest management service providers (PMSP) as part of their IPM program. According to the EPA, “Minimum risk pesticides are a special class of pesticides that are not subject to federal registration requirements because their ingredients, both active and inert, are *demonstrably* safe for the intended use.” These pesticides are exempt from federal registration under section 25(b) of the FIFRA and are not labeled with an EPA registration number. California has also exempted these products from state registration. Since there is no federal review of these pesticides or their pesticide label, there is no federal review of the instructions for effective use of these products.

3.4.3 Pesticide Selection

The following criteria should be used when selecting a pesticide:

- Determine the need for a pesticide. In many situations no control or non-chemical control methods are the method of choice.
- Choose a pesticide that is least toxic.
- Choose pesticides and pesticide formulations with minimal environmental impact. For example, the environmental impact of pesticide spills is reduced when using a granular pesticide formulation rather than a liquid.
- Choose pesticides that treat the source of the pest problem. For example, contact insecticides applied to ant trails will only temporarily halt the infestation, while bait can kill the entire colony including the queen.

3.4.4 Procurement

All PMSPs purchase pesticides through their own supply vendors. All pesticides must be submitted to the IPM Coordinator and reviewed and approved by the NAVFAC PMC and included on the installation Pesticide Authorized Use List (PAUL). The PAUL is in Appendix E.

3.4.5 Storage

FMD Pest Control and Preventive Medicine store pesticides in storage lockers adjacent to Bldg. 220109. The golf course stores pesticides in a locker adjacent to Bldg. 180412 and the MCCS fields and grounds stores herbicides at Bldg. 1255. All other PMSPs store off-site. Pesticides in storage facilities must be stored and secured in a manner that they do not pose a safety or environmental hazard (CCR 6670). If "Warning" or "Danger" labeled pesticides are stored then, in accordance with CCR 6674), the storage area must be posted with a sign that states:

**DANGER
POISON STORAGE AREA
ALL UNAUTHORIZED PERSONS KEEP OUT
KEEP DOOR LOCKED WHEN NOT IN USE**

3.4.6 Mixing

FMD Pest Control and contract PMSPs that are allowed by contract specifications or housing lease agreement to mix pesticides on the Base, must mix in appropriate areas that minimize the risk of safety and environmental hazards. Contracted pest control operators must mix pesticides in accordance with the contract specifications. Directions for mixing are found on the pesticide label. Persons mixing pesticides with water shall protect the water supply from back-flow of the pesticide mixture into the water supply (CCR 6610); the water supply hose shall not be placed into the spray tank or pesticide container. They shall also ensure accurate measurement of concentrated pesticide to ensure proper application rates (CCR 6604). Precautions must be taken to minimize the risk of a pesticide spill and, should a spill occur, a spill kit is readily available for rapid containment and clean up. See Section 5.3.1.3 for pesticide spill prevention measures.

3.4.7 Application

3.4.7.1 Equipment

FMD Pest Control uses primarily hand-held equipment but also maintain large capacity power sprayers for right-of-way weed control and ULV foggers. Equipment shall be in good repair and safe to operate and applicators shall ensure that they use equipment suitable to ensure proper application of pesticides (CCR 6600). Proper equipment selection and maintenance is vital to the safe application of pesticides. Proper maintenance of equipment includes thorough cleaning of pesticide tanks after application to prevent corrosion and calibration to ensure proper application rate. The PMPAR shall inspect equipment used by contract applicators.

3.4.7.2 Containers

Pesticides shall be stored and transported in containers with the original or an exact copy of the pesticide label attached. Service containers, other than the original pesticide container that are used for transporting pesticides to the job site and for temporary storage must have the following information on a tag attached to the container: name of party responsible for the container, the identity of the chemical in the container, and signal word of the chemical (CCR 6678). Containers commonly used for food, drink, or household products shall not be used to hold pesticides (CCR 6680).

3.4.7.3 Pesticide application

Only DoD-certified or state-licensed applicators shall apply pesticides on the installation. Pesticides must be applied in accordance with label directions. Prior to and during pesticide application,



Figure 7. Pesticide containers must be secured in vehicles to prevent spills. Photo by Mr. M. Medina.

applicators shall evaluate the equipment to be used, meteorological conditions, the property to be treated, and surrounding properties to determine the likelihood of harm or damage (CCR 6614). Applications of pesticides are timed to ensure maximum kill of the pest, and minimize drift of the chemical outside the target area. Regular on-site inspections by government representatives should be performed to ensure safe and compliant applications.

3.4.8 Vehicles

All PMSPs provide their own vehicles. Pesticides shall not be transported in the vehicle's passenger compartment and pesticides shall be secured to vehicles to prevent spillage (CCR 6682). Pesticides shall be kept in a locked compartment when not attended to prevent access by unauthorized personnel. Pest control vehicles must carry pesticide spill kits. Contractor vehicles are subject to inspection by authorized government officials and should be routinely inspected to ensure proper security of pesticides and that containers and equipment are not leaking. government-owned pest control vehicles shall be cleaned in a designated cleaning site that prevents contaminated rinsate from entering stormwater. Guidelines for pesticide and equipment security are provided in AFPMB TG 7: *Installation Pesticide Security*.

3.4.9 Post-application Clean Up

The pesticide applicators shall clean equipment at an appropriate location that minimizes the risk of environmental contamination. Pest control equipment is to be thoroughly cleaned when necessary to prevent illness or damage to persons, plants, or animals from residues of pesticides previously used in the equipment (CCR 6608). Spray tanks and pesticide containers must be triple rinsed prior to storage or disposal. Disposal of pesticide spray tank rinsate should be performed by applying to a site listed on the pesticide label, used for future mixing of the same pesticide, or disposed of as hazardous waste. Rinsate shall not be allowed to enter storm drains. Contract PMSPs are not allowed to clean equipment or dispose of waste on the MCBCP. All cleaning and disposal is performed off-base in accordance with applicable regulations.

3.4.10 Container Disposal

All empty pesticide containers, except aerosol cans, are triple rinsed and disposed of as solid waste (CCR 6684). Aerosol cans are turned in to the Hazardous Materials Management Program for proper disposal. If available, recycling of containers is preferred.

3.5 References

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2. AFPMB TG 17: *Military Handbook: Design of Pest Management Facilities* - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg17.pdf> (CD)
3. AFPMB TG 20: *Pest Management Operations in Medical Treatment Facilities* - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg20.pdf> (CD)
4. AFPMB TG 29: *Integrated Pest Management in and around Buildings* – <http://www.afpmb.org/sites/default/files/pubs/techguides/tg29.pdf> (CD)
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10. Disease Vector Ecology Profile California (Appendix J, CD)
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16. NAVFAC MO-310.2: Urban Integrated Pest Management (CD)
17. National Pesticide Information Center - <http://npic.orst.edu/>
18. University of California Statewide Integrated Pest Management Program -
<http://www.ipm.ucdavis.edu/>

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4 Health and Safety

4.1 Pesticide Applicator Safety

“To ensure the safe use of pesticides, DoD personnel shall handle and apply pesticides in accordance with the product’s label directions and Armed Forces Pest Management Board (AFPMB) Technical Guides concerning safety.” (DoDI 4150.07, Para. E4.5.3)

4.1.1 Potential Occupational Hazards

The following hazards may be encountered by pesticide applicators or Government representatives that may be exposed while inspecting pest management operations. Occupational Safety and Health guidance is found in the OPNAVINST 5100.23G: *The Navy Occupational Safety and Health Program Manual*.

4.1.1.1 Direct Contact Toxic Chemical Exposure

Many chemicals used as pesticides are also harmful to humans. The three routes of exposure to applicators are dermal, inhalation and ingestion. For applicators the most common route of exposure is dermal; frequently due to not wearing the appropriate personal protective equipment. The severity of the harmful effects of pesticides is determined by the duration of exposure and the toxicity of the chemical. The effects can be acute (rapid onset due to high dosage, high toxicity) or chronic (slow or delayed onset due to long term exposure to low dosage, low toxicity chemicals). The highest risk for severe acute chemical exposure occurs during pouring and mixing of concentrated pesticide resulting in high dose, rapid onset chemical poisoning. Chronic exposure can occur when the applicator fails to use appropriate PPE during frequent pesticide applications and the chemical accumulates in the body of the individual over a period of time leading to delayed or gradual onset of illness or injury.

4.1.1.2 Heat

The use of protective equipment such as respirator, goggles, gloves, and coveralls increases the risk of heat injury. Heat injury can occur during long periods of work outdoors during hot weather or in enclosed spaces where machinery or equipment may generate heat.

4.1.1.3 Noise

Some pesticide application equipment use gas-powered air compressors or pumps that produce noise hazards. Gas-powered backpack sprayers are particularly hazardous due to the proximity of the noise source to the ears.

4.1.1.4 Eye Hazards

Eye hazards may result from chemical splashed into the eyes causing corrosive, toxic, or impact injury. Some pesticides are labeled “Restricted Use” due to their corrosive nature. The highest risk occurs during pesticide pouring, mixing, and application. During pesticide applications, chemicals may enter the eyes through “splash back” when applying the chemical under pressure into a crack or crevice or when applying pesticides overhead. Injury may also occur during equipment cleaning.

4.1.1.5 Infectious Zoonotic Disease

Care should be taken when trapping and handling live or dead animals. Hantavirus may be transmitted from rodents to humans through body fluid exposure or when breathing aerosolized rodent excreta. Pest management providers may be exposed when handling rodent carcasses after trapping or handling traps contaminated with rodent urine and feces. Feral dogs, cats, skunks, raccoons, and bats may carry and transmit rabies through a bite. Bat and bird feces may contain disease-causing fungi.

4.1.1.6 Inhalation Hazards

Many pesticides release hazardous vapors and are particularly hazardous in enclosed spaces. Fumigants are extremely hazardous and can be fatal if inhaled. This type of pesticide and others are labeled “Restricted Use” due to the high risk of inhalation injury. Personnel may be exposed

during mixing, application, and cleaning. Gas-powered equipment can emit carbon monoxide and other harmful chemicals.

4.1.1.7 *Electrical and Fire Hazards*

Spot, crack and crevice applications may require application of a pesticide to areas near motors of refrigerators, compressors, and other machinery where it can become an electrical shock hazard. Flammable pesticides applied to areas near pilot lights where it becomes an explosion and/or fire hazard. Both liquid and dust formulations can be hazardous.

4.1.1.8 *Head Impact and Sharps Hazards*

Surveys and pest control procedures may be done in attics, crawl spaces, basements, and other areas with low overheads where head impact hazards exist. Some devices used for bird roosting exclusion and rodent control have sharp edges and can cause cuts, puncture wounds, and abrasions.

4.1.1.9 *Trip and Fall Hazards*

Trip hazards may occur when applicators are spraying without close attention to where they are stepping. Spraying around buildings where there are various obstacles (i.e. plants, utility boxes, plumbing) in the path of the applicator can be particularly hazardous. Pest control may also need to be performed from ladders, on roofs, in ceilings, and in trees. Wet surfaces on the ground or on elevated surfaces can increase the risk of trips and falls.

4.1.1.10 *Exposure to Harmful Animals*

Venomous animals such as bees, wasps, rattlesnakes, and spiders are potential hazards when attempting to control them. Some of these are very dangerous due to envenomation and allergic reactions. Feral dogs, cats, coyotes, raccoons, and other large pest animals can inflict serious bites or clawing wounds.

4.1.2 Hazard Abatement

4.1.2.1 *Training and Education*

Pesticide safety is a core training requirement for DoD and commercial pesticide applicator certification and licensing programs. Safety topics included in the DoD and state training are listed in DoD Directive 4150.07-M Vol. 1: DoD Plan for the Certification of Pesticide Applicators. Topics are also given during recertification courses and continuing education training.

4.1.2.2 *Read the Pesticide Label*

Pesticide labels are found on all pesticide containers used by installation PMSPs. The pesticide label provides directions for mixing, applying, and disposing of pesticides safely. It also includes a list of hazards to humans, first aid treatment, a list of personal protective equipment that must be worn, and user safety recommendations. The label should always be read completely and thoroughly by the applicator before purchasing and using a pesticide. Additionally, applicators should read the product Material Safety Data Sheet (MSDS) to be familiar with the product's hazards.

4.1.2.3 *Personal Protective Equipment*

Personal protective equipment (PPE) should always be used when applying pesticides. The type and level of protection needed will be determined by the toxicity, formulation, and method of application of the pesticide. The pesticide label provides guidance on which PPE(s) to use. Equipment may include:

- Respirator
- Chemical-proof gloves
- Coveralls or long-sleeve shirt and long pants
- Chemical-proof boots
- Hard hat
- Goggles
- Apron
- Faceshield
- Self-contained breathing apparatus (for fumigation)

PPE must be appropriate for the type and formulation of the pesticide being used. It is the applicator's responsibility to maintain their PPE. Contractors must provide appropriate PPE to their applicators.

4.1.2.4 *Respiratory Protection Program*

Respirator users are required to be in a respiratory protection program. This program involves training, physical qualification exams, respirator fit-testing and respirator issue. The installation provides this to DoD personnel. Contractors shall provide this program to their employees.

4.1.2.5 *Pest Control Vehicle Safety Devices*

Pest control vehicles should be equipped with safety devices and information. This may include:

- Emergency medical information including nearest emergency treatment center
- Fire extinguisher
- Spill kit
- First aid kit
- Cell phone or radio
- Drinking water supply
- Rinse water supply for washing pesticide off skin.

4.1.2.6 *Pest Control Shop and Pesticide Storage Area*

AFPMB TG 17: *Military Handbook - Design of Pest Management Facilities* provides guidelines for building a safe pest control shop and includes all the safety and environmental requirements.

The safety program at pest control shops should include the following:

- Eye wash station and shower
- Active ventilation in pesticide storage and mixing areas
- Fire extinguishers
- Spill kit
- First aid kit and procedures
- Telephone
- A pesticide inventory with labels and MSDSs kept onsite and at the fire station.
- Warning signs
- Properly labeled pesticide and chemical containers

4.1.2.7 *Pesticides and Equipment*

The risk of pesticide exposure can be reduced by selecting the appropriate pesticide and equipment for the job. Applying small amounts of low toxicity pesticide using appropriate and properly maintained equipment greatly reduces the risk of harm. Using pesticides that are formulated (i.e. contain emetics) or packaged (i.e. water-soluble packets) to minimize chemical exposure and increase safety should be considered when purchasing pesticides. Pesticide selection is addressed in section 3.4.3. Equipment should be tested with water prior to application to ensure proper application and that it is not leaking. Situational awareness, such as monitoring meteorological conditions and location also prevents harmful exposure to pesticides.

4.1.2.8 *Protection from Infectious Zoonotic Diseases*

Pest control personnel who handle trapped animals or dead animal carcasses should wear gloves to prevent exposure to potentially infectious body fluids. A respirator fitted with a high efficiency particulate air filter should be worn when entering enclosed spaces with large amounts of rodent feces that might be disturbed and become airborne. Additional protection from hantavirus can be provided by spraying dead rodents and rodent feces with a commercial disinfectant. This will kill hantavirus as well as wet the feces to prevent it from becoming airborne. Detailed guidance on rodent handling is found in AFPMB TG 41: *Protection from Rodent-borne Diseases with Special Emphasis on Occupational Exposure to Hantavirus*.

4.1.2.9 *Medical Surveillance Program*

DoD pesticide applicators are required to be in a medical surveillance program depending on their hazard exposure. Applicators exposed to organophosphate and/or carbamate pesticides require baseline and periodic serum cholinesterase testing. Guidelines for medical surveillance are found in the Navy and Marine Corps Public Health Center Technical Manual (NMCPHC TM)

OM 6260: *Medical Surveillance Procedures Manual and Medical Matrix (Edition 10)*. Contract PMSPs must provide for the health and safety of their own employees.

4.1.2.10 *Operational Risk Management*

Operational Risk Management (ORM) is a decision-making tool to reduce the risk of mishaps, whether in military contingency or support operations. Pest management operations pose risks to human health and the environment that affect the installation's mission that can be reduced and minimized by ORM. Pest management ORM uses the following process to minimize hazards:

- **Identify hazards** – the hazards may involve the pesticide or the application equipment (see list of hazards above)
- **Assess hazards** – determine the degree of risk based on the probability and severity of these hazards. For example, the risk may be high if a highly toxic pesticide is used daily.
- **Make risk decisions** – Develop risk control options. With controls in place decide whether benefits to the mission outweigh the risks involved.
- **Implement controls** – Controls are listed in the previous sections in 4.1.2.
- **Engineering controls** – Example: use a less toxic pesticide for controlling the pest
 - Administrative controls – Example: place warning placards around pesticide vehicles and pesticide storage areas
 - PPE – Example: wear a respirator when a inhalation hazard exists
- **Supervise** – Follow-up to determine effectiveness of controls and monitor changes to hazards.

4.2 **Public Safety**

Pesticide applicators shall maintain situational awareness of their surroundings prior to and during pest management operations to ensure safety of persons nearby. CCR 6614 states: "An applicator prior to and while applying a pesticide shall evaluate the equipment to be used, meteorological conditions, the property to be treated, and surrounding properties to determine the likelihood of harm or damage."

4.2.1 Potential hazards to public

4.2.1.1 *Direct contact with pesticides*

Pesticide exposure can occur through dermal contact with a pesticide on a surface, inhalation of vapors, or ingestion of pesticide contaminating food or eating utensils. This type of exposure can occur if pesticide applications are done while unprotected building occupants are present, occupants are allowed entry into buildings before the pesticide has dried, or food and food preparation and serving equipment were not properly protected or cleaned after application.

4.2.1.2 *Pesticide drift*

Pesticide drift occurs when a pesticide leaves the target treatment area and affects unprotected persons outside the area. This commonly occurs outdoors when winds can carry the pesticide off site. Fumigants, if applied to burrows that are too close to a building, can enter basements and crawl spaces. Drift can occur indoors if there is air movement or pesticides are drawn up through ventilation ducts. Pesticide applications that involve small pesticide droplets, such as fogging or ultra low volume (ULV) application, or dusts are most susceptible to drift.

4.2.1.3 *Injury due to animals*

The use of an inappropriate pesticide may cause collateral injury due to an insufficient "knockdown" of the target pest. This can occur with bees and wasps. Some insecticides do not knockdown the insects rapidly and may actually excite them causing them to behave more aggressively and defensively. Unprotected persons near the pesticide application may become the target of their aggression. Injury can also occur when persons get too close to or try to release a trapped animal or try to capture feral animals by themselves.

4.2.1.4 *Fumigation exposure*

Fumigants are highly toxic and can cause immediate death upon exposure. Fumigations can be performed in the housing area where it poses a potential hazard to neighbors and pets. During fumigation the chemical is injected into a tarped structure and allowed to remain for 24 hours.

The highest risk of injury or death occurs if a person or animal were to enter the tarp during this period or after the tarp is removed and before the building is completely ventilated. The fumigant, when exposed to air, dissipates rapidly and completely.

4.2.2 Hazard Abatement

4.2.2.1 *Proper timing of pest control operations*

Most indoor application of pesticides should be conducted when building occupants are not present. A notable exception to this is the application of pesticide baits that are enclosed in a tamper-proof bait station that does not allow exposure to occupants or pets. The building occupants must remain out of the building to allow the pesticide to dry. Some pesticide labels are specific about re-entry times (time after application that occupants are allowed back into the treated building). Some pesticides such as fumigants provide specific directions on aeration of spaces to remove the pesticides prior to re-entry. Certain operations such as bee and wasp control or removal are best conducted after the area has been cleared of unprotected persons. Refer to the product label for specific information.

4.2.2.2 *Preventing pesticide drift*

Pesticide drift from target areas to areas where humans, animals and plants can be affected can be reduced through the following means (adapted from University of Nebraska publication G1773: Spray Drift of Pesticides).

- Select low or nonvolatile pesticides.
- Read and follow the pesticide label. Apply a pesticide only if an application is warranted.
- Use spray additives that decrease drift within label guidelines. This will increase the droplet sizes and pesticide effectiveness.
- Use larger spray nozzle orifice sizes. This will give larger droplets and will increase the number of tank refills, but will improve coverage and effectiveness.
- Avoid high pressure. High pressure creates finer droplets; 45 PSI should be considered maximum for conventional broadcast spraying.
- Use drift-reduction nozzles. They will produce larger droplets when operated at low pressures.
- Use wide angle nozzles, low boom heights, and keep the boom stable.
- Drift is minimal when wind velocity is under 10 mph. Do not spray when wind is greater or blowing towards sensitive crops, gardens, dwellings, livestock, or water sources.
- Use shielded spray booms. When banding, use shroud covers to keep chemical from drifting.
- For indoor applications, turn off ventilation and close doors to prevent air currents.

4.2.2.3 *Prevent tampering with animal traps and rodenticides*

Caged animals can be very aggressive. Traps should be placed in areas where they will not be tampered with by humans or pets. Warning signs can be placed on the traps and area occupants can be warned of the risk of injury. Live and dead rodents in traps can also be a hazard for hantavirus. Traps should be placed in areas where humans or domestic animals will not be exposed to the rodents. EPA regulations require rodenticides to be contained in a tamper-proof bait station for all outdoor, above-ground placements and are also required indoors when there is a risk of exposure to children, pets, or non-target animals. All outdoor above ground use must be in a bait station and be applied within 100 feet of man-made structures.

4.2.2.4 *Fumigation Safety*

Fumigations are highly regulated by the State of California (3 CCR 6780 and 6782) due to the health hazards. The following are required for fumigation operations:

- Information on the fumigation and preparation for the operation must be provided to the building occupants.
- A barrier with warning signs must be placed around the exterior of the building to be fumigated.
- Warning signs stating "DANGER – FUMIGATION" must be posted on all entrances to the building including doors and windows.
- Warning signs must be posted on the tarp.
- Secondary door locks must be placed on doors.

- Contactors are required to provide personnel to stand guard at the fumigation site during the entire operation.

New restrictions regarding the application of aluminum phosphide fumigant to rodent burrows will prohibit applications near residential areas, day care centers, hospitals and other sensitive areas and prohibit other applications within 100 feet of occupied buildings. See <http://www.epa.gov/oppsrrd1/reregistration/alphosphide/aluminum-magnsm-phos-fs.html> for specific requirements.

4.2.3 Special Safety Considerations

4.2.3.1 *Child Development Center*

Children can be sensitive to pesticides and other chemicals. Parents are also concerned about potential hazards that their children may be exposed to and have a right to know about these hazards. Best practice is to minimize pesticide use in and around child development centers and schools, use only enclosed baits and low toxicity pesticides, do not apply pesticides when people are present, and inform staff and parents of any pesticides to be used on the property. The Healthy Schools Act website (<http://apps.cdpr.ca.gov/schoolipm/>) provides information on IPM as a means of reducing the health risks of children due to pesticides.

4.2.3.2 *Medical Treatment Facilities*

Patients who are ill, physically-weakened, or who are confined to patient rooms for long periods of time should be protected from exposure to pesticides that can cause additional stress or injury. Sensitive equipment may be affected by pesticide sprays as well. Non-chemical methods should be the primary form of control and only pesticides specifically labeled for hospitals should be used sparingly. Detailed information on pest control in medical treatment facilities can be found in AFPMB Technical Guide 20.

4.2.3.3 *Food Service Areas*

Food contaminated with pesticides can lead to pesticide poisoning. Sanitation and exclusion should be the primary means of preventing and reducing pest infestations. Pesticide use in food service areas should be limited to low-toxicity pesticides applied to cracks and crevices and baits. The area should be properly prepared for treatment by putting away utensils and equipment and covering food preparation services. After treatment the area should be thoroughly cleaned to prevent contamination.

4.3 **Pest Control Accidents**

4.3.1 First Aid

First aid for pesticide accidents is included on the pesticide label. The applicator should be familiar with first aid procedures required for the pesticide they are using. A copy of the label must be available at the application site. For some pesticides, immediate first aid and medical treatment may be required.

4.3.2 Medical Emergencies

All pesticide applicators or persons responding to an injured applicator should call the installation's emergency number (911) in the event of a medical emergency. CCR 6726 requires commercial pest control companies to post the name, address, and telephone number of an emergency medical care facility in the applicator's vehicle. For pesticide poisonings, a copy of the pesticide label should be given to the medical first responders or taken to the emergency medical facility. If cholinesterase-inhibiting pesticides (i.e. malathion) are used then the emergency room shall maintain the proper antidotes, atropine, and 2-pam chloride. Physicians and other medical personnel are required to report any pesticide related illness or injury to the County Health Department within 24 hours in accordance with the California Health and Safety Code, Section 105200. A list of all California county contacts for reporting pesticide-related illness is found in Appendix J.

4.4 References

1. AFPMB TG 16: *Pesticide Fires: Prevention , Control and Cleanup* - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg16.pdf> (CD)
2. AFPMB TG 20: *Pest Management Operations in Medical Treatment Facilities* - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg20.pdf> (CD)
3. AFPMB TG 41: *Protection from Rodent-Borne Diseases with Special Emphasis on Occupational Exposure to Hantavirus* - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg41.pdf> (CD)
4. California School Integrated Pest Management Program - <http://apps.cdpr.ca.gov/schoolipm/>
5. Navy And Marine Corps Public Health Center Technical Manual NMCPHC-TM OM 6260: Medical Surveillance Procedures Manual and Medical Matrix (Edition 11) - <http://www.nmcpbc.med.navy.mil/downloads/occmcd/MedicalMatrix11.pdf> (CD)
6. Navy Safety Center - <http://www.safetycenter.navy.mil/>
7. OPNAVINST 5100.23F: The Navy Occupational Safety and Health Program Manual (CD)
8. Reigart, J.R. and J. R. Roberts. 1999. Recognition and Management of Pesticide Poisonings. EPA, Office of Pesticide Programs - <http://npic.orst.edu/rmpp.htm> (CD)
9. University of Nebraska publication G1773: Spray Drift of Pesticides - <http://www.ianrpubs.unl.edu/epublic/live/g1773/build/g1773.pdf> (CD)
10. University of Nebraska publication EC2507: Safe Transport, Storage, and Disposal of Pesticides - <http://www.ianrpubs.unl.edu/epublic/live/ec2507/build/ec2507.pdf> (CD)
11. University of Nebraska publication G1736: Rinsing Pesticide Containers - <http://www.ianrpubs.unl.edu/epublic/live/g1736/build/g1736.pdf> (CD)
12. University of Nebraska publication G758: Protective Clothing and Equipment for Pesticide Applicators - <http://www.ianrpubs.unl.edu/epublic/live/g758/build/g758.pdf> (CD)
13. University of Nebraska publication G1770: Cleaning Pesticide Application Equipment - <http://www.ianrpubs.unl.edu/epublic/live/g1770/build/g1770.pdf> (CD)

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5 Environmental Considerations

5.1 Environmental Management System (EMS) for Pest Management

An EMS integrates environmental considerations into day-to-day activities across all levels and functions of the Marine Corps enterprise. It is a formal management framework that provides a systematic way to review and improve operations, create awareness, and improve environmental performance. Systematic environmental management as an integral part of day-to-day decision making and long-term planning processes is an important step in supporting mission readiness and effective use of our resources. The most significant resource for every organization is their senior leadership's commitment and visibility in EMS implementation and sustainability. A robust EMS is essential to sustaining compliance, reducing pollution and minimizing risk to mission. This IPMP puts pest management within the framework of the DoD and Marine Corps EMS. The IPMP provides the tools and products to include pesticide management in the installation's overall EMS program.

5.1.1 EMS Elements and the Integrated Pest Management Program

5.1.1.1 *Environmental Policy*

The installation CO has established an environmental policy (Appendix I). The IPM program conforms to the objectives of the installation's environmental policy to preserving the installation's training opportunities by "respecting and maintaining the natural and cultural resources entrusted to the Marine Corps". Pest management environmental objectives are:

- Use the IPMP to incorporate environmental protection into pest management practices to reduce impact on the environment while maximizing mission readiness.
- Comply with all applicable laws and regulations, including Department of Defense and Marine Corps policies, by ensuring and maintaining the competence of pest management personnel through training, certification and continuing education.
- Use IPM to provide long-term pest control while using alternative control methods to reduce the use of toxic pesticides to prevent pollution and spills and reduce the impact that they have on training areas, support facilities and housing.
- Promote IPM to be utilized at all levels of the organization and to provide all personnel with an understanding that they can provide sustained control of pests and protect the environment by taking the appropriate pest prevention measures in their workplace and at home while reducing use of and dependency on pesticides.
- Ensure that the IPMP is implemented in coordination with the goals and objectives of the installation Integrated Natural Resources Management Plan (INRMP) and the Integrated Cultural Resources Management Plan (ICRMP).
- Enable the IPM Coordinator to maintain effective oversight and coordination of the program and liaison with local agencies in order to create a culture of continuous improvement.

5.1.1.2 *Planning*

The IPMP is the installation's source for pest management program planning. The plan lists environmental aspects in the Environmental Impact Log in Appendix I and legal and other requirements are listed in Section 1.4, Appendix C and throughout the IPMP. Objectives and targets for the installation match the DoD Pest Management Measures of Merit listed in Section 1.2.3 and these are:

- Implementing and maintaining a current IPMP. This is verified through annual plan updates and NAVFAC program reviews.
- Using IPM to prevent pesticide pollution and minimize environmental impact. This is measured through pest management records that demonstrate the use of non-chemical control methods and the use of less toxic pesticides.
- Ensuring all pesticide applicators are trained and certified/licensed to use IPM for pest management decisions. This is verified through the annual IPMP update.

Roles and responsibilities along with resources for implementing the program are listed in Sections 2.1. and 2.2.

5.1.1.3 *Implementation and Operation*

Environmental responsibilities are assigned at all levels of the program. Pest management methods that emphasize environmental protection are provided in the IPM Summaries in Appendix H. Pesticide applicators receive environmental protection and safety training during state or DoD certification / license training. PMPARs and the IPM Coordinator receive environmental protection training during the initial NAVFAC PAR course. Training requirements are covered in Section 2.3. The IPM Coordinator and PMPARS are the primary source of internal pest management information and can enforce regulatory compliance requirements. All pest management personnel can provide awareness and education for all installation personnel on how to prevent pests. This in turn leads to reduced pesticide use and reduced environmental impact. The NAVFAC Southwest PMC and the Applied Biology Portal (https://portal.navy.mil/portal/page/portal/ev/ev_southwest/ev2_pc/ab_pest_mgmt (CAC required)) is an external source of communication and resources for installation facilities and environmental personnel. Pest control emergencies are addressed in Sections 4.3 and 5.3.1.3.

5.1.1.4 *Checking*

The IPM Coordinator conducts internal assessments of the program using the Internal Assessment Plan (IAP) in Appendix I and the Pest Management Program Self-assessment Checklist in Appendix D. Headquarters Marine Corps (HQMC) conducts environmental compliance evaluations (ECE) every 36 months. The NAVFAC PMC conducts program reviews, technical assistance visits, and remote consultation to assist with root cause analysis of program deficiencies, corrective action, and continuous improvement. Records of authorized pesticides, pesticide use, and applicator certifications are submitted and maintained in the NAVFAC Online Pesticide Reporting System (NOPRS). The IPM Coordinator has access to all NOPRS records for the installation and all records are reported to the NAVFAC PMC. The records are used by the NAVFAC PMC to monitor achievement of program objectives.

5.1.1.5 *Management Review*

Review of the program is conducted during environmental compliance evaluations conducted by HQMC.

5.2 **Environmental Considerations on the Pesticide Label**

If the pesticide is potentially harmful to the environment, information will be provided in the following sections of the pesticide label:

- Directions for Use: If pesticide drift is a potential environmental hazard, then the directions may require certain application equipment and/or the addition of an anti-drift agent to the tank mix.
- Environmental Hazards: This section may indicate the pesticide is particularly hazardous to specific animals (i.e. bees, fish). It will also provide information on how to avoid environmental damage.

5.3 **Managing Environmental Impact**

Many procedures to reduce the impact of pest management practices on vulnerable assets are already in place. Many of these are contained within existing MCBCP environmental management plans.

5.3.1 Pesticide Pollution

5.3.1.1 *Synthetic Pyrethroids*

Pyrethroids are insecticides that are widely used for household, garden and agricultural pest control. Most were replacements for the more toxic and environmentally-hazardous organophosphate and carbamate insecticides. Recent statewide surveys have indicated that some pyrethroids are being found in urban stream sediment and at least one chemical has been shown to be toxic to sediment dwelling organisms (5). The specific pyrethroids of concern are:

- Bifenthrin (i.e. Talstar®)
- Cyfluthrin (i.e. Cykick®, Tempo®)

- Beta-Cyfluthrin (i.e. Tempo Ultra®)
- Cypermethrin (i.e. Demon®, Cynoff®)
- Deltamethrin (i.e. Deltadust®)
- Lambda-Cyhalothrin (i.e. Demand®)
- Permethrin (i.e. Permanone®)
- Tralomethrin

Outdoor operations pose the greatest risk for pyrethroid contamination of surface water and stormwater runoff. Increased risk operations on the MCBCP that may use pyrethroids include outdoor treatment for landscape plant and household invading insects and uniform repellent treatment. Care must be taken when using these insecticides to ensure that they do not enter stormwater and surface water. The EPA has begun to address these concerns further by initiating a series of label changes for products containing synthetic pyrethroids. In summary, amended labeling language focuses on: limiting outdoor applications to spot or crack-and-crevice treatments, with few exceptions; applying product in calm weather when rain is not predicted for the next 24 hours; avoiding pesticide applications to impervious surfaces such as sidewalks and driveways; and avoiding applications to any area where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur. New EPA labeling requirements, as well as information on new Surface Water Protection Regulations for California, are at http://www.cdpr.ca.gov/docs/legbills/rulepkgs/11-004/text_final.pdf. See section 5.3.1.2. for pollution prevention best management practices.

5.3.1.2 Pollution Prevention

Pesticides are unique as a potential environmental pollutant. When it is applied properly for the correct target pest and to the target location, it is not considered a pollutant. When applied outside of the target area or if it leaves a residual in water after eliminating the target pest (see Section 5.3.4. regarding aquatic pesticides and the Clean Water Act), then it becomes a pollutant. Pollution can occur during most pest management practices as the result of accidental spills, air and water emissions, and container disposal. Pollutants can be in the form of pesticide residues from equipment and container cleaning or from waste containers. The following pollution prevention and control best management practices should be used on the MCBCP:

- Pest management operations are conducted in accordance with the Environmental Standard Operating Procedure (ESOP) for pesticides (Appendix I).
- Conduct a pest survey first to determine the need for pesticide use.
- Apply pesticides and clean equipment away from storm drains to prevent storm water contamination.
- Do not pour pesticide container rinsate into drains. Apply rinsate to a site listed on the pesticide label, store rinsate to use for future pesticide mixing, or dispose of according to local regulations.
- Use less-toxic pesticides.
- When applying Permethrin repellent to uniforms outdoors do not mix or apply near storm drains or where water runoff will result in storm water contamination. Avoid applying over impervious surfaces such as parking lots and other paved areas.. Avoid overspray of pesticide onto the ground; and apply rinsate from spray tank cleaning to uniforms.



Figure 8. MCCS uses contracted commercial services to perform pest control at recreational areas on MCB Camp Pendleton. Photo by Mr. M. Medina.

- Minimize outdoor applications of pyrethroid insecticides and prevent runoff into storm drains and other bodies of water.
- Use spot or crack and crevice applications rather than broadcast or baseboard spraying.
- Apply pesticides outdoors only when moderate to heavy rain is not forecast or avoid irrigating the treated area for 24 hours after application to prevent pesticide runoff.
- Leave a buffer zone around catch basins, drainage ditches and other bodies of water.
- Mixing pesticides and cleaning pest control equipment over a containment area that does not empty into storm drains.
- Calculating and using the proper amount of pesticide for the pest control job to prevent excess waste pesticide.
- Control pesticide drift to prevent chemicals from entering waterways (see section 4.2.2.2 on methods for preventing pesticide drift).
- Having a pesticide spill kit with absorbent material readily available at the application, mixing and cleaning sites.
- Minimize pesticide storage on the installation through proper inventory management and not allowing contractors to store pesticides on the installation.
- Use rodent traps rather than rodenticides and when using rodenticides, apply in tamper-proof bait stations.

Pesticide pollution prevention and control resources are available from the Urban Pesticide Pollution Prevention (UP3) Project (10).

5.3.1.3 *Spill Prevention and Management*

Pest management personnel are trained on spill response procedures as part of their initial pest management certification training. All PMSPs are responsible for cleaning up spills. Contract PARs or the PMSP's government representative are responsible for overseeing the cleanup process to ensure that it is performed properly. The greatest risk of a significant pesticide spill on the MCBCP occurs during herbicide transport since herbicides are often used in large quantities. The Oil and Hazardous Substance Integrated Contingency Plan for MCB Camp Pendleton can be found in Appendix I. Further information on preventing and controlling pesticide spills is contained in the AFPMB TG 15: *Pesticide Spill Prevention and Management*.

5.3.2 Natural Resources Protection

Pest species can have significant negative impacts on native plant and wildlife populations or can prevent colonization by native plants and wildlife. Additionally, the use of chemicals to control disease vectors and pests can also have negative impacts on native plants and animals on the MCBCP. Operations that have the greatest risk of adverse natural resources impact are invasive weed control and mosquito control. The installation Integrated Natural Resources Plans (INRMP) provides detailed information on the natural resources found on the installations and identification of environmentally-sensitive areas. The INRMP also lists management objectives and recommendations to protect and enhance natural resources on the MCBCP. A copy of the INRMP is on the MCB Camp Pendleton website at <http://www.pendleton.marines.mil/StaffAgencies/EnvironmentalSecurity/NaturalResourcesManagementPlan.aspx>.

5.3.2.1 *Environmentally-sensitive Areas*

MCBCP is home to the largest stretch of undeveloped coastline in southern California, and the coastal and foothill terrain provides opportunities for a wide variety of military training. However, federal environmental laws and regulations dictate how training and day-to-day operations can be implemented. Several federally- and California State-listed endangered/threatened species (ETS) are known to occur on the installation. Thirty nine rare and sensitive plant species, including two California Endangered species, have been located on Base. Twelve California listed ETS and over 75 California listed animal Species of Special Concern are known to occur and breed on or migrate through the Base. Sixteen federally threatened or endangered species and three candidate species are found on, or transit through MCBCP. Direct harm to the species or disturbance or damage of species' habitats is a violation of state or federal law. A full listing of ETS and Species of Special Concern can be found in Appendix I.

Generally, environmentally-sensitive areas include:

- Natural areas on the periphery and outside of developed areas.
- Wetlands and riparian areas along rivers, streams, creeks, ponds and lakes.
- Sand dune areas along beaches

Guidance for pest management in and around environmentally sensitive areas include:

- Be aware of these areas. Additionally, ETS may occasionally be found in developed areas. The INRMP identifies these areas and ES publishes maps of these areas.
- Be aware that non-chemical control methods can impact the environment. For example, traps meant for pest rodents may also capture ETS rodents.
- Before conducting outdoor pest management in environmentally-sensitive areas, consult with the installation Natural Resources program to ensure that these operations will not adversely impact the environment. Applicators should receive training on working in these areas if deemed necessary. For example rodenticides and traps should not be used in area R-116 due to the presence of endangered Stephens' kangaroo rat. An alternate control measure approved by Natural Resources is the use of a sharpshooter arranged by the Game Wardens to remove ground squirrels that have become pests.
- All applications of pesticides to water bodies should be considered potentially harmful to aquatic organisms. Some of these applications may require coverage under the State NPDES General Permit for vectors or weeds. Refer to section 5.3.4.
- Temporary or seasonal water bodies may be vernal pools and be the critical habitat for the endangered Riverside or San Diego Fairy Shrimp. No pesticide applications should be made directly in vernal basins, particularly when the basins contain water. Pesticide application should not be made within vernal pool watershed areas while ground is wet and could carry the chemicals to the basins. Avoidance of foot or equipment traffic in sensitive habitats or wetland areas (vernal pools, marshes, seeps, etc.) while the ground is wet will reduce damage to these areas (which requires mitigation), as well as prevent creation of further ponding areas for future habitat development.
- When applying pesticides in sensitive areas, control drift to prevent impact to non-target areas. See section 4.2.2.2.

Pest management service providers (PMSP) shall minimize impact on these sensitive areas and shall consult ES if any of their operations is conducted in close proximity to these areas and may pose an increased risk for adverse impact.

5.3.2.2 *Pollinator Protection*

Pollinators such as bees, butterflies and other flying insects are important to both crop production and the health of natural habitats. Protection of both managed bee colonies that are used in the agricultural outleases and feral bees must be considered in pest management operations. Insecticides are one of the primary hazards to pollinators. Best management practices to protect pollinators include:

- Read the pesticide label for any precautions for bees and apply the product in a manner consistent with the label directions.
- Use insecticides with short residuals. Do not apply insecticides having a long residual to blooming crops.
- Use less hazardous insecticides.
- Do not apply insecticides when temperatures are forecast to be unusually low or when the evening forecast is for dew. These conditions extend the period in which the insecticide residue remains toxic.
- Use ground applications instead of aerial applications to reduce risk of drift out of the target area. See also section 4.2.2.2.
- Bees in California generally forage between 0400 and 2030. Late evening applications are generally less hazardous to bees than early morning applications. Foraging times can change depending on weather conditions and application times will need to be adjusted accordingly.

- Choose the least hazardous insecticide formulation if possible. Granules are the least hazardous. Dusts are the most hazardous because they are similar in size to pollen, stick readily to the hairs on the insect, and can be carried back to the nest.

Additionally, efforts should be made to conserve bee colonies. Bee complaints made to the Game Warden office are referred to FMD Pest Control, but if the situation allows, it is referred to a bee hive removal and relocation service. For more on protecting bees and other pollinators from pesticides go to <http://www.co.san-diego.ca.us/awm/pesticides.html>.

5.3.2.3 *Invasive Species Prevention*

Invasive species aboard the MCBCP affect wildlife habitat, visual quality, land value and the military training mission. Sources of invasive species include military vehicles and equipment returning from overseas locations or training areas where invasive species are found; off-road vehicles; landscape plants and equipment; aircraft; and unused ammunition and containers. All military vehicles, aircraft, and materials that have been in contact with foreign soil and returning from foreign locations including Hawaii are required to be cleaned by the deployed unit and inspected by U.S. Department of Agriculture Plant Pest Quarantine Officers prior to disembarkation on U.S. soil per OPNAVINST 6210.2, Quarantine Regulations of the Armed Forces. The purpose of these inspections is to prevent the introduction of disease causing organisms and plant pests. Although the inspections are generally thorough, the equipment of recently redeployed units should be monitored to ensure that any introduced pests are destroyed. Any pests found on this equipment should be reported to the IPM Coordinator. An additional route of invasive plant introduction is along the I-5 easement corridor. Control of invasive plants here must be coordinated with CALTRANS.

5.3.3 Hazardous Materials and Waste Management

The appropriate use and application of pesticides usually produce very little hazardous waste. Rinsates containing pesticide residues usually have very small quantities of chemical can be applied to the target pest site. Large quantities of hazardous waste may be produced when a pesticide is not used by its expiration date. It may also be produced if a pesticide is not used up before the registration for that pesticide is cancelled and the stop-use date has occurred. These pesticides may be disposed of as Universal Waste. The Standards for Universal Waste Management are found in 40 CFR Part 273. However, proper inventory management and pest management planning will prevent waste generation. Contractors and FMD Pest Control must remove all pesticide waste from the installation. MCCS must dispose of waste in accordance with BO 5090.7 (Appendix I).

5.3.4 Requirements for Pesticide Applications to Water

All pesticide applications made directly into, above, and near protected waters defined in the Clean Water Act (CWA) require coverage under a NPDES permit. Pesticide use patterns include, but are not limited to, mosquito larvicide applications, aquatic weed control, and terrestrial weed control along water bodies if drift into water is unavoidable. Mosquito adulticides applied as a mist may also be included if the mist drifts over water. In accordance, with the permit, pesticides applied that are actively controlling a target pest are not considered pollutants. If residues of the pesticide remain in the water once the target pests have been controlled, then it is considered a pollutant and is then regulated under the CWA. California has General Permits for the discharge of pesticides for vector control (specifically mosquito control) and for aquatic weed control. A General Permit for weed control is being drafted, which has an effective date of 1 December 2013. Aquatic pesticide applications require that the installation submit a Notice of Intent (NOI) to the state and local water board. MCB Camp Pendleton has submitted a NOI for coverage under both the Vector Control and Weed Control permits. A copy of the NOIs and the pesticide application plan (PAP) are included in Appendix I. To determine if a pest management operation requires permit coverage refer to the California NPDES Permit Decision Flowchart in Appendix I. Additional information on NPDES permitting for aquatic pesticides can be found at http://www.waterboards.ca.gov/water_issues/programs/npdes/aquatic.shtml.

5.3.5 Cultural Resource Protection

Federal laws and regulations protect cultural resources and require the DoD and other federal agencies to identify, protect and manage them. Cultural resources include prehistoric, historic and architectural resources. The resources may be sites, structures, buildings, or objects. There are three prominent historical sites on the Base.

- Santa Margarita y Las Flores Ranch House. The 8,500 square foot "Ranch House," as it is known, is located on 21 acres northeast of the intersection of Basilone Rd. and Vandegriff Blvd. It is on the National Register of Historical Sites
- Las Flores adobe. This site is located southwest of the intersection of Las Pulgas Road and Stuart Mesa Road.
- The Chapel. It is located in the Ranch House complex.

Pest management operations may affect cultural resources. Modifications to historical buildings to exclude pests may alter the characteristics of the building that are characteristic to the time period that it represents. Invasive weed control may be conducted at remote sites where archeological artifacts may be found and where they may be disturbed. PMSPS must take these into consideration when conducting pest management at these sites and should consult the installation cultural resource manager.

5.3.6 Environmental Review

New pest management operations that may have an impact on the environment are required to undergo an environmental review process. Typical pest management operations that may require review include:

- Pesticide applications to water
- Chemical and non-chemical bird prevention and control methods
- Mass permethrin uniform treatments
- Invasive weed control
- Pesticide applications in natural habitats
- Wildlife management

The PMSPs shall contact the IPM Coordinator and the ES Natural Resources Manager to initiate the review process.

5.4 References

1. AFPMB TG 15: Pesticide Spill Prevention and Management - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg15.pdf> (CD)
2. California Invasive Plant Council - <http://www.cal-ipc.org/>
3. California State-listed Noxious Weeds - <http://plants.usda.gov/java/noxious?rptType=State&statefips=06>
4. Defense Environmental Network and Information Exchange (DENIX) - <http://www.denix.osd.mil/index.cfm>
5. DPR Endangered Species Project - <http://www.cdpr.ca.gov/docs/endspec/index.htm>
6. DPR Pesticide Regulation. Pyrethroids Reevaluation - <http://www.cdpr.ca.gov/docs/registration/reevaluation/chemicals/pyrethroids.htm>
7. Environmental Management Systems (from DENIX) - <http://www.denix.osd.mil/ems/>
8. Lubick, N. Oct. 2008. Pyrethroids are ubiquitous in California's urban streams. American Chemical Society. http://pubs.acs.org/cgi-bin/sample.cgi/esthag/asap/html/es802697m.html?sa_campaign=rss/cen_mag/estnews/2008-10-15/es802697m
9. MCBCP Integrated Natural Resources Plan - <http://www.pendleton.marines.mil/StaffAgencies/EnvironmentalSecurity/NaturalResourcesManagementPlan.aspx>
10. Urban Pesticide Pollution Prevention (UP3) Project - http://www.up3project.org/up3_index.shtml

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6 Emergency Pest Management

6.1 Public Health Emergencies

Pests become a public health emergency when the amount of pests increase in number and/or are found to carry human disease pathogens. A public health emergency, or potential emergency, requiring pest management action, may be indicated in several ways:

6.1.1 Natural or human-related disaster

This includes earthquakes, wildfires, floods, vehicle accidents and terrorist attacks. Usually pest problems do not develop immediately after a disaster. Public health pest problems may be the result of increased amounts of refuse, collapse of local infrastructure (i.e. lack of garbage pick up), decaying human and animal bodies, and accumulation of standing water. The potential pest related consequences are vector-borne or zoonotic disease outbreaks and increased contact with rodents and feral animals that may cause injury.

6.1.2 Vector-borne or zoonotic disease

- Reports of human cases – Many human cases of vector-borne and zoonotic disease identified in local medical facilities are reportable to the local health authorities in compliance with Title 17, California Code of Regulations, §2500. A report of a human case of WNV or other disease would initiate an investigation by the County of San Diego Vector Control Program and California Department of Public Health (CDPH). Alerts will go out to other hospitals and clinics if it appears that the cases were locally acquired. Immediate vector control may be necessary to prevent further transmission.
- Detection of infected mosquitoes or sentinel animals – Routine surveillance for mosquito-borne diseases are conducted throughout San Diego County by the County Vector Control Program. They report testing results through the public health system. This surveillance program is an early warning system that indicates when vector control should be initiated or increased to prevent human disease.

6.1.3 Animal attack

Africanized Honey Bees (AHB) are of specific concern due to their aggressive defensive behavior. The local fire department is the primary responder to bee sting incidents. Fire department personnel have been trained to protect and manage bee sting victims. A stinging incident is not considered a pest control response issue, but rather, an emergency response and any and all appropriate bee control measures can be used. If fire department response is delayed installation first responders should be trained how to protect themselves and victims from bee stings.

6.2 Agricultural Emergencies

Agricultural emergencies are the result of the introduction of insects or other animals that can cause extensive damage to agriculture or forestry in the state. Examples of the pests are Mexican fruit fly and glassy winged sharpshooter. Military installations can be a conduit for the introduction of these pests due to the movement of military equipment and personnel in and out of the state and the country. The military's role in preventing introduction of these pests is described in OPNAVINST 6210.2: Quarantine Regulations of the Navy. Inspections to prevent importation of pests are normally conducted at the port of debarkation in the foreign country. The California Department of Food and Agriculture (CDFA) Plant Health and Prevention Services provide oversight of the pest detection program. CDFA coordinates their program with the San Diego County Agricultural Commissioner's Office, which has a program for pest exclusion and detection. The County would issue alerts and would coordinate control in the event of an agricultural emergency.

6.3 Emergency Pest Management Resources

Installation PMSPs maintain pesticides and equipment to manage most emergencies. Contract PMSPs can be used for emergencies if it is written in the contract specifications. Naval Hospital Camp Pendleton is responsible for developing and implementing a plan to manage public health emergencies.

6.4 References

- Public Health Pesticide Applicator Training Manual - http://entnemdept.ufl.edu/fasulo/vector/chapter_03.htm
- AFPMB TG 24: Contingency Pest Management Guide - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg24.pdf> (CD)
- AFPMB TG 43: Guide to Pest Surveillance During Contingency Operations - <http://www.afpmb.org/sites/default/files/pubs/techguides/tg43.pdf> (CD)
- California Department of Food and Agriculture (CDFA) Plant Health and Prevention Services <http://www.cdffa.ca.gov/plant/>
- California Department of Public Health - <http://www.bepreparedcalifornia.ca.gov/Pages/Home.aspx>
- California Vectorborne Disease Surveillance System - <http://www.calsurv.org/>
- County of San Diego Agricultural Commissioner's Office - <http://www.sdcountry.ca.gov/awm/>
- County of San Diego Vector Control Program - http://www.sdcountry.ca.gov/deh/pests/vector_disease.html
- Navy Environmental and Preventive Medicine Unit FIVE Public Health Pest Management - <http://www.med.navy.mil/sites/nmcscd/nepmu5/vector/default.aspx>
- OPNAVINST 6210.2: Quarantine Regulations of the Navy – <http://doni.daps.dla.mil/Directives/06000%20Medical%20and%20Dental%20Services/06-200%20Preventive%20Medicine%20Services/6210.2.pdf>
- Western IPM Center: Pest Alerts Affecting the Western Region - <http://www.wrpmc.ucdavis.edu/alerts/index.html>

7 Program Resources

The MCBCP has access to the following support agencies and organizations for pest management assistance. Contact information is located in Appendix L.

7.1 Agencies

7.1.1 NAVFAC Southwest, Code EV51, San Diego, CA

NAVFAC Southwest is staffed by one full time civilian DoD applied biologist (AB) / professional pest management consultant certified in DoD pesticide applicator categories 3,5,6,7,8 and 11. The applied biologist provides the following products and services:

- Review and approve the IPMP in accordance with DoD and DoN policy;
- Provide technical assistance to the installation pest management Coordinator, environmental manager, safety officer, medical officer and other regional and installation personnel regarding pest management and pesticide regulatory compliance;
- Review and approve or reject pesticides and equipment to be used on the installation;
- Conduct on-site program technical assistance visits to assist with compliance with regulations and the IPMP;
- Compile and report actual pesticide use and pest management operations to appropriate DoD agencies;
- Provide IPM recommendations and pest identification;
- Act as NAVFAC Southwest point of contact for pesticide regulations and compliance;
- Assist installations with writing or re-writing IPMPs; and
- Provide pest management training and certification for DoD personnel.

Website: https://portal.navfac.navy.mil/portal/page/portal/ev/ev_southwest/ev2_pc/ab_pest_mgmt

(This is on the NAVFAC intranet and is only available to NAVFAC, CNIC and USMC personnel who have an account and access is only from a CAC-enabled computer)

7.1.2 Navy Environmental and Preventive Medicine Unit FIVE (NEPMU FIVE), San Diego

NEPMU FIVE is a subordinate command of Navy and Marine Corps Public Health Center (NMCPHC) and is currently staffed by three full-time active duty U.S. Navy entomologists and one civilian entomologist. Their Area of Operation (AOR) includes Naval and Marine Corps facilities west of the Mississippi River. The entomologists are certified in DoD pesticide applicator categories 3, 5, 6, 7, 8 and 11. The Unit's Vector Control Department provides the following services:

- Act as Navy Medicine (BUMED) Professional Pest Management Consultant to provide BUMED review and approval of IPMP;
- Provide technical assistance on the surveillance and control of vectors on the installation;
- Provide vector-borne disease risk assessments and disease prevention recommendations when requested;
- Provide disease vector management consultation and identification services; and
- Provide contingency pest management in the event of a disaster or disease outbreak.

Website: <http://www.med.navy.mil/sites/nmcscd/nepmu5/Pages/index.htm>.

7.1.3 San Diego County Department of Agriculture and Weights and Measures

Personnel from this department are the pesticide regulatory officials for the State of California. The North County office is located in San Marcos and is staffed with personnel that can provide information regarding state and local pesticide regulations. Website:

<http://www.sdcountry.ca.gov/awm/>

7.1.4 University of California Cooperative Extension Services

The County Extension offices' services include advisors on IPM, entomology and natural resources. They also provide low cost training on pest management topics. Website:

<http://cesandiego.ucdavis.edu/>

7.1.5 San Diego County Department of Environmental Health Vector Control

Personnel in this Department include one vector ecologist and several technicians that specialize in vector-borne and zoonotic disease. They are state-certified in public health pest management. They conduct routine disease surveillance and respond to and coordinate vector control measures during zoonotic or human disease outbreaks throughout the County.:

http://www.sdcountry.ca.gov/deh/pests/vector_disease.html

7.1.6 California Department of Public Health Vector-borne Disease Section

Public health biologists provide vector surveillance and control assistance throughout California. They are state-certified in public health pest management. They provide assistance to counties that do not have or have limited vector surveillance programs. They also cover Bureau of Land Management, Forest Service and National Park lands. Website:

<http://www.cdph.ca.gov/programs/vbds/Pages/default.aspx>.

7.2 Publications

- AFPMB Technical Guides - <http://www.afpmb.org/content/technical-guides>
- AFPMB Literature Retrieval System: use this site to search and download over 130,000 complete journal articles related to pest and vector management - <http://www.afpmb.org/content/welcome-literature-retrieval-system>
- Ebeling, W. 1975. Urban Entomology: Online version provided by UC Riverside Department of Entomology - <http://www.entomology.ucr.edu/ebeling/index.html>
- Pest Control Technology Magazine and Online: Designed for the technician, you can subscribe to the magazine, register for website access, or search the archived articles for free - <http://www.pctonline.com/>
- Pestweb: Online pest management training, FAQs, and pest articles - <http://www.pestweb.com/>.