Appendix L

Integrated Pest Management Plan

45th SPACE WING PEST MANAGEMENT PLAN

2006

Reviewed and Approved _____

MICHAEL L. FUREY, LT COL, USAF
Commander, 45th Civil Engineer Squadron

Reviewed and Approved _____

SUSAN J. HELMS
Brigadier General, USAF
Commander, 45th Space Wing

45th SPACE WING PEST MANAGEMENT PLAN

2006

1. Executive Summary The Pest Management Plan has been developed to provide detailed guidelines for pest management of the United States Air Force, 45th Space Wing (45 SW) assets. These assets include the following Florida properties--Cape Canaveral Air Force Station (CCAFS), Patrick Air Force Base (PAFB), Malabar Transmitter Annex (MTA), Jonathon Dickinson Missile Tracking Annex (JDMTA), and other mainland sites for a total of approximately 22,000 acres, as well as overseas installations of Antigua Air Station and Ascension Auxiliary Air Field totaling an additional 3,500 acres.

The Pest Management Plan for the 45 SW describes pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety and environmental requirements of the program. The program uses certified government and contractor pest management technicians to control pests. Pests included in the plan are weeds and other unwanted vegetation, termites, mosquitoes, crawling insects (ants, crickets, cockroaches, etc.) and spiders, mice, moles, and other vertebrate pests. Without control, these pests could interfere with the military mission, damage real property, increase maintenance costs and expose installation personnel to disease.

A Pest Management Plan comprises two major functions--a program that controls pests or reduces pest damage using integrated pest management, and describes methods of storing, handling, preparing, mixing and applying pesticides within that program. At no time will pest management operations be done in a manner that will cause harm to personnel or violate labeled use. This plan will be a working document and will be updated annually to reflect pest management practices and the introduction of new technology.

This plan will incorporate Integrated Pest Management (IPM) theory to the fullest extent possible. IPM is a decision making process that uses a combination of techniques to suppress pests including planning and managing ecosystems to prevent organisms from becoming pests through natural resource management; identifying potential pest problems; monitoring populations of pests and beneficial organisms; pest damage and environmental conditions; using injury thresholds in making treatment decisions; reducing pest populations to acceptable levels using strategies that may include a combination of biological, physical, cultural, mechanical, behavioral and chemical controls; and evaluating the effectiveness of treatments.

The implementation of this plan will provide for an environmentally safe program that adheres to regulatory requirements and applicable laws, both Federal and State.

2. Background

a. Purpose. This pest management plan is a framework through which pest management is defined and accomplished throughout the 45 SW. The plan identifies elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. The plan will be used as a tool to reduce reliance on pesticides, to enhance environmental protection and to maximize the use of integrated pest management practices and techniques. This plan was last revised during June 2005 and approved by Air Force Space Command on 19 Aug 2005.

b. Authority. The pest management plans attached as appendices will be implemented in accordance with Department of Defense Instruction 4150.7, *DOD Pest Management Program* and Air Force Instruction 32-1053, *Pest Management Program*.

c. Plan Objective. This plan provides guidance for operating and maintaining an effective pest management program. Principles of integrated pest management are stressed in the plan.

Integrated pest management (IPM) consists of the judicious use of both chemical and non-chemical control techniques to achieve effective pest management with minimal environmental contamination. Adherence to the plan will ensure effective, economical and environmentally acceptable pest management and will maintain compliance with pertinent laws and regulations.

3. Responsibilities

a. Commander.

(1) Designate 45th Civil Engineer Squadron, Environmental Flight (45 CES/CEV) to be responsible for the oversight of the 45 SW Pest Management Plan.

b. 45 CES/CEV

(1) Prepare and update the 45 SW pest management plans.

(2) Coordinate with local, State and Federal agencies, as necessary, to conduct the installation's pest management program.

(3) Evaluate the implementation of an integrated pest management strategy and the overall health of the pest management program during the annual Environmental, Safety, and Occupational Health Assessment and Management Program (ESOHCAMP).

c. 45 CES/CEO

(1) Determine the pest management requirements for Patrick Air Force Base.

(2) Coordinate and monitor contracts that include pesticide application. Develop evaluation procedures and standards such as Maximum Defect Rates (MADR) to verify that an integrated pest management strategy is properly implemented.

(3) Obtain and maintain adequate supplies of pesticides and pesticide dispersal equipment and ensure that equipment is properly maintained.

(4) Verify that appropriate personnel performing pest control receive adequate training and achieve pest management certification as required.

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

(6) Maintain adequate records of pest management operations.

d. Director of Manatee Cove Golf Course

(1) Prepare, monitor and update the Manatee Cove Golf Course pest management plan.

(2) Obtain and maintain adequate golf course supplies of pesticides and pesticide dispersal equipment, and ensure that equipment is properly maintained.

(3) Ensure that golf course personnel performing pest control receive adequate training and maintain pest management certification.

(4) Maintain adequate records of pest management operations.

e. 45 ADOS/SGG, Public Health

(1) Conduct surveillance for pests that could adversely affect the health and welfare of the 45 SW.

(2) Coordinate with local health officials to determine the prevalence of disease vectors and other public health pests in the area surrounding the 45 SW.

(3) Evaluate the health aspects of the pest management plan.

f. 45 CES/CEOFI, Pest Management Shop

(1) Prepare, monitor and update the PAFB pest management plan.

(2) Coordinate with activities conducting pest surveillance or controlling pests to ensure all applicable information is recorded and reported as required by this plan. Monitor the sale and distribution of pesticides on the installation.

(3) Function as a point of contact between those individuals who store and apply pesticides, e.g., Manatee Cove Golf Course, pest control contractors, tenant activities and activities or individuals who document or deal with pesticide use on their programs.

(4) Monitor certification and continuing pest management training for pesticide applicators.

(5) Coordinate and monitor contracts dealing with pesticide application and keep a copy of each contract on file.

(6) Coordinate with local, State and Federal agencies, as necessary, to conduct the PAFB pest management program.

(7) Provide answers to questions concerning pest management from the installation Commander, Air Force Space Command and the Department of the Air Force.

4. Pest Management Plans

Attached, as appendices, are the 45 SW pest management plans.

Appendix A, Patrick Air Force Base

Appendix B, Manatee Cove Golf Course

Appendix C, Cape Canaveral Air Force Station

Includes: Cape Canaveral Air Force Station
Malabar Transmitter Annex
Jonathon Dickinson Missile Tracking Annex
Wabasso Microwave Relay Annex
Stuart Microwave Relay Annex
Fort Pierce Microwave Relay Annex

Cocoa Beach Tracking Annex
Melbourne Beach Optical Tracking Annex

Appendix D, Antigua Air Station, Leeward Islands

Appendix E, Ascension Auxiliary Airfield, South Atlantic Ocean

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Appendix A

Patrick Air Force Base

Pest Management Plan

Revised 2006

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1. Executive Summary - This narrative provides the framework through which pest problems and procedures can be effectively addressed at Patrick AFB, Fl. The main elements of the installation's pest management program, including pest identification, pesticide use and disposal, transportation, program management and health and environmental safety are defined within the main body of the Installation Pest Management Plan.

The Patrick AFB pest management mission is to insure a safe and healthy work environment for all unit and tenant personnel through the control and prevention of economical, structural, medically important and nuisance pests.

This plan serves as a mechanism for continued success and to insure, economical and environmentally acceptable pest management practices while maintaining compliance with all federal, state and local laws and regulations.

2. Installation Implementation Authority - Department of Defense Instruction 4150.7, *DoD Pest Management Program*, and Air Force Instruction 32-1053, *Pest Management Program*, authorizes the implementation of a pest management plan for golf courses.

3. Introduction

a. Objective: The Pest Management Plan is designed as a guide to establish and maintain safe, efficient, and environmentally sound "Integrated Pest Management" (IPM) programs for the 45th Space Wing (45 SW). It identifies priorities based on non-chemical control measures and the judicious use of pesticides in the control of pests on this installation.

b. Mission: It is the mission of the 45th Civil Engineer Squadron (45 CES) Pest Management Shop to control pest that are detrimental to the mission, base, military or civilian personnel, facilities under control of the 45 SW, all tenant units and to the environment. Control of the pests will be done by several determining factors and will be accomplished by either non-chemical or chemical means determined by the pest, pest area, and application required. Chemicals will be applied in accordance with the label along with health and safety consideration.

c. Responsibilities: Personnel assigned to the 45th CES Pest Management Shop will ensure all pesticides are applied in accordance with policies stated in the plan, that appropriate regulations and instructions are satisfied, that all safety requirements are met and DD Form 1826-1 personal certifications are current. Personnel will notify Bio Environmental Engineering (BEE) and Public Health (PH) prior to any application in food preparation or consumption facilities, medical facilities, or child development or youth centers in accordance with Air Force Instruction (AFI) 32-1053, Para 3.4.9.4. In addition, personnel will forward Integrated Pest Management Information System (IPMIS) quarterly usage reports of all pesticides applied on the installation to the Civil Engineer Environmental Flight (CEV) and provide BEE and Fire Department with a monthly chemical inventory.

(1) The Aerospace Medicine Council (45 ADO/SGG) determines the frequency and scope of physical examinations for assigned pesticide applicators. The council will maintain awareness among assigned medical personnel of symptoms and treatment for pesticide exposure.

(2) BEE will conduct Industrial Hygiene surveys and respirator fit tests annually. BEE will also ensure all pesticides ordered through the Pest Management shop are reviewed for environmental and health impacts and material safety data sheets are maintained for all pesticides used on the installation.

4. Pest Management Requirements and Strategies for Applicable Pest/Disease Vector Categories

a. Disease Vectors and Health Related Pests

(1) Mosquitoes: West Nile Virus and Encephalitis are major concerns for the 45th SW area. Public Health (PH) monitors the mosquito population through the use of light traps, CO2 traps, and mosquito magnets. Once PH determines the counts are high enough, PH requests fogging operations. Currently, "BP-100" with mineral oil is used to fog for adult mosquitoes. Once existing stock is depleted, shop personnel will coordinate with outside agencies (Brevard County Mosquito Control, Disney World) to determine what chemicals are being used and their effectiveness. Also, "Altosid briquettes" are placed in all storm water drains and "Bactimos briquettes" are used in low-lying water collection areas throughout the base as a larvicide control.

(2) Wasps: Wasps are a considerable problem throughout the year, but are most extensive during the months of June – November. The aerosol "Wasp Freeze" is used for quick knockdown and nests are destroyed after treatment.

(3) Spiders: Black and brown widows provide the Pest Management Shop with limited calls throughout the year. "Raze" and "PT-565 XLO" aerosols are used for spot treatments. Building custodians are instructed on sanitation practices to eliminate and prevent recurring nesting sites. Brown Recluse spiders are minimal and are treated in the same manner as the black and brown widows.

(4) Fleas: Housing is the only area currently treated for fleas. Infestations occur from pets and wild raccoons. The housing contractor treats yards using "Talstar". Indoor treatments are accomplished during change of occupancy or in occupied homes with QAE's (45 CES/CEH) approval. Base buildings are rarely infested. "Hot Shot" complete release foggers and sanitation practices normally control these areas.

(5) Fire Ants: These insects are prevalent throughout the base. "Top Choice Ant Bait", is used for long-term mound eradication. "Ambush" aerosol and "Dricide" pyrethrum powder are used for quick knockdown in spot treatments.

(6) Rodents: Rats and mice are a continual problem year round. Snap traps and glue boards are the mainstay for control indoors. "Eaton's AC-90" bait packs are placed in bait stations around the perimeter of buildings and in sanitary sewer lines on a semi-annual recurring work schedule. Integrated pest management control methods include instruction on sanitation practices and building exclusion.

b. General Household and Nuisance Pests

(1) Cockroaches: The American roach is the number one visible roach in base buildings, housing and the beach side temporary living facilities (TLF). German roaches have been found in the NCO Club. "Maxforce Roach Bait stations" are applied during recurring work

maintenance. “PT 565 XLO” is used as a flushing agent and “Hot Shot” as a fog to achieve desired control as needed. Sanitation is constantly expressed to the Clubs management.

(2) Ants: Ants are a consistent problem throughout the base. “Maxforce Bait Stations”, “Maxforce Granules” and “Top Choice Granular” are all used for long-term ant control. For spot treatments, “Raze”, “Dricide” and “PT 565 XLO” provide quick control. As always, sanitation is briefed to the building custodian to prevent future problems.

c, Structural Pests

(1) Subterranean Termites: These termites have been found and are prevalent in a number of facilities. Currently all termite treatments are performed by local contractors. “Termidor” is the chemical of choice. All treatments along with prevention recommendations are provided to the Pest Management Shop for record keeping.

(2) Dry wood Termites: Currently, the only area known to have dry wood termites are the Beach Side TLF’s. Due to the unknown future of these facilities and the cost of fumigation, spot treatments with “Raze” and “PT 565 XLO” temporarily alleviate swarmers. When possible, damaged wood is removed and replaced.

d. Weed Pests

(1) Submerged: Bushy Pond weed, Hydrilla, Coontail, Elodea, Slender Spike Rush and Southern Naiad make up the majority of the submerged weeds in the storm water canals throughout the base. “Reward” (Diquat) herbicide is used to control all submerged weeds. Dredging is always an option if an area becomes too infested and restricts water movement.

(2) Floating: Duck Weed, Water Hyacinth and Pond Weed are also prevalent in our storm water canals. “Reward” herbicide normally controls these weeds, but occasionally a second treatment with “Rodeo” herbicide will eliminate hard to kill areas. Dredging is always an option if an area becomes to infested and restricts water movement

(3) Emerged: Cattails are of a major concern primarily because of their visibility. Other emerged weeds consist of Soft Rush, Bull rush, Alligator Weed and Willow. Normal control methods include using Rodeo and Reward herbicides. Dredging is always an option if an area becomes too infested and restricts water movement.

(4) Grassy: The focus is Memorial Plaza - is a high visibility, special event area. Crabgrass and Yellow Nutsedge are the primary weeds in this location. Atrazine and Round Up are used for control.

e. Stored Product Pests: Due to inventory control and stock rotation, we have had no problems concerning Stored Product Pests.

f. Ornamental Plants and Turf Pests

(1) Caterpillars: Once a year, these pests invade the Oleander bushes throughout the base. “Sevin SL” is the current insecticide used to control these insects.

(2) Scale: Under normal circumstances, we would not treat for Scale, but a new species was introduced through Miami and has rapidly spread north attacking Sago Palms through the state of Florida. There is no known cure to eradicate this species. Currently, "Merit" systemic insecticide is used to sustain the plants life, but does not eliminate the pest. In the future, it will be requested that the plant be removed and destroyed to prevent future infestations in new plants.

(3) Chinch Bugs: Although prevalent in base lawns, only high visibility, high profile lawns are treated. Talstar PL is the only chemical in stock used to control chinch bugs.

g. Miscellaneous Pests

(1) Moles: Moles are mostly a problem on the softball and soccer fields. Occasionally, the Working Dog kennels will request mole control in their training area. Traps are the only method used for these pests.

(2) Bird Mites: Due to bird populations and the accessibility to nest inside a facility, bird mites become a problem during nesting season. If possible, birds and their nests are removed from the facility. "Hot Shot" foggers or "PT 565 XLO" are used to control the mites. Afterwards, a job order is put into the system to repair the section of the facility through which the birds gained access.

(3) Love Bugs: A nuisance pest which occurs in the spring and fall months. Man-hours, supplies and funds would be too costly and will not be used for their control. "PT-565" will be used as a temporary fix around doorways.

h. Vertebrate Pests

(1) Raccoons: The main concern involving raccoons is the destruction of sea turtle nests during the nesting season. In coordination with CEV, Hav-a-heart traps are strategically placed to prevent raccoons from disturbing the turtle nests. Brevard County Animal Control is notified of any captures and the raccoons are relocated off the installation. The same applies to any raccoons trapped on the installation as well.

(2) Opossums: These animals occasionally invade garbage cans and public areas that require removal. Physical removal with animal control poles and Hav-a-heart traps allow shop personnel to relocate the animal without harming it.

(3) Snakes: Surprisingly not a major concern on the installation. An occasional Black Racer or Yellow Rat Snake will pop up where they're not wanted. Removal and relocation are the typical control measures used. Venomous snakes have not been an issue.

(4) Birds: There are numerous species located on the installation due to the region in which we are located. The main concern is roosting and nesting in hangars. Uninhabited nests in unnatural settings (buildings, light poles) are typically removed. Injured birds found on base are captured and taken to the local wildlife sanctuary for rehabilitation. Depredation can be used as a control method along the flight line, which only occurs once the species are identified and permission granted. Pellet rifles are the only means used to depredate. Personnel attend quarterly Bird Aircraft Strike Hazard Working Group meetings when requested.

5. Administration

a. Job Orders: Direct Scheduled Work Orders are used for treating base facilities and common areas for any and all pests.

b. Contracts

(1) Termites: Currently we have one contract for subterranean termite control for existing structures. CB&S Pest Control contractor performs all termite treatments. For pre-treatment on newly constructed buildings, termite treatment requirements and specifications are written into each construction contract. Primary contractors subcontract the termite pre-treatment work to various companies.

(2) Housing: O. T. Trans is the primary contractor for all general pest control in military base housing. ChemGreen, subcontractor to O. T. Trans, performs pest control activities in housing.

(3) Grounds_Maintenance: Professional Diversified Services Incorporated is the lawn maintenance contract for the base. They provide weed control to include all areas on the base except the storm water canals. Roundup is the only chemical they are authorized to use. A sub-contractor, ChemGreen, provides limited weed control in high profile, high visibility lawns. “Atrazine 4L” is the herbicide used. “Talstar 1” provides the insect control.

(4) Athletic Fields: All the athletic fields are maintained by the Brevard Achievement Center, and the pesticide applications are subcontracted to ChemGreen. Weeds are controlled with Roundup pro herbicide. Moles and gophers are a minimal problem and are eradicated through the use of traps. The main insect problem is fire ants. “Top choice” and Talstar fire ant bait controls the fire ants and other insect infestations.

c. Interservice Support Agreements: Patrick AFB has a cooperative agreement with the Brevard County Mosquito Control District for aerial spraying of mosquitoes when excessive populations are unmanageable with ground control measures or when there is an imminent threat of a mosquito borne disease outbreak.

d. Resources (Current and Proposed):

(1) Funding: The shop does not run on an annual budget, but purchases supplies and equipment on an as needed basis throughout the year.

(2) Staffing: Currently the shop’s manning consists of 3 military and 1 civilian. Military positions include: 2 Staff Sergeant’s and 1 Senior Airman. The civilian position is a WG-9.

(3) Materials: See attachment 3.

(4) Facilities: Building 959 has the office, break room, locker room, restrooms, showers and laundry areas. Building 955 is the chemical storage area and mixing room. Eventually, offices will be collocated in building 938 and the break room located in building 912, due to the recent combination of Horizontal, Utilities and Pest Management being combined under one roof called Infrastructure. The showers, locker room and laundry areas in building 959 will be maintained for contamination control of pesticide exposure. The chemical storage will remain in building 955. See attachment 1 for facility layouts.

e. Reports and Records

(1) Inventory: Monthly inventory reports are maintained in the Pest Management Shop with copies being sent to BEE and the Fire Department.

(2) Quarterly: Pesticide usage reports are summarized by CEV and the Base Pest Manager and sent to Air Force Space Command. All records of pesticide usage in a facility or grounds area located on base property are inputted into the IPMIS database except for Housing which maintains their own IPMIS database.

f. Training Plans: Training is accomplished on a continual basis. All newly assigned personnel are trained in the following categories by the shop supervisor or designated appointee to ensure the safe handling and proper use of pesticides and pesticide equipment.

(1) Label comprehension

(2) Equipment operation, calibration and minor repair

(3) Use of safety equipment on all operations

(4) Flight line training

(5) Larviciding and fogging operations for mosquito control

(6) Proper mixing procedures

(7) Triple rinsing

(8) Various local venders provide seminars that allow our personnel to stay abreast of the latest pest control techniques.

(9) In accordance with AFI 32-1053, all personnel are recertified every three years.

(10) All personnel attend HAZCOM, fire extinguisher and respirator training.

g. Coordination with Food Service Managers: All food-handling facilities are inspected on a Recurring Work Program (RWP). If the facilities are required to be treated, the manager is contacted, a date and time are established and preparation instructions are briefed. Also, PH and the Fire Department are notified before any fogging operations are performed.

h. Termite Inspection Plan: Termite inspections are performed during RWP schedules. All inspections are annotated on DD Form 1070.

6. Health and Safety Measures

a. Requirements: All shop personnel are given a complete baseline physical upon assignment to the section. Thereafter, a semiannual occupational health physical is required. Annual audiograms and earplug re-fitting are also part of the occupational health physical. Safety equipment, which includes respirators (half and full face), coveralls, boots, aprons, face

shields, goggles, earmuffs and hardhats are supplied to the shop personnel. Applicable safety equipment must be used at all times. BEE provides respirator fit testing and training. Earplugs must be worn around all identified equipment and safety toed boots are worn by all personnel on the job.

b. Hazards:

(1) Shop personnel can be exposed to pesticides that may enter the body through skin contact, inhalation or ingestion. Other hazards include but are not limited to: bee stings, spider bites, heat exhaustion, falls, back injuries, animal bites and hazardous noise

(2) The public may come in contact with pesticides before they are dry, therefore proper placement of pesticides is crucial. Shop personnel are trained to avoid chemical placement that would present a hazard by human contact.

c. Safety and Health Aspects of the Shop: The chemical storage building is separate from the office. The chemical storage room is equipped with exhaust fans which are monitored quarterly by BEE to ensure they meet the standards. Both chemical and mixing room floors are curbed, sloped to the center and have no floor drains to prevent further contamination in the event of a spill. The water system is fitted with back flow preventers to protect the water supply. The office building contains the locker room, showers (male and female), rest rooms, laundry and break rooms.

d. Safety and Health Aspects of Shop Vehicles: There are two vehicles assigned. Both are four-wheel drive telephone maintenance trucks with lockable storage compartments. Both are used to carry personnel and supplies to perform routine work. They are also used to transport the Ultra Low Volume mosquito fogger during fogging operations and a 50-gallon insecticide sprayer. A Toro Multi-pro 5600 was recently purchased for aquatic weed control for the base storm water canals. It is completely self efficient with hand and eye wash capabilities. All vehicles are equipped with spill kits and eye wash bottles.

7. Public Laws and Regulations. The following publications are maintained in the shop and are used in accordance with Federal, State and Air Force Instructions. AFI 32-1053, Department of Defense Directive 4150.7, Technical Information Manuals 11,13,14, 15, 16, 18, 20, 21, 22, 23, 24, 26 and 27, Mil-HDBK 1028/8A, Air Force Occupational Safety and Health Standard 161-2 and Air Force Manuals 91-16, 91-19 and 126-2. The most stringent are followed for pesticide storage and application.

8. Coordination with other Organizations and Agencies. PH is notified before any food handling facility or Child Development Center is treated for pests. PH also notifies us when mosquito operations should be performed. We notify PH before any aerial spraying is accomplished by Brevard County Mosquito Control. Also, prior to any fumigation operations, PH, Fire Department, and Security Forces are notified. All Services Squadron operations, such as the golf course, marina and Famcamp, along with tenant units are treated on an as needed basis through the job order system.

9. Measures for Compliance with Memorandum of Understanding with State Pesticide Regulatory Office(s)

Executive Order 12856 and the Emergency Planning Community Right-To-Know Act (EPCRA) requires the 45th Space Wing to provide a consolidated hazardous material inventory

to the state and local emergency and planning agencies annually. This data provides the average daily and maximum daily quantity of each hazardous material used and kept in storage for the prior year.

10. Pest Management Operations with Special Environmental Considerations

a. Operations using Restricted Use pesticides: The only restricted use pesticide maintained in the 45th Pest Management shop is Phostoxin (Aluminum Phosphide). The possibility of its use is minimal but it must be maintained in the event stack fumigation becomes necessary.

b. Operations with Potential to Contaminate Surface or Groundwater. Mixing operations are conducted at Facility 955 outside the facility on an impervious concrete pad with a sloped floor drain. Any spillage during mixing operations will flow into the drain where it can be recovered.

A drainage ditch on the East side and on the South side of the facility surrounds facility 955, a water retention swale is located on the North side of the facility. Any spillage during mixing operations has the potential of flowing into the south drainage ditch if the spill drain and sump pump fail to function properly.

c. Operations more than 640 Acres. Not Applicable

d. Operations in Areas with Endangered or Protected Species. There are several protected or endangered species in our area. Before any operation is conducted concerning protected or endangered species, CEV is contacted to ensure none of these species will be adversely affected. CEV will provide a list of all protected or endangered species on an as needed basis.

e. Operations involving Aerial Application. Patrick AFB has a cooperative agreement with the Brevard County Mosquito Control District for aerial spraying of mosquitoes when excessive populations are unmanageable with ground control measures or when there is an imminent threat of a mosquito borne disease outbreak.

f. Operations involving Designated Noxious Weeds: Any operations concerning Designated Noxious Weeds are planned and coordinated through the 45th CES/CEV office.

g. Operations involving Experimental-Use Permits. Not Applicable.

h. Operations involving Environmentally Sensitive Areas: Any operation involving potentially environmentally sensitive areas is coordinated through 45th CES/CEV

11. Other Pest Management Plan Issues.

a. Applicable Pollution Control Projects. No projects are scheduled.

b. Applicable Pollution Abatement Procedures. Pesticide application is conducted outside the facility on an impervious concrete pad with a sloped floor drain that is connected to a sump pump. Any spillage during mixing operations will flow into the drain where the sump pump will remove the spill and place it in a waste drum.

Pesticide containers are triple rinsed prior to disposal. The rinsate is utilized in pesticide mixing, i.e., the rinsate is applied as a pesticide, not disposed.

c. Pesticides Sold in Commissaries and Exchanges. Army Air Force Exchange Services (AAFES) controls the purchase of products to be sold in the commissary and exchanges. All pesticides sold are over the counter, non-restricted use only products.

12. Services Provided to other Activities or Installations. Pest control is provided for encampment areas prior to the deployment of troops during exercises. These areas are mainly treated for fire ants and mosquitoes. The exercises occur once or twice a year.

13. Annexes

a. Attachment 1 – Installation map/facilities map

b. Attachment 2 – Annual Pesticide Procurement – Not applicable.

c. Attachment 3 – Pesticide Inventory

d. Pesticide Labels, Material Safety Data sheets, and Consumer Protection Information Sheets for Preservative Treated Wood Products. Not applicable.

e. Operation Control and Maintenance Records from Previous Years. Control and maintenance records are maintained in the IPMIS database currently located in building 959.

f. Applicable Instructions and Procedures. Maintained in the Infrastructure Library in Facility 959.

g. Contracting Standards, Specifications, and Statements of Work. All contracting standards, specifications and statements of work are maintained in the 45th CES Maintenance Engineering section.

h. Manpower Surveys. Not applicable.

i. Attachment 4 – Shop Equipment and Sources

j. Attachment 5 – List of Safety Items and Personal Protective Equipment

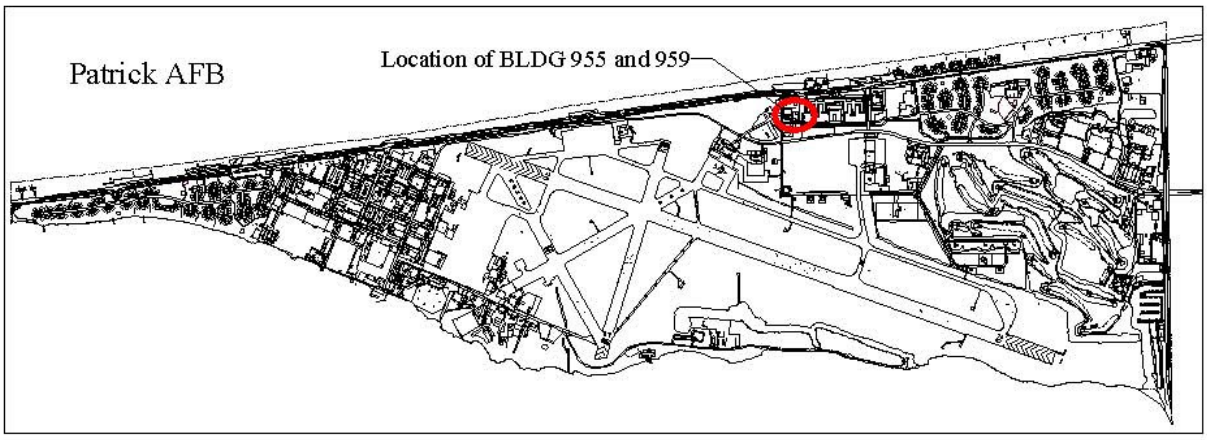
k. Technical Information. Maintained in the Infrastructure Library in Facility 938.

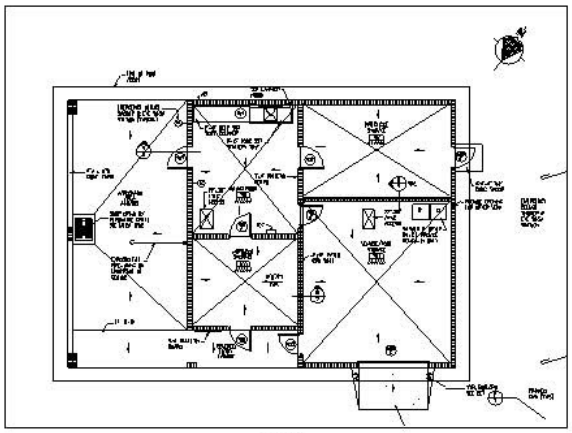
l. Spill Plan and Pesticide Clean-up Guidance. Maintained in the Infrastructure Library in Facility 959.

m. Industrial Hygiene Surveys of Pest Management Shop. Maintained in the Infrastructure Library in Facility 959.

n. Cost Comparison Analyses. Not applicable.

Attachment 1 – Installation map/facilities map





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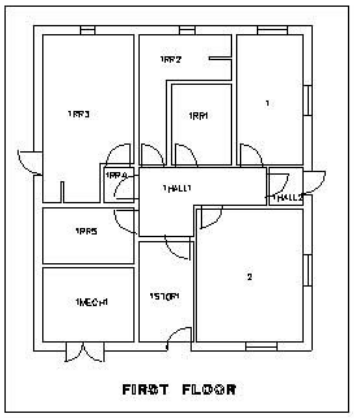

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Attachment 2
Listing of Pest Management Supplies

Chemical	Manufacturer	U/I	Conc%
TopChoice	Bayer Envir. Science	50 lb. bags	00.0143
Granular Ant Bait	Maxforce	6 LB	1
Dricide	ProChem	6oz BT	1
Roach Bait Stations	Combat	Bx	2
Ant Bait Stations	Maxforce	Bg	0.01
PT 565 XLO	Whitmire	Cn	2.5
Raze	Drummond American	Cn	0.8
Suspend SC	Lesco	1 Pint/Container	4.7500
Wasp Freeze	Whitmire	Cn	0.249
BP-100	Whitmire	Gl	5.94
Siege Pro	Waterbury Co.	Lb	0.73
Hot Shot Fogger	Spectrum Group	Cn	0.6
Bti Briquets	Summit	Bx	N/A
Altosid	Zoecon	Lb	8.62
Merit Systemic	Lesco	Bt	75
Talstar PL	FME Corp	25 Lb Bg	0.2
Ambush	ProChem	Cn	0.6
Sevin Sl	Lesco	2.5 Gl	43
Rodeo	Monsanto	2.5 Gl	53.8
Plyac	Loveland	Gl	N/A
Reward	Syngenta	Gl	37.3
AC-90	Eaton's	Bucket	0.005
Aluminum Phosphide Flushing Formula	Dyna-Fog	Gl	N/A

Attachments 3 and 4
Listing of Equipment and Personal Protective Equipment

EQUIPMENT LISTING

Dodge Dually 4X4 Telephone Maintenance Truck	2 Each
Toro Multi Pro 5600 300 Gallon Sprayer	1 Each
Skid Mount Sprayer 100 Gallon (Herbicide)	2 Each
Skid Mount Sprayer 50 Gallon (Insecticide)	2 Each
Dyna Jet L30 DC Rotary Atomizer (Mosquito Fogger)	1 Each
Back Pack Sprayer (Compressed Air) 5 Gallon	5 Each
Micro-Gen ULV Push Cart	2 Each
B&G Hand Held ULV	3 Each
Compressed Air Sprayers 1 Gallon	5 Each
Foot Pump Duster (currently inoperable)	2 Each
Exacticide Duster W/Attachments Battery Operated	1 Each
Granular Push Spreaders	6 Each
Fumigation Kit	1 Each
Hilti Drills	2 Each
Rodent Bait Boxes	40 Each
Live Trap, Animal	15 Each
Mole Traps	4 Each
Snake Tongs	2 Each
Animal Control Pole	2 Each
Utility Trailer 8X12 Dual Axle	1 Each

SAFETY/PPE

Spill Kits	4 Each
Eyesaline Travel Packs	4 Each
First Aid Kits	4 Each
Kevlar Leather Gloves, Animal Control	4 Each
Ear Muffs	4 Pair
Hard Hats	4 Each
Steeled Toed Boots	ALL
Respirators (Full & Half Faced) Bio Approved	ALL
Gloves Nitrile Rubber (5MM)	6 Boxes
Coveralls Cotton	ALL
Aprons, Rubber	2 Each
Overboots	4 Each
Face Shields	2 Each
Goggles	ALL

Appendix B

Manatee Cove Golf Course

Pest Management Plan

Revised 2006

1. Executive Summary. This narrative provides a framework through which pest problems and procedures can be effectively addressed at the Manatee Cove Golf Course. Main elements of the installation's pest management program, including health and environmental safety, pest identification, transportation, program management; pesticide use and disposal are defined within the main body of the Installation Pest Management Plan.

The golf course's pest management mission is to maintain an aesthetically pleasing course that offers an excellent playing surface for its customer.

Pest management is a main focus of operations at the golf course. DoD golf courses are typically responsible for more than half of the pesticide use on an installation.

Pesticide reduction continues to be an overall goal for the golf course. The course has explored implementing IPM innovations, employing cultural control practices, planting hardier species of turf grass, precision targeting and establishment of threshold action levels.

This plan will serve as a mechanism for continued success and to ensure effective, economical and environmentally acceptable pest management while maintaining compliance with all applicable laws and regulations.

2. Installation Implementation Authority - Department of Defense Instruction 4150.7, *DoD Pest Management Program*, and Air Force Instruction 32-1053, *Pest Management Program*, authorize the implementation of a pest management plan for golf courses.

3. Introduction

a. Objective: The Pest Management Plan is designed as a guide to establish and maintain safe, efficient, and environmentally sound Integrated Pest Management (IPM) programs for the Manatee Cove Golf Course. It identifies priorities based on non-chemical control measures and the judicious use of pesticides in the control of pests on Manatee Cove Golf Course.

b. Mission: The pest management mission of the Manatee Cove Golf Course is to control pests at the golf course that are detrimental to the base, military or civilian personnel, facilities under control of the 45 SW, and the natural environment. Control of pests will be done by several determining factors and will be accomplished by either non-chemical or chemical means determined by the pest, pest area, and application required. Chemicals will be applied in accordance with the manufacturer's instructions on the label along with health and safety consideration.

c. Responsibilities for Conduct of the Pest Management Program

(1) The 45th Space Wing's Environmental Flight (45 CES/CEV) has responsibility and authority for the conduct of the pest management program at the golf course. 45th Services Squadron (45 SVS/SVBG) proposes all plans, reports and projects related to pest management, and forwards the information to the 45th Space Wing Base Pest Management Shop (45 CES/CEOFI) for review and coordination with the Space Command Pest Manager.

(2) The Aerospace Medicine Council (45 ADOS/SGG) determines the frequency and scope of physical examinations for assigned pesticide applicators. The council will maintain awareness among assigned medical personnel of symptoms and treatment for pesticide exposure.

4. Pest Management Requirements and Strategies for Applicable Pest/Disease Vector Categories

a. Disease Vectors and Health Related Pest

(1) Wasps: Wasps are a considerable problem throughout the year, but are most extensive during the months of June-November. The aerosol "Wasp Freeze" is used for quick knockdown and nests are destroyed after treatment.

(2) Fire Ants: These insects are prevalent throughout the base. Siege Pro Fire Ant Bait, is used for long-term mound eradication. Ambush aerosol and Dricide pyrethrum powder are used for quick knockdown in spot treatments.

b. General Household and Nuisance Pests – Not applicable.

c. Structural Pests – Not applicable.

d. Weed Pests

(1) Submerged: Bushy pond weed, hydrilla, coontail, elodea, slender spike rush and southern naiad make up the majority of the submerged weeds in the storm water canals throughout the base. Reward (Diquat) herbicide is used to control all submerged weeds. Dredging is always an option if an area becomes too infested and restricts water movement.

Triploid grass carp are also used to control aquatic vegetation and reduce the dependence on chemical herbicides. Grass carp eat bladderwort, chara, coontail, elodea, floating duckweed, naiad, nitella, pondweed and watermilfoil.

(2) Floating: Duck weed, water hyacinth and pondweed are also prevalent in our storm water canals. Reward herbicide normally controls these weeds, but occasionally a second treatment with Rodeo herbicide will eliminate hard to kill areas. Dredging is always an option if an area becomes too infested and restricts water movement.

(3) Emerged: Cattails are of a major concern primarily because of their visibility. Other emerged weeds consist of soft rush, bull rush, alligator weed and willow. Normal control methods include using Rodeo and Reward herbicides. Dredging is always an option if an area becomes too infested and restricts water movement.

(4) Grassy: The concern is Manatee Cove Golf Course, which is a high visibility, special event area. Crabgrass and yellow nutsedge are the primary weeds in this location-- Lesco 3 Way and Orthene are used for treatment

e. Stored Product Pests: Due to inventory control and stock rotation, we have had no problems concerning Stored Product Pests.

f. Ornamental Plants and Turf Pests

(1) Caterpillars: Once a year these pests invade the oleander bushes throughout the base. Sevin SL is the current insecticide used to control these insects.

(2) Scale: Under normal circumstances we would not treat for scale, but a new species was introduced through Miami and has rapidly spread north attacking sago palms through the state of Florida. There is no known cure to eradicate this species. Currently, Merit systemic insecticide is used to sustain the plants life, but does not eliminate the pest. In the future, it will be requested that the plant be removed and destroyed to prevent future infestations in new plants.

(3) Chinch Bugs: Although prevalent in base lawns, only high visibility, high profile lawns are treated. If requested, Talstar PL is the only chemical in stock used to control chinch bugs.

g. Miscellaneous Pests

Moles: Moles are mostly a problem on the softball and soccer fields. However, occasionally, moles will infest the golf course in the fairways and on the putting surfaces. Traps are the only method used for these pests.

h. Vertebrate Pests

(1) Raccoons: The main concern involving raccoons is the destruction of sea turtle nests during the nesting season. In coordination with CEV, Hav-a-Heart traps are strategically placed to prevent raccoons from disturbing the turtle nests. Brevard County Animal Control is notified of any captures and the raccoons are relocated off the installation. The same applies to any raccoons trapped on the installation as well.

(2) Opossums: These animals occasionally invade garbage cans and public areas that require removal. Physical removal with animal control poles and Hav-a-Heart traps allow shop personnel to relocate the animal without harming it.

(3) Snakes: Snakes are not a major concern on the installation. An occasional Black Racer or Yellow Rat Snake will pop up where they're not wanted. Removal and relocation are the typical control measures used. Venomous snakes have not been an issue.

(4) Birds: There are numerous species located on the installation due to the region in which we are located.

5. Administration

a. Resources

(1) Staff. One certified spray technician assigned to golf course, under the supervision of the Maintenance Superintendent and the Director of Golf.

(2) Materials. Pest control equipment is limited to two spray vehicles. One sprayer is for all of our aquatic use and the other sprayer is for the Bermuda turf on the course. Three-gallon pesticide hand pump sprayers for spot spraying certain areas.

(3) Facilities. Pesticides are stored in building 1470. This facility is equipped with emergency shower and eyewash station. Mixing is performed at this location. All Personnel Protective Equipment is also stored in building 1470.

b. Reports and Records

(1) Spray technician report and record every pesticide application to the Superintendent. All records are filed in the Superintendents office. 45 CES/CEOFI receives a monthly report of all pesticides applied. The Fire Department also gets quarterly inventory of all pesticides in bldg. 1470.

(2) Training Plans: Under the "DoD Pest Management Program" all pesticide applicators are certified. All pesticide applicators and supervisory personnel attend Hazard Communication, Hazardous Waste Operator, and Respiratory Protection training.

6. Health and Safety Measures

a. Requirements. DoD I 4150.7 Pest Management Program is the primary regulatory document and is implemented by AFI 32-1053. AFI 32-1053 also requires compliance with the OSHA EPA, and dot regulations contained in 29 Code of Federal Regulations (CFR) 1910, 1925, 40 CFR 150-189, and 49 CFR 171.

(1) Hazards:

(a) Shop personnel can be exposed to pesticides that may enter the body through skin contact, inhalation or ingestion. Other hazards include but are not limited to: bee stings, spider bites, heat exhaustion, falls, back injuries, animal bites and hazardous noise.

(b) The public may come in contact with pesticides before they are dry; therefore proper placement of pesticides is crucial. Shop personnel are trained to avoid chemical placement that would present a hazard by human contact.

(2) Safety and Health Aspects of the Shop. The chemical storage building is separate from the office. The chemical storage room is equipped with exhaust fans which are monitored quarterly by BEE to ensure they meet the standards. Both chemical and mixing room floors are curbed, sloped to the center and have no floor drains to prevent further contamination in the event of a spill. The water system is fitted with back flow preventers to protect the water supply. The office building contains the locker room, showers (male and female), rest rooms, laundry and break rooms.

b. Methods to reduce Potential Hazards

(1) Pest Management Personnel. Pest Management Personnel are trained in Hazard Communication. Personnel are briefed on the Hazards associated with prolonged exposure to pesticides; even those classified as unrestricted use. Emphasis is placed on reading and understanding the product label. All pesticides are stored and mixed in one location. The environmental technician controls entry to the pesticide storage facility.

(2) Installation Personnel and the Public. Signs are posted at the facility to inform golfers and their guests of any spraying operations conducted on the golf course.

c. Safety and Health Measures associated with Pest Management Shop. Personnel are equipped with respirators with the appropriate cartridge, gloves, mixing tools, aprons, and

goggles. Personnel receive annual physical examinations. Pulmonary function tests and respirator fit tests. Quarterly cholinesterase blood level monitoring is done by the base hospital.

d. Safety and Health measures associated with Pest Management Vehicle. Pest management vehicles are equipped with sign displaying pesticides spraying in progress. Spill response materials are also carried on the vehicle.

7. Coordination with Other Organizations and Agencies. Not applicable.

8. Public Laws and Regulations. The following publications are maintained in the shop and are used in accordance with Federal, State and Air Force Instructions. AFI 32-1053, Department of Defense Directive 4150.7, Technical Information Manuals 11,13,14, 15, 16, 18, 20, 21, 22, 23, 24, 26 and 27, Mil-HDBK 1028/8A, Air Force Occupational Safety and Health Standard 161-2 and Air Force Manuals 91-16, 91-19 and 126-2. The most stringent are followed for pesticide storage and application.

9. Measures for Compliance with Memorandum of Understanding with State Pesticide Regulatory Office(s). Not Applicable.

10. Pest Management Operations with Special Environmental Considerations

a. Operations using Restricted Use Pesticides. Restricted use pesticides are typically not utilized at Manatee Golf Course.

b. Operations with Potential to Contaminate Surface or Groundwater. Mixing operations are conducted at building 1470 outside the facility on an impervious concrete pad with a sloped floor drain. Any spillage during mixing operations will flow into the drain where it can be recovered.

A water retention pond is located on the east side of the facility. Any spillage during mixing operations has the potential of flowing into the retention pond if the spill drain fails to function properly.

c. Operations More Than 640 Acres. Not Applicable.

d. Endangered or Protected Species. There are several protected or endangered species in our area. Before any operation is conducted concerning protected or endangered species, CEV is contacted to ensure none of these species will be adversely affected. CEV will provide a list of all protected or endangered species in the local region.

e. Operations Involving Aerial Applications. Not Applicable.

f. Operations Involving Designated Noxious Weeds. All weed control will be on non-cropland areas. Any operations concerning Designated Noxious Weeds are planned and coordinated through the 45 CES/CEV office.

g. Operations involving Experimental-Use Permits. Not Applicable.

h. Operations Involving Environmentally Sensitive Areas. Any operation involving potentially environmentally sensitive areas is coordinated through 45 CES/CEV.

11. Other Pest Management Plan Issues

a. Applicable Pollution Prevention Procedures. All pesticide containers are triple rinsed prior to disposal. The rinsate is utilized in pesticide mixing only and not disposed.

b. Applicable Pollution Abatement Procedures. Not Applicable.

c. Pesticides Sold in Commissaries and Exchanges. Not Applicable.

12. Pest Management Plan for Services Provided to other Activities or Installations. Not Applicable.

13. Attachments

a. Attachment 1. Manatee Cove Golf Course Map

b. Annual Pesticide Procurement Approval Obtained from the Cognizant Component Pest Management Consultant Prior to Procurement of Pesticides. Not Applicable.

c. Attachment 2. Pesticide Inventory including pesticide name, manufacturer, unit of issue, concentration, quantity, NSN, Etc..

d. Pesticide Labels, Material Safety Data sheets and Consumer Protection Information Sheets for Preservative Treated Wood Products. Maintained electronically.

e. Operation Control and Maintenance Records from Previous Years. Control and maintenance records are maintained in building 1475.

f. Applicable Instructions and Procedures. Maintained in the building 1475.

g. Contracting Standards, Specifications, and Statements of Work. All contracting standards, specifications and statements of work are maintained in the 45 CES Maintenance Engineering section.

h. Manpower Surveys. Not applicable.

i. Attachment 3. Shop Equipment and Sources

j. Attachment 4. List of Safety Items and Personal Protective Equipment

k. Technical Information. Maintained in the building 1475.

l. Spill Plan and Pesticide Clean-up Guidance. Maintained in building 1475.

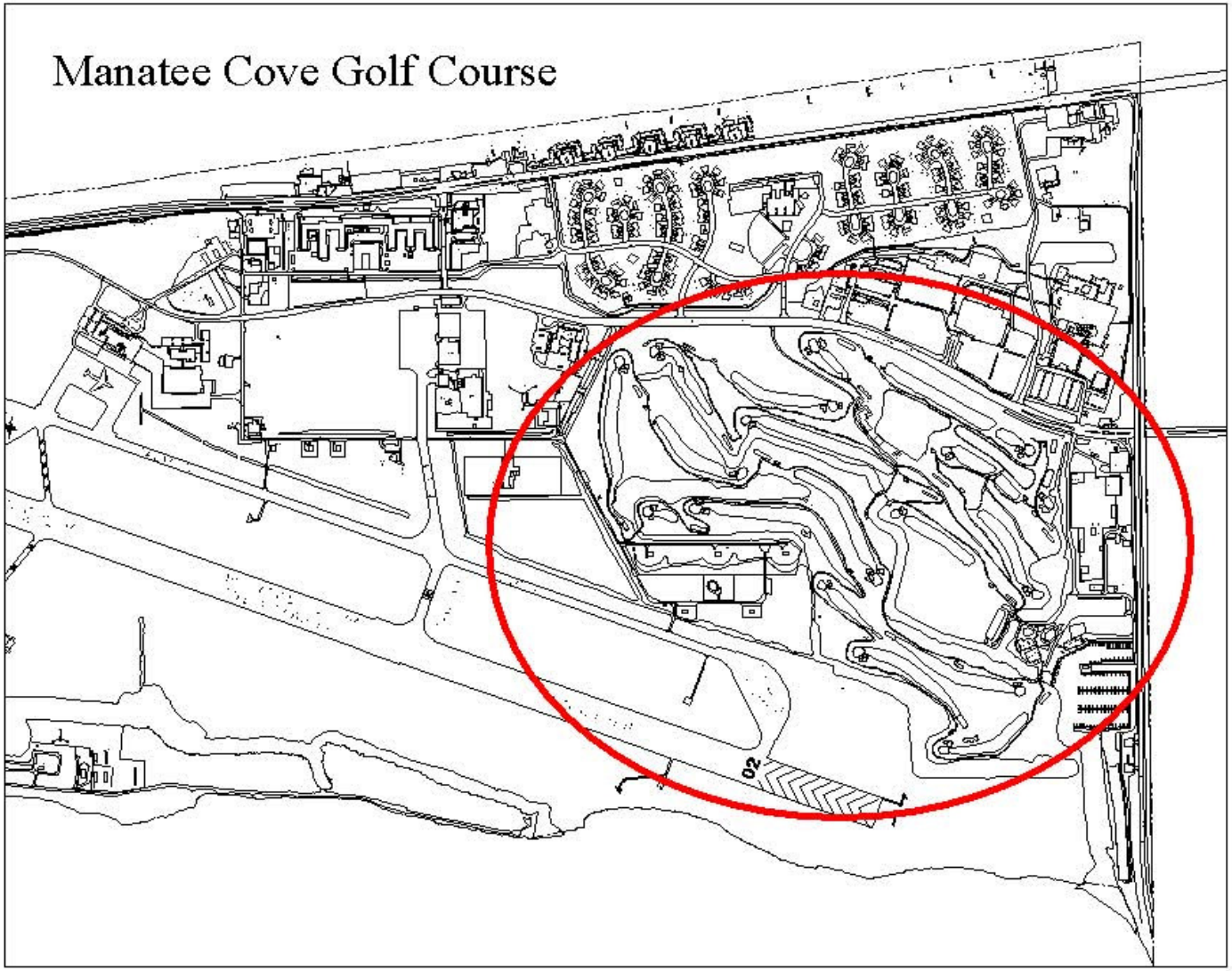
m. Industrial Hygiene Surveys of Pest Management Shop. Maintained in building 1475.

n. Cost Comparison Analyses. Not applicable.

o. List of pesticides applied (in FY06 and FY07) at the golf course that require MAJCOM approval:

Barricade
Basamid (currently not approved but being reviewed by MAJCOM)
Bisect CG
Cleary 3366F
Corsair
Curfew
Manage
Orthene
Revolver

Attachment 1
Manatee Cove Golf Course



Attachment 2
Pesticide Inventory usage FY 2002

Pesticide	EPA Registration Number	Pesticide Applied lbs	Active Ingredient	Percent Active Ingredient	Active Ingredient Applied lbs
Heritage	10182-408	3.75	Azoxystobin	50.0	
Manicure	50534-209-10182	12.5	Chlorothalonil	54.0	
24 GT	432-888	10.0	Iprodione	23.3	
Reward	10182-404	10.0	Diquat Didromide/Glyphosate Inform	37.3	
Rodeo	524-343	21.8	Isopropylamino Salt	53.8	
MSMA	42519-1	105.6	Monosodium Acid	51.0	
Lesco 3 Way	10404-43	49.5	Dimethylamino	49.7	
Daconil	50534-211-10182	70.8	Chlorothalonil	54.0	
Illixon	960001	40.0	Dicofp Methyl	34.7	
Manage	524-465	.2	Methyl 5	75.0	
Orthene	59639-91	18	Acephate	97.0	
	Total:	341.75		Total:	

Pesticide Inventory usage FY 2003

Pesticide	EPA Registration Number	Pesticide Applied lbs	Active Ingredient	Percent Active Ingredient	Active Ingredient Applied lbs
Heritage	10182-408	3.0	Azoxystobin	50.0	1.5
Manicure	50534-209-10182	62.2	Chlorothalonil	54.0	32.0
24 GT	432-888	10.0	Iprodione	23.3	
Reward	10182-404	54.0	Diquat Didromide/Glyphosate Inform	37.3	19.5
Sencor 75	3125-325	9.0	Metribozin	75.0	6.7
MSMA	42519-1	215.8	Monosodium Acid	51.0	119.2
Lesco 3 Way	10404-43	107.3	Dimethylamino	49.7	53.6
Daconil	50534-211-10182	45.0	Chlorothalonil	82.5	38.0
Illixon	960001	8.3	Dicofp Methyl	34.7	2.8
Manage	524-465	.2	Methyl 5	75.0	.175
Orthene	59639-91	20.0	Acephate	97.0	2.0
	Total:	534.8		Total:	

Patrick AFB Golf Course Pesticide Usage Total for 2004

Patrick AFB Golf Course Pesticide Usage Total for 2004			
Pesticide Name	Active Ingredient	Target Pest	LBS Active Ingredient Used
Heritage	Azoxystrobin	Disease	1.5
Daconil Ultrex			37.125
Reward	Diquat	Aquatic weeds	1.0
Lesco Three Way	2-4-D, MCPP, Dicamba	Weeds	28.84
Sencor	4-Amino-6	Weeds	6.75
		Total	75.215 LBS

Patrick AFB Pesticide Usage Total for 2005

Shop Name: Golf Course as Reported	Pesticide Type	EPA Reg. #	Trade Name	PAI for 2005 Rounded to nearest hundredth
	Fungicide			
		10182-408	Heritage Fungicide	0.22
		50534-209-10182	Manicure	51.00
		707-87	Fore	7.20
			Total Fungicide For Golf Course	58.42
	Herbicide			
		10404-43	Lesco Three Way	244.18
		3125-325	Sencor	5.25
		34704-218-65783	Mec Amine - BG TURF	5.50
		34704-239-65783	MEC AMINE-D TURF	8.00
		59639-91	Orthene Turf, Tree & Ornamental	2.91
		62719-166	Dursban Pro	0.00
		34704-834-65783	Ronstar with Fertilizer	67.00
			Total Herbicide For Golf Course	332.84
Pest Management				
	Fungicide			
		None		
			Total Fungicide for Pest Management	0.00
	Herbicide			
		524-343	Rodeo	882.90
		524-475	Roundup	32.00
			Total Herbicides for Pest Shop	914.90
	Insecticides			
		10088-93-11861	DriCide	7.50

		132-1217	Top Choice	0.09
		10807-150-11861	Ambush	0.21
		279-3168	Talstar PL	0.30
		40208-2	Raze	0.00
		432-1258	Maxforce Lg Roach Bait	0.00
		478-126-8845	Hot Shot Fogger	0.00
		499-310	PT 565	1.75
		499-362	Wasp Freeze	0.14
		6218-47	Bactimos	0.48
		64248-10	Maxforce FC ant bait stations	0.00
		64248-19	Maxforce Granular ant bait	0.17
			Total Insecticides for Pest Shop	10.64
	Rodenticide			
		56-58	AC-90	0.00
			Total Rodenticide for Pest Shop	0.00
Self-Help Store				
	Herbicide			
		538-18	Scotts Weed & Feed	59.50
			Total Herbicide for Self Help	59.50
	Insecticide			
		149-8	Terro	0.47
		1812-348-40849	Zep Ant Bait	0.00
		1812-354-40849	Zep Roach bait	0.01
		241-260	Amdro	0.19
			Total Insecticides for Self Help	0.67
Grounds Maintenance				
	Herbicide			
		829-268	Atrazine	10.04
		228-366-10404	Prosecutor	120.00
			Total Herbicide for Grounds	130.04
Ball Fields				
	Herbicide			
		432-1217	Top Choice	0.90

		Total Herbicides For Ball Fields	0.90
Rodenticide			
	7173-184	Gopher Bait	1.75
		Total Rodenticide for Ball Fields	1.75
		TOYAL PAI FOR PATRICK AIR FORCE BASE	1509.66

Patrick AFB Golf Course Pesticide Inventory 2004

Target Pest	IPM Used	Pesticide Name	EPA Reg #	DoD Appr	Active Ingredient
Disease	Sprayer	Heritage	131860-33-8	Y	Azoxystrobin
Fire Ants	Spreader	Chipco Fire Star	432-1219	Y	Fipronil
Aquatic Weeds	Sprayer	Reward	85-00-7	Y	Diquat
Weeds	Sprayer	Roundup-Pro	524-475	Y	Isopropylamine Salt
Weeds	Spray	Lesco 3-Way	94-75-7	Y	2-4-D, MCPP, Dicamba
Nematodes	Spray	Nemacur 10%	22224-92-6	Y	Ethy 3-Methy-4-(methythio)-phenyl (1-methylethyl)
Disease	Mechanical	Fore	08018-01-7	Y	Mancozeb
Weeds	Mechanical	Sencor	3125-325	Y	4-Amino-6
Disease	Spray	Manicure DG	1897-45-6	Y	Tetrachloroisopbtnalortine
Weeds	Mechanical	Barricade 4FL	29091-21-2	Y	Prodiamine
Growth Regulator	Spray	Primo Maxx	95266-40-3	Y	Trinexapac-ethyl
Weeds	Spray	Revolver	173159-57-4	Y	Foramsulfuron
Weeds	Spray	Corsair	10404-59-228	Y	Chlorsulfuron
Disease	Mechanical	26 GT (Bayer)	432-888	Y	Iprodione
Mole Crickets	Bait	Bisect C6	279-3167-65783	Y	BiFenthrin
Mole Crickets	Bait	Top Choice	2921-88-2	Y	Organophosphate
Algarcide	Mechanical	Zero Tol	70299-1	Y	Hydrogen Dioxide
Goosegrass	Mechanical	Illoxan	8340-20-54382	Y	Diclolop-Methyl
Weeds	Spray	Manage	524-465	Y	1H-Pyrazole-4Carboxylic Acid
Weeds	Mechanical	Oxadiazon	34704-834-65783	Y	0.678 Ronstar fertilizer
Weeds	Spray	Mec Amind BG	34704-218-65783	Y	Dimethylamine Salt of 2,4-D
Fungicide	Spray	Rubigan A.S.	62719-142	Y	Fenarimol
Insecticide	Spray	Sevin S.L.	264-335	Y	Carbaryl

Patrick AFB Golf Course Pesticide Inventory 2005

PRODUCT,MFG	DESCRIPTION	AMOUNT ON HAND
VERDICON	MEC AMINE D HERBICIDE	22 GALS
LESCO/UNITED	3 WAY HERBICIDE	SAME
FORE	FUNGICIDE	4LBS
ORTRENE	INSECTICIDE	0
SEVIN SL	INSECTICIDE	4 GALS
LESCO	TRACKER GREEN	0
LESCO	ANTI FOAM	1 GAL
ALL CLEAR	TANK CLEANER	3 GALS
SENCOR	HERBICIDE	5 LBS
RODEO	AQUATIC HERBICIDE	2.5 GALS
MANAGE	HERBICIDE	1.3 OZS
HERITAGE	FUNGICIDE	1 LBS
ROUND UP	HERBICIDE	12.5 GALS
CLEARY	FUNGICIDE	2 GALS
RESPOND	WETTING AGENT	2.5 GALS
REVOLVER	HERBICIDE	2 QTS
RUBIGAN	FUNGICIDE	4 GALS
BARRICADE	HERBICIDE	1 GAL
ANDERSON	HERBICIDE	1 BAG
PRIMO	GROWTH REGULAR	.5 GAL
CORSAIR	HERBICIDE	0
CHIPCO	INSECTICIDE	2 LBS
FIGHTER F	ANTI FOAM	1 GAL
GARLON 4	HERBICIDE	33 GALS
RONSTAR	HERBICIDE FERTILIZER	6000 LBS
LESCO	HORTICULTURAL OIL	2.5 GALS

Listing of Equipment and Personal Protective Equipment

EQUIPMENT LISTING

Multi-Pro 1100 Sprayer	1 Each
Utility Tractor	1 Each
Turf Truckster 2/top doors	1 Each
Gas Turf Utility Vehicle	1 Each
John Deere Tractor	1 Each
Toro Greens Aerator	1 Each
Pro-Fertigation System	1 Each
Toro Top Dresser	1 Each
Greensmaster 3000	1 Each
Star Spraying Unit	1 Each
Vicon Fertilizer Spreader	1 Each
Granular Push Spreaders	8 Each

SAFETY/PPE

Spill Kits	2 Each
First Aid Kits	1 Each
Ear Muffs	1 Pair
Hard Hats	1 Each
Steeled Toed Boots	2 Pair
Respirators (Full & Half Faced) Bio Approved	1 each
Gloves Nitrile Rubber (5MM)	11 Pair
Coveralls Cotton	1 each
Overboots	4 Pair
Face Shields	1 Each
Goggles	5 Each

Appendix C

Cape Canaveral Air Force Station

Pest Management Plan

Revised 2006

PEST MANAGEMENT PLAN
AND
PEST CONTROL TRAINING PROGRAM

INSECT, RODENT, AND ANIMAL CONTROL SERVICES

45th Space Wing
United States Air Force
CAPE CANAVERAL AIR FORCE STATION, FLORIDA
Including the Florida Annexes

REVISION 7

April 7, 2006

TABLE OF CONTENTS

PEST MANAGEMENT PLAN

CAPE CANAVERAL AIR FORCE STATION

Revision 7 7 April 2006

1. EXECUTIVE SUMMARY

The following Air Force plan details the Creative Management Technology, Inc (CMT) pest management practices and activities for the Cape Canaveral Air Force Stations (CCAFS) in accordance with direction from the 45th Space Wing (45SW), through the prime contractor, Space Gateway Support (SGS), to comply with the format and content for pest management plans detailed in DODI 4150.7.

2. INTALLATION IMPLEMENTATION AUTHORITY

CMT performs pest control services as a subcontractor to SGS under contract SGS-10-98-0016. Authority to perform this work stems from SGS's contract for Joint Base Support Operations and Support Contract (NAS10-99001), managed by the Cape Canaveral Spaceport Management Office (CCSMO), which is a joint venture between the Air Force and the National Aeronautics and Space Administration (NASA).

From the CCSMO internet website:

> The CCSMO was established in 1998 to oversee the Joint Base Operations and Support Contract (J-BOSC). J-BOSC is a joint initiative between NASA, Kennedy Space Center (KSC), and the United States Air Force, 45th Space Wing (45th SW), for the furtherance of cost efficiencies, customer satisfaction, and marketability of joint resources.
>
> *Mission* - To provide, through a cooperative and visionary process, a safe, efficient and effective environment that provides premier base support for the space launch community

Pest control services are conducted in compliance with Air Force Instruction (AFI) 32-1053.

3. INTRODUCTION

CMT provides pest control services for the CCAFS and associated remote sites known as the Florida Annexes as a subcontractor on the Joint Base Support Operations Contract (J-BOSC). SGS is the prime contractor for this contract.

CMT provides a diverse pest management program dealing with a variety of insects and animals.

a. Objective of the Pest Management Plan

In compliance with Air Force direction the Pest Management Plan is designed as a guide for pest control activities in order to establish and maintain a safe, efficient, and environmentally sound Integrated Pest Management (IPM) program.

The primary objective for the Plan is to prevent, manage, or limit pest activity that may interfere with the CCAFS mission, adversely affect health, or damage property, structures, equipment, or material.

b. Installation Description and Mission

CCAFS is located on the east coast of Florida, approximately 60 miles east of Orlando. The AFS is directly adjacent to the Kennedy Space Center (KSC), which is to the west and which shares a contiguous boarder. Located on a large reservation of typical Florida scrub and wetlands as would be found in any coastal area, there are a large number of facilities located on CCAFS, ranging from industrial and storage types, to office and technical facilities.

From the official CCAFS Commander's internet website:

> Det 1, 45th Mission Support Group, otherwise known as the Cape Commander's office, is responsible for the day-to-day operations at Cape Canaveral Air Force Station. These responsibilities include monitoring multiple space launch support contracts with an estimated value in excess of $100 million dollars, as well as the management of facility repair/maintenance and utilization, and the security and environmental protection for the Cape. The commander of Det 1 exercises operational control over Mission Support Group personnel supporting Cape Canaveral AFS: security, civil engineering, contracting, and services. The Cape Commander and staff are also the stewards of the Cape, having responsibility for assets which include over 16,000 acres, over 1500 facilities, 4.6 million square feet of office space, and nearly $600 million in real estate with a work force of 10,000 people. The Cape Commander and staff are stewards of the environment with responsibility for protecting the wildlife, both endangered and protected species, as well as the plant life. Finally, the Cape Commander and his deputies serve as On-Scene Commander of Disaster Response Forces for all space launches and hazardous operations.

c. Responsibilities for Conduct of the Pest Management Program

CMT personnel assigned to the CCAFS Pest Management Program are responsible for achieving the mission and objectives stated in this Plan.

CMT personnel assigned to the CCAFS Pest Management Program conduct pest control activities in accordance with Air Force regulations and instructions, and Federal, State, and local law.

Pest Control Technicians (PCT) ensure all pesticides are applied in accordance with policies stated in this plan, that appropriate regulations and instructions are satisfied, and that all safety requirements are met. Personnel notify Bio Environmental Engineering (BEE) and Public Health (PH) prior to any application in food preparation or consumption facilities and medical facilities in accordance with Air Force Instruction (AFI) 32-1053. In addition, personnel maintain the Integrated Pest Management Information System (IPMIS) and provide monthly, quarterly, and annual usage reports of all pesticides applied on the installation to Civil Engineering (CEV) and provide BEE and Fire Department with a quarterly chemical inventory.

On a fundamental level, PCT's are responsible for:

- Identification of pests.
- Knowledge of control methods.
- Conduct of benefit versus risk analysis for proposed control methods.
- Selection of correct control methodology. Methods are to balance effectiveness with potential harm to personnel and the environment.
- Technical proficiency for application of control methods.
- Compliance with Air Force regulations, and Federal, State, and local law.

4. PEST MANAGEMENT REQUIREMENTS AND STRATEGIES FOR APPLICABLE PEST/DISEASE VECTOR CATEGORIES

Positive identification of a pest is necessary for proper control. Specific pesticides or herbicides are often required for specific insects or plants. This specificity often requires special application for different species of the same family of pests or plants. Proper identification will aid in selecting a pesticide or herbicide that will control the target pest/plant with the least amount of adverse effects on the environment.

a. Disease Vectors and Health Related Pests

(1) Mosquitoes

Mosquitoes are persistent pests prevalent in all areas of CCAFS. Mosquitoes interfere with operations on CCAFS as they are an annoyance to personnel working outdoors due to the itchy reaction to their bite. Additionally they are a disease vector, carrying various infectious diseases from host to host.

Monitoring –

CMT conducts monitoring of adult and larval stage mosquitoes in order to determine the level of infestation and to determine the most effective control strategies. Treatments are only applied when adult or larval mosquitoes are present, and when said treatments will be most effective.

Adult mosquitoes are found when resting during daylight hours on the undersides of plant leaves, under the eaves of buildings, on the ceiling and walls of sheds, and in shaded sides of other buildings. Adult mosquitoes are active and flying during evening and night hours.

Mosquito larvae are found in potholes with standing water, cans, bottles, tires, hollow trees and stumps, manholes, and other water holding items. Larvae hatching sites are commonly species specific.

Areas where mosquitoes are found are routinely inspected and when present the species are identified for development of control activities.

In addition to CMT's monitoring activities, SGS independently monitors for mosquitoes (see attachment B – Mosquito Surveillance, CCAFS).

Control Activities -

Adult mosquitoes are controlled by the application of Permanone 31-66 in the concentrated form with a Ultra Low Volume (ULV) cold aerosol fogger.

Mosquito larva are controlled by the application of ALTOSID Briquettes, insect growth regulator (IGR), over a 130 day period under typical environmental conditions. Application is made in non-flowing water contained in shallow depressions (up to two feet in depth), placing one ALTOSID Briquette per 100 square feet of surface area.

Most mosquito larvae control is conducted by the Brevard County Mosquito Control District.

(2) Wasps and Bees
Wasps and bees are common Florida pests prevalent in all areas of CCAFS. An infestation can interfere with operations as personnel will not remain when threatened by stinging insects. Wasps and bees present a health hazard as the reaction to a sting will range from local swelling at the sting site and associated pain, up to life threatening reactions from persons allergic to the insect's venom.
Monitoring –

In general CMT does not actively monitor for the presence of wasps and bees, but rather relies on on-site personnel reporting their presence when they become a nuisance.

When reported, bees and wasps are easily observed at the point of annoyance. Locating the nest or hive must be accomplished for control. This is done in the case of honey bees by following them on the return flight to the hive. Wasps generally are to be found near the point of activity with nests in shrubs, low trees, or hollowed nests in the ground.

Mud Daubers are flying insects easily mistaken for wasps, and are harmless to humans. They are treated as pests as they are perceived as wasps. In addition their mud nests create a housekeeping problem when found in large quantities. The nests are usually found on the underside of roofs and structures and are easily identified.

Control Activities -
Application of Whitmire Wasp freeze for control of flying wasps and bees. Nesting areas are thoroughly soaked with a 0.06% of Talstar or a 0.2% spray of Demon.

(3) Spiders
Spiders are common Florida insect prevalent in all areas of CCAFS. There are only three venomous varieties of spider found in Florida; the Black and Brown Windows, and the Brown Recluse. Venomous spiders do not sting, but rather inject their venom through their bite.

The presence of spiders can interfere with operations as personnel will not remain when there is a perceived or real threat of being bitten; therefore all spiders may be treated a pests, dependant on the reaction of personnel reporting their presence. Venomous spiders present a health hazard as the reaction to a bite will range from local swelling at the site of the bite with associated pain, up to life threatening reactions from persons allergic to the insect's venom.

Monitoring –
In general CMT does not actively monitor for the presence of spiders, but rather relies on on-site personnel reporting their presence when they become a nuisance. There are

only a limited number of instances when venomous spiders are actually found to be present.

Control Activities -
Spiders are controlled by the application of a variety of common and uncontrolled insecticide chemicals for spot treatments. When located the eggs are swept down and crushed. Building custodians are instructed on sanitation practices to eliminate and prevent recurring nesting sites.

(4) Fire Ants
Fire Ants are very common throughout Florida, and are found in all areas of CCAFS.

As with venomous spiders, Fire Ants inject their venom through a bite. The individual Fire Ant bite can cause local swelling and pain, and be life threatening for persons allergic to the insect's venom. In addition is common for personnel who do not notice the presence of the ants to suffer many multiple bites. Multiple bites exacerbate the risk of allergic reaction, and even in the case of non-allergic persons could present significant health risks.

The presence of Fire Ants can interfere with operations as personnel will not remain when there is a threat of being bitten.

Monitoring –
In general CMT does not actively monitor for the presence of Fire Ants, but rather relies on on-site personnel reporting their presence when they become a nuisance

Control Activities -
Fire Ants are controlled by application of Amdro Fire Ant Bait for long-term mound eradication. Orthene powder using Acephate at 75% A.I. is used for quick knockdown in spot treatments.

(5) Rodents and Small Animals
There are a wide variety of small rodents found throughout all areas of CCFAS. While many are benign, or even ecologically beneficial, they are perceived as pests. In general rats and mice are the common pest.

Rats and mice present a variety of problems. In the course of their natural foraging and nesting activities they destroy materials, and damage equipment and buildings. They are a disease vector, either by bites or scratches from infected animals when direct contact takes place, or when they deposit infected parasites or feces in human contact areas. In addition to diseases, personnel may have allergic reaction to their feces.

In addition to the damage done to materials, equipment, and facilities, the presence of rodents can interfere with operations as personnel will not remain when present.

Monitoring –
In general CMT does not actively monitor for the presence of rodents, but rather relies on on-site personnel reporting their presence when they become a nuisance

Control Activities -
Rodents are controlled in multiple ways -

Spring traps may be utilized as required using the smaller traps for mice and the larger traps for rats. Pieces of bacon, cheese, peanut butter or red meat are commonly used as bait. Where practical traps are collected on Friday to prevent odors from rats trapped over the weekend.

Poison bait may be set out in plastic boxes marked POISON. Anticoagulants, such as Talon, are used as bait, approximately five ounces per box. Baits are changed every two to three days to ensure freshness, thereby increasing acceptance by rodents.

Other small animals, such as raccoons, skunks, cats, etc., are controlled by using the "Catch All" small animal live trap. An open can of sardines or similar enticement is used for bait.

b. General Household and Nuisance Pests

CCAFS support no housing areas; however pests common to household can be found in industrial and office areas.

(1) Cockroaches, Ants, Spiders, Scorpions and Other Crawling Insects

Cockroaches and ants are the most common of household pests throughout CCAFS. In the course of their natural foraging and nesting activities they contaminate food stuffs and preparation areas, destroy or contaminate materials, and are a nuisance when present in large quantities. Some personnel may be allergic to roaches and/or their feces. Due to their perception as "dirty" most persons will not remain in a work area where there is a roach infestation.

Scorpions and other crawling insects are less of a problem, but are perceived as undesirable by building occupants. Their identification and control is the same as that for cockroaches.

Monitoring –
In general CMT does not actively monitor for the presence of cockroaches or ants, but rather relies on on-site personnel reporting their presence when they become a nuisance. An exception is for designated food storage and preparation areas. These are monitored and treated on a monthly basis, and are subject to additional treatments when problems are reported by occupants.

When monitoring for cockroaches inspections are made under sinks, tables, in cabinets, desks, drawers, and behind stoves and refrigerators. If an infestation is present, then cockroaches, or small smears of the droppings, will be present. The smears are black and shaped like a large comma (,). The droppings will be dark brown or black, about 1/8 inch long and about 1/32 inch in diameter (-).
Monitoring for ants is made by observation of baseboards, windowsills, door entrances and wall areas. Ants will generally form a line from the nest areas to a source of food. Where ants have been observed in rooms with an exterior wall, checks are made of the

ground area adjacent to the outside of the wall for the possibility of an ant nest and the source of the ant problem. If cracks in the wall are found to be providing interior access for the ants, building maintenance are advised.

Control Activities -
All of these pests are controlled by either -

A mixture of 1 oz of TalstarOne to one gallon of water resulting in a spray solution of 0.06% is used, or

A mixture of 2 scoops of Demon WP in one gallon of water which results in a spray solution of 0.2%.

These spray solutions are applied at the rate of one gallon per 4,000 square feet using a hand sprayer with a fan type nozzle. Application is made to all cracks and crevices in walls and floors, around sinks, baseboards, cabinets, stoves, refrigerators and similar areas. Additional treatment, specifically for crack and crevices, is performed by application of Baygon Crack and Crevice Aerosol Spray. The nozzle extension is inserted into crevices to ensure maximum dispersal inside the opening. Caution is exercised when applying these chemicals in enclosed areas and all personnel in the area are notified regarding the work to be done and the chemicals to be applied.

(2) Flies (Adult and Larval)
Many species of flies are persistent and common pests throughout CCAFS. In the course of their natural foraging and reproductive activities adult flies contaminate food stuffs and preparation areas. If allowed to hatch the larval maggots can destroy or contaminate materials, and are generally unsettling to personnel. Flies may be a disease vector as the move from contaminated areas to areas where food is present. In addition to the distraction and annoyance caused by flies they are perceived as “dirty”.

Monitoring –
In general CMT does not actively monitor for the presence of flies, but rather relies on on-site personnel reporting their presence when they become a nuisance. An exception is for designated food storage and preparation areas. These are monitored and treated on a monthly basis, and are subject to additional treatments when problems are reported by occupants.
Adult flies are found on floors and ceilings, or other surfaces.

Larvae can be found in the bottom of dirty garbage cans, areas that are wet from washing food waste from floors, garbage containers, or vehicles used to transport garbage.
Control Activities -

All flies are treated as follows:

Houseflies (Adult) - Outside Areas

Application of a mixture of 2 scoops of Demon WP in one gallon of water which results in a spray solution of 0.2%, by spray solution to inside and outside of refuse containers and on adjacent grounds.

Houseflies (Adult) - Inside Facilities

Houseflies are controlled application of an aerosol spray can containing Baygon, or by use of Golden Malrin Fly bait, 1% Methomyl.

Houseflies (Larvae)

The best and most efficient method for control of housefly larvae (maggots) are performed by the building occupants, which includes daily washing or steam cleaning of all garbage containers. In garbage disposal areas (sanitary landfill), covering garbage daily with soil will give adequate control.

If treatment is required it is made by applications of a .17% Demon W.P. and water solution at the rate of one quart per 1000 square feet.

c. Structural Pests

(1) Termites.

Termite species are either subterranean or dry wood. Both species are pest due the destruction the cause to wooden building structures.

Monitoring –
CMT conducts an on-going program to monitor for Structural Pests. The schedule for these inspections is:

- Launch Complex(s) 40, 41,37,and the ITL Area: January of each year
- Space Launch Complexes 19, 20, 34, Delta VI Operations Complex and Complexes 11-16 and 46: February of each year
- Operations Area, NOTU Industrial Area, Museum Area and Complex 17 March of each year
- CCAFS Port Area April of each year
- CCAFS Industrial Area May of each year
- CCAFS Industrial Area and Skid Strip, Fuel Farms and Processing Areas June of each year

In addition, termites may be discovered when structures are modified or during maintenance, or during the swarming season when active winged insects emerge. The emergent swarms are characterized by the presence of large numbers of insects and/or the presence of their wings. When emerging the swarming insects can rapidly burrow through walls and tend to create numerous pin holes in a straight line along the mud tunnels they utilize.

Subterranean termites may be located by the presence of earthen tunnels over masonry, concrete, steel, wood, etc., which connect the underground nest with the adjacent feeding area. Discarded wings and hollow spots in wood with dirt or excrement visible are signs of subterranean termites.

Dry wood termites may be located by deposits of wood dust or wood powder and clean smooth cavities in wood.

Control Activities -
Termites are controlled by application of a solution using 2 gallon Termidor in 98 gallons of water, which gives a final spray concentration of 1%,or, a one % solution of Termidor applied as outlined below.

Termite Control Measures for Infested Buildings with Wooden Floors Above Ground

- Application of chemical soil barriers by trenching completely around all foundation walls and piers to approximately six inches in depth and width. Apply Prelude solution at the rate of one gallon per four (4) linear feet into the trench. Replace dirt in trench and treat backfill with enough solution to wet thoroughly.
- Destroy tunnels and nests and saturate with chemical barrier mixture.

Termite Control Measures for Infested Buildings with Concrete Slab Floors

- Trench outside foundation walls and treat the same as for buildings with wooden floors.
- Treat fill under the slab by soaking through expansion joints or through 1/2 inch holes drilled in the slab or foundation walls.

Dry wood termites are only known to found in the plywood slates used in warehouse shelving. When these are found to be actively infested, a spot treatment is made and it is recommended the warehouse replaces the plywood.

(2) Carpenter Ants.
Carpenter Ants cause structural damage through nest building. Unlike termites, the ants do not eat the wood, but burrow into affected wood creating tunnels and cavities for nests. The cavities are clean as the ants push all debris out, creating “sawdust” mounds which are one of the indicators of the infestation.

Monitoring –

CMT conducts an on-going program to monitor for Structural Pests. The schedule for these inspections is:

- Launch Complex(s) 40, 41,37,and the ITL Area: January of each year
- Space Launch Complexes 19, 20, 34, Delta VI Operations Complex and Complexes 11-16 and 46: February of each year
- Operations Area, NOTU Industrial Area, Museum Area and Complex 17 March of each year
- CCAFS Port Area April of each year
- CCAFS Industrial Area May of each year
- CCAFS Industrial Area and Skid Strip, Fuel Farms and Processing Areas June of each year

In addition carpenter ants may be discovered when structures are modified or during maintenance, or may be noted when scouting for food. A large number of carpenter ants scouting inside a building indicates a nest is nearby.

Carpenter ants are most active at night. Their nests may be located by following scout ants back to it.

Control Activities -

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Carpenter ants are controlled by locating the nest, then applying a dust insecticide.

d. Weed Control

Weed control on CCAFS is performed on non-cropland areas., such as fence lines, double fence security zones, railroad beds, roadside areas, storage areas, utility and plant sites.

Weed control is performed either by an established schedule or when requested by area occupants.

Weed control is performed by application of the herbicide Krovar I DF, approved # NSN 6840-00-001-7710, per manufacturer's direction.

Control of annuals and partial control of perennials such as Bermuda grass, is made by application of 6 lbs. of herbicide per acre. Hard-to-kill perennials such as Bermuda grass, bouncingbet, dogban, Johnson grass, nutsedge, and saltgrass, require application 10 lbs. per acre. Higher dosage rates are utilized on absorptive soils (high in organic matter or carbon). Best results are achieved when application is made just before weed emergence or in early stages of weed growth.

Control of weed areas is made by application of 6 lbs. of herbicide, mixed with 100 gallons of water per acre, and applied when annual weeds and grasses reappear on sites where weed growth has been previously controlled.

e. Stored Product Pests

Due to inventory control and stock rotation, there is no requirement for control of "Stored Product Pests".

f. Pests of Ornamental Plants and Turf

Not applicable.

g. Pests of Natural Resources

Not applicable.

h. Golf Course Pests

Not applicable.

i. Miscellaneous Pests

Pigeons, House Sparrows, Starlings and Sea Gulls may become pests when the congregate in areas where contamination by their feces is undesirable.

In problem areas birds are controlled by the use of Bird-X or Bird-Proof repellent containing Polybutene. Bird-Proof is a non-toxic, sticky chemical that makes a surface tacky and uncomfortable to birds. It is harmless to metal structures and applied with a standard 10" caulking gun to any surface where the birds roost or perch. It may be used in any weather, indoors or outdoors.

j. Vertebrate Pests

(1) Raccoons

The main concern involving raccoons is the destruction of sea turtle nests during the nesting season. When requested, Hav-a-Heart live traps are strategically placed to capture and prevent raccoons from disturbing the turtle nests. Brevard County Animal Control is notified of any captures and the raccoons are relocated off the installation. This methodology is utilized for other areas where raccoons have become a problem.

(2) Opossums

These animals occasionally invade garbage cans and public areas which require removal. Physical removal utilizing animal control poles and Hav-a-Hart traps allow shop personnel to relocate the animal without harming it.

(3) Snakes

Snakes are generally not a major concern however an occasional Rattle Snake or Pigmy Rattler becomes a nuisance. These are caught, removed and then destroyed. All other snakes are relocated and released.

k. Other Categories

Ships: CMT provides pest control services when requested to ships at the Military Port. Treatment is made by application of Talstar for the eradication of crawling pests. Tempo 20 W is used at a 0.05% active ingredient concentration. Baygon aerosol spray (Whitmire) may be used for crack and crevice treatments.

5. ADMINISTRATION

a. Job orders (Work orders)

Work orders are received either directly from established customers or through SGS Work Control.

b. Contracts

CMT performs pest control services as a subcontractor to SGS under contract SGS-10-98-0016. Authority to perform this work stems from SGS's contract for Joint Base Support Operations and Support Contract (NAS10-99001), managed by the Cape Canaveral Spaceport Management Office (CCSMO), which is a joint venture between the Air Force and the National Aeronautics and Space Administration (NASA).

c. Inter-Service Support Agreements

CMT is not a party to any Inter-Service Support Agreements, however; within the scope of contract pest control services are provided to any CCAFS tenant or transient agencies as directed by CCSMO through SGS.

CMT supports a cooperative agreement between the Air Force and the Brevard County Mosquito Control district for dropping mosquito larvicide, at their discretion.

d. Outleases

Not applicable.

e. Resources (Current and Proposed)

(1) Funding

CMT is funded through FY08 through its subcontract with SGS.

(2) Staffing

CMT provides all personnel as required to perform the scope of work.

(3) Materials (Pesticides, Equipment, Supplies, etc.)

CMT provides all equipment and materials as required to perform the scope of work.

(4) Facilities

CMT utilizes the CCAFS Pest Control Facility (Building 44633), designed and provided by the Air Force through SGS.

f. Reports and Records

(1) Monthly inventory reports are maintained at the Pest Control Facility. Copies are provided to the Patrick AFB Base Hospital (BEE) and the SGS Fire Department on quarterly basis.

(2) Pesticide usage reports are summarized and sent by the CMT corporate office to the CEV (USAF) who then forwards the report to the Air Force Space Command on a monthly, quarterly and annual basis. All records of pesticide usage are maintained utilizing the Integrated Pest Management Information System (IPMIS) database as required by the Air Force.

g. Training Plans

Training is accomplished on a continual basis. All personnel are trained in the following categories by the Pest Control Supervisor to endure the safe handling and proper use of pesticides and pesticide equipment.

- Chemical product label comprehension
- Equipment operation, calibration and minor repair
- Use of safety equipment on all operations
- Larviciding and fogging operations for mosquito control
- Proper mixing procedures
- Triple rinsing
- Various local venders provide seminars which allow our personnel to stay abreast of the latest pest control techniques
- Continuing education for all certified operators
- All personnel attend all Safety classes deemed necessary by SGS standards including but not limited to HAZCOM, fire extinguisher and respirator training.

A comprehensive Training Plan which closely supports the Pest Management Plan is found as Attachment A to this document.

h. Coordination With Food Service Managers

Food preparation, storage, and servicing areas are treated in compliance with Air Force, Federal, State, and local regulations. Treatments are provided on a scheduled basis, and on a service order basis.

Coordination with Food Service Managers is accomplished through the established service schedule. A Pesticide Service Notification form is provided to the appropriate managers indicating the schedule for treatment of food facilities for CCAFS a month in advance of the schedule. This schedule is also provided to BEE. The schedule lists the facility number, common name, the proposed date of service and what pesticides will be used.

i. Structural Pest Inspection Plan

CMT conducts an on-going program to inspect for Structural Pests. The schedule for these inspections is:

- Launch Complex(s) 40, 41,37,and the ITL Area: January of each year
- Space Launch Complexes 19, 20, 34, Delta VI Operations Complex and Complexes 11-16 and 46: February of each year
- Operations Area, NOTU Industrial Area, Museum Area and Complex 17 March of each year
- CCAFS Port Area April of each year
- CCAFS Industrial Area May of each year
- CCAFS Industrial Area and Skid Strip, Fuel Farms and Processing Areas June of each year

6. HEALTH AND SAFETY MEASURES

a. Requirements

Personnel assigned to the Pest Control Program comply with health and safety standards established for all J-BOSC employees. Where there are specific requirements for pest control activities personnel comply with applicable Federal, State, and local laws.

There are over 1,000 documents detailing various health and safety requirements under J-BOSC. These are available at the SGS internet website. Examples of these are:

- OSH-P-0100, SGS Safety and Health Program
- OSH-P-0207, Hazard Communication Program
- OSH-P-0203, Personal Protective Equipment Program
- Q3861, Small Container Chemical Handling and
- OSH-P-0210, Respiratory Protection Program
- EVH-I-S112, Animal Bite Exposure Incidents

b. Methods to Reduce Potential Hazards to:

(1) Pest Management Personnel

Health Monitoring –
Each Pest Control Technician (PCT) receives annual medical exams at the Environmental Health Facility, KSC. These physicals determine both the fitness to perform the assigned tasks and monitor the employee's health in regard to exposure to hazardous materials.

These examinations are:

- Insect, Pest, Rodent Control (IRC)
- Respirator 1 and 2 (RE1, RE2)
- Heavy Equipment (HE)

Respiratory Protection –
Pest Control Technicians utilize appropriate respiratory protection devices, dependant on specific chemical in use. SGS Technical Training conducts Respirator fit tests annually for all PCT's.

Material Safety and Data Sheets (MSDS) –
MSDS for Pest Control pesticides are available at the Pest Control Facility, on the J-BOSC web site and through subscribed services. PCT's review the MSDS documents for chemicals utilized by PCT's for manufacturer's information and instructions on mixing, storing, and applying all chemical before use.

Training –
PCT's receive training throughout the year. A portion of the on-going training is performed on the job site (as described previously) by the Pest Control Supervisor. In addition training is performed by SGS (or its subcontractors) in various disciplines related to pest control activities.

Exposure –
PCT's utilize appropriate personal protective equipment (PPE) when ever handling chemicals.

No smoking, eating, or drinking is allowed when handling chemicals, or in chemical processing areas in the Pest Control Facility.

Following chemical handling, PCT's thoroughly wash their hands.

All chemical handling and mixing is performed well-ventilated areas or outdoors. The Pest Control Facility is purpose designed with appropriate ventilation.

Pesticides are not transported in the passenger space of cars or trucks.

Washing machines are provided at the Pest Control Facility and are used only for cleaning clothing worn as PPE.
PCT's remove insecticide contaminated clothes as soon as possible and bathe with plenty of soap and water. Detergent is used when petroleum-based pesticides have been used.

Chemicals are stored in their original container, or in a properly labeled container.

Should a PCT be exposed to toxic chemicals they are instructed to immediately contact emergency services by calling:

- 911 for land line phones
- 867-7911 for cell phones

Editorial Note: CCAFS cell phone is 853-0911, but keeping the generic 867-7911 is probably less confusing.

For a minor exposure, animal or insect bites, or other minor health issues call or proceed immediately to the Environmental Health Facility, Kennedy Space Center (KSC), 867- 2400. Do not drive if you are in any way incapacitated, dizzy, or faint

(2) Installation Personnel
Installation personnel are protected primarily through the proactive actions of the PCT's. MSDS regarding pesticides are available to anyone who requests them.

PCT's are trained regarding:

- Notification of personnel in any area they are treating that a treatment is taking place.
- PCT's do not use residual sprays on surfaces where food is prepared and served and they prevent contamination by removing or otherwise protecting all foods, food utensils, etc. before spraying.
- Pesticides used as bait shall be enclosed in approved containers that have been labeled "POISON."
- Pesticides are applied in compliance with manufacturer's instructions.
- All pesticides are measured and mixed carefully to insure all solutions are totally used on the job for which they are mixed.
- Installation personnel receive training regarding exposure to chemicals through the SGS Training Program.

(3) Public
Same as "Installation Personnel".

c. Safety and Health Measures Associated with Pest Management/Control Shops

The Pest Control Facility is a purpose built facility with chemical mixing and storage areas, appropriate ventilation, and drainage systems incompliance with Air Force regulations. The facility is fenced and secure to prevent unauthorized access.

There are two emergency showers and eye wash stations available to personnel.

A regular shower for bathing is also available for use.
A washer and dryer are available to wash contaminated clothing used for applying chemicals. The washer and dryer are only used for this purpose.

The chemical mixing and storage rooms are equipped with exhaust fans to prevent vapors forming in high concentrations.

The water system is fitted with back flow preventers to protect the water supply.

d. Safety and Health Measures Associated with Pest Management Vehicles

All vehicles are equipped with appropriate chemical storage, and where appropriate deliver, systems.

No chemicals are carried in the passenger compartment of vehicles.

All vehicles are equipped with spill kits.

PCT's receive training in the safe operation of motor vehicles.

7. PUBLIC LAWS AND REGULATIONS

The Pest Management Program, and personnel assigned as PCT's, are compliant with all Air Force, Federal, State, and local regulations regarding the work to be performed. These include:

- Military Entomology Operational Handbook - AFM 85-7
- SPI 43-08-001 Insect and Rodent Control
- SPI 43-08-003 Weed Control
- Insect Control Guide, Florida Agricultural Extension Services
- Aquatic Plant Control (Part I and II)
- Apply Pesticides Properly (CORE Manual)
- Scientific Guide to Pest Control Operations (Purdue University)
- FDA Food Code, Pesticides, 7-206.11
- CFR 40 CFS 152 subpart, Restricted Use Pesticides, criteria

8. COORDINATION WITH OTHER ORGANIAZATONS AND AGENCIES

Coordination with other organizations generally occurs through SGS. SGS Work Control is the central point to request services, which are then directed to the Pest Control Supervisor. Various other SGS elements, such as Environmental Management, monitors and coordinates regulatory actions such as audits and inspections.

9. MEASURES FOR COMPLIANCE WITH MEMORANDOM OF UNDERSTANDING WITH STATE PESTICIDE REGULATORY OFFICE(S)

CMT has no Memorandum of Understanding (MOU) with the State of Florida. SGS Environmental Management, monitors and coordinates regulatory actions such as audits and inspections.

10. SPECIAL ENVIRONMENTAL CONSIDERATONS

a. Restricted Use Pesticides

No Restricted Use Pesticides are currently used on CCAFS.

b. Operations with Potential to Contaminate Surface or Groundwater

None.

c. Operations More Than 640 Acres

None.

d. Operations in Areas With Endangered or Protected Species

CMT rarely has direct interaction with threatened and endangered (T&E) species on CCAFS. There are no federally protected T&E plants on CCAFS; however, there are some on the State of Florida protected list.

CCAFS has several Federal and State listed protected animal species; however, pest control personnel rarely come in contact with these species. Occasionally, a Southeastern Beach Mouse (Federally protected threatened species) is captured in a live trap. The animal is subsequently identified and released. Live traps are utilized in areas where this species is commonly found, primarily within facilities located adjacent to the coastal dunes.

Other than Beach Mice, the only other protected species encountered are migratory birds, including the Florida Scrub Jay. Migratory birds are Federally protected under the Migratory Bird Treaty Act.

Wildlife tends to remain away from populated areas. Contact with wildlife is usually restricted to animals such as raccoons and opossums. Impacts to T&E species from pesticides are negligible due to the restrictions on the type and amount of pesticide that can be used.

e. Operations Involving Aerial Applications
CMT performs no aerial applications.

f. Operations Involving Designated Noxious Weeds
(1) All weed control on CCAFS will be on non-cropland areas. For example: Fence lines, Double Fence Security Zones, Railroads, Roadsides, Storage Areas, Utilities and Plant Sites.

(2) The Herbicide of choice is Krovar I DF, approved # NSN 6840-00-001-7710.

(3) For control of annuals and partial control of perennials such as Bermuda grass, chemicals are applied at 6 lbs. per acre. For hard-to-kill perennials such as Bermuda grass, bouncingbet, dogban, Johnson grass, nutsedge, and saltgrass, Application is made at 10 lbs. per acre. Applications at higher levels are made on absorptive soils (high in organic matter or carbon). Best results occur when application is made just before weed emergence or in early stages of weed growth.

(4) When retreating, application is made at 6 lbs., mixed with 100 gallons of water per acre when annual weeds and grasses reappear on sites where weed growth has been controlled.

g. Operations involving Experimental-Use Permits
None.

h. Operations Involving Environmentally Sensitive Areas
None.

11. OTHER PEST MANAGEMENT PLAN ISSUES

a. Applicable Pollution Control Projects:
Pest Control Facility -

- The equipment room floor in the pesticide building is designed without a floor drain to control any spills that may occur allowing clean up without causing any contamination to the environment. Containment allows total control of pesticides in the storage area.

Pesticides are carefully mixed for each job to cover exactly what is needed for the task. The rinse water is reused in the herbicide tanks. The large equipment mixing area is designed to catch any spills of pesticides to prevent contamination of the environment.

- Operation of the Valves Outside of Pest Control Building 44633
  The following procedures apply:

  We have two drains lines going from our building to the outside, connected to a pipe by a valve, and then leading to a sump area. One drain line is from our high bay, and one drain line is from our chemical mixing room. These valves are open at all times. There is a pipe leaving the sump area that goes to the sewer plant, this pipe has been caped off. Nothing can go through this pipe.
  We have installed a pump in the sump. When the sump is getting close to being filled up, we turn the pump on and all the contents of the sump will then be transported through a hose to be put back in our herbicide truck or our termite tank.

b. Applicable Pollution Abatement Procedures

All chemicals used in the Pest Management Program are Environmental Protection Agency (EPA) registered and on the Department of Defense (DOD) accepted list.

All empty containers are triple rinsed, made unreusable and properly disposed of. The water generated from triple rinsing will be used in mixing future pesticides. No waste water will be required to be disposed. Pesticides will be ordered on a demand basis. Chemicals will not be ordered and stored unless they are planned to be used shortly after they are received.

c. Pesticides Sold in Commissaries and Exchanges

CCAFS does not have a commissary, and no pesticides are sold at the on-site Exchange facilities.

12. SERIVCES PROVIDED TO OTHER ACTIVITIES OR INSTALLATIONS

a. On Installation

CMT provides services as described in the scope of work for J-BOSC. This includes multiple Government and contractor elements; however the only contractual relationship is with SGS, which determines who receives support.

b. Off Installation

Under J-BOSC pest control services are provided to remote sites, not within the confines of CCAFS proper. These are known as the Florida Annexes.

At these locations the services provided are general pest control, rodent control and limited weed control.

13. ANNEXES

a. Installation Map

Installation and facility maps are available from KSC Master Planning (867-3346).

b. Annual Pesticide Procurement Approval Obtained for the Cognizant Component Pest Management Consultant Prior to Procurement of Pesticides

Not applicable

c. Pesticide and Herbicide Inventory Including Pesticide Name, Manufacturer, Unit of Issue, Concentration, Quantity, NSN

The general types of pesticides and herbicides in inventory are:

Trade Name	Trade Name	Trade Name
Altosid Briquets	Demon W.P.	Permanone 31-66
Amdro, Fire Ant Bait	Garlon 4	Rodeo
Arsenal	Gentrol	Round-Up
Baygon (Aerosol)	Golden Malrin	Talon G.
Combat (Gel)	Kicker	Talstar
Combat (Gel)	Krovar I D.F.	Tempo 20WP
Deet	Malathion	Termidor
Demand C.S.	Max-Force Bait	Wasps Freeze
Demon E.C.	Max-Force Bait Stations	
Demon T.C.	Perma-Dust P.T. 240	

d. Pesticide Labels, Material Safety Data Sheets, and Consumer Protection Information Sheets for Preservative Treated Wood Products

MSDS for Pest Control pesticides are available at the Pest Control Facility, on the J-BOSC web site and through subscribed services. Pesticide labels are also available at the Pest Control Facility, Building 44633, CCAFS. No information is available for treated wood.

e. Operational Control and Maintenance Records from Previous Years

This information is maintained and available at the Pest Control Facility, Building 44633, CCAFS.

f. Applicable Instructions and Procedures

This information is maintained and available at the Pest Control Facility, Building 44633, CCAFS.

g. Contracting Standards, Specifications, and Statement of Work

CMT performs pest control services as a subcontractor to SGS under contract SGS-10-98-0016. Authority to perform this work stems from SGS's contract for Joint Base Support Operations and Support Contract (NAS10-99001), managed by the Cape Canaveral Spaceport Management Office (CCSMO), which is a joint venture between the Air Force and the National Aeronautics and Space Administration (NASA).

The following statement is found in Section J-1, Statement of Work, for CMT's subcontract:

> 2.2.2.2 Pest Control. CMT will provide pest control for CCAFS. Where assigned, CMT shall develop and implement a pest control program. All assigned buildings, facilities, and outside work areas shall be inspected and sprayed at a frequency necessary to prevent damage to structures and control pests that may affect health and morale.

h. Manpower Surveys

Not applicable

i. Shop Equipment and Sources

All equipment and vehicles are CMT property, and are maintained in accordance with applicable manufacturer standards, and J-BOSC regulations.

j. List of Safety Items and Personal Protective Equipment

Spill Kits
Eye Saline Travel Packs
First Aid Kits (not for J-BOSC program)
Kevlar Leather Gloves
Hard Hats
Steeled toed shoes
Respirators (full faced)
Gloves Rubber
Coveralls, Cotton
Aprons, Rubber
Over-boots
Goggles

k. Technical Information

Technical information, including information on techniques utilized by PCT's, and manufacturers instructions for use of chemicals and equipment is maintained and available at the Pest Control Facility, Building 44633, CCAFS.

l. Spill Plan and Pesticide Clean-Up Guidance

Spill remediation is performed by SGS. PCT's are cognizant of the following procedure:

CHEMICAL SPILL/RELEASE REPORTING

In the event of a spill of any hazardous material:

Dial 911 (867-7911 for cell phones at KSC/CCAFS) and specify Emergency if the spill:
Could result in a fatal, imminently fatal, or acute illness injury.
Involves fire, explosion, or personal injury.
Could adversely impact public health, the environment, or property.
Dial 911 (867-7911 for cell phones at KSC/CCAFS) and specify Non-emergency if:
a. The spill is contained.
b. The spill can be controlled by shop personnel with existing training and protective equipment capabilities.
c. Cleanup support may be required.
Call J-BOSC Duty Office (853-5211) if the spill:
a. Is incidental to operations.
b. Is cleaned up by site personnel.

In the event of a chemical or hazardous material release, the following steps should be taken as appropriate:
a. Activate area alarms if evacuation is required.
b. Evacuate the area if required.
c. Make appropriate phone notification.
d. Notify the area supervisor

e. Terminate the operation and stop the source of the spill or leak, without risk of injury.

The following information should be provided with notification:
a. Location of release.
b. Extent of injuries, fire, and/or explosions.
c. Substance release.
d. Quantity released.
e. Potential risk to human health or the environment, if possible.
f. Need for cleanup assistance.

Pollution Incident Report (KSC Form 21-555)
A Pollution Incident Report must be completed for all chemical releases and faxed within 24 hours to J-BOSC Waste Management at 867-7737.

Industrial Hygiene Surveys of Pest Management Shop
SGS is responsible for all Environmental and Health surveys. CHS Medical will provide Industrial Hygiene consultative services (i.e. air monitoring, noise exposure testing, etc.) on an as requested basis to SGS. These services include offering baseline Industrial Hygiene surveys and follow-ups based on findings.

m. Cost Comparison Analyses
Cost was developed through a competitive proposal process with SGS.

ATTACHMENT A

PEST CONTROL TRAINING PROGRAM

TABLE OF CONTENTS

PEST CONTROL TRAINING PROGRAM

Part I

INTRODUCTION

Creative Management Technology, Inc. (CMT) provides pest control services for the Cape Canaveral Air Force Station (CCAFS) which includes the related remote sites known as the Florida Annexes.

Pest control services are conducted by Pest Control Operators who are certified by the Department of Agriculture and Consumer Services, Bureau of Entomology and Pest Control, State of Florida. Operators participate in appropriate continuing education in order to maintain certification.

Pest Control on CCAFS requires a diverse program dealing with a variety of insects and animals. These organisms interfere with the efficient performance of work on the CCAFS; therefore, they are regarded as pests.

The Pest Management Plan is designed as a guide to establish and maintain safe, efficient, and environmentally sound Integrated Pest Management (IPM) programs. Implementations will prevent or manage/limit pest activity that may interfere with the CCAFS mission; adversely affect health; or damage property, structures or material.

Each type of pest to be controlled requires specialized attention with exacting methods of control. To obtain the desired results, Pest Control Operators must possess sufficient knowledge to accomplish the following:

- Identify the pest.
- Know what control methods are available.
- Evaluate the benefits and risks of each control method or combination of methods.
- Choose the methods that are the most effective and will cause the least harm to personnel and the environment.
- Know the best time to apply a control measure.
- Know the proper use of the methods.
- Know local, state and federal regulations that apply to the situation.

Positive identification of a pest is necessary for proper control. Specific pesticides or herbicides are often required for specific insects or plants. This specificity often requires special application for different species of the same family of pests or plants. Proper identification will aid in selecting a pesticide or herbicide that will control the target pest/plant with the least amount of adverse effects on the environment.

Information required to carry out a satisfactory pest control program is contained in the Pest Control Training Manual. For further reference, Florida Cooperative Extension Pesticide manuals and Air Force Entomology Handbooks are listed in the bibliography and available upon request.

The Environmental Protection Agency, state, and federal laws strictly regulate the use of all pesticides. Label instructions are registered documents; and any discrepancies between the label and instruction manuals must be reported to your supervisor.

As you carry out your duties as a Pest Control Operator, remember your job is not to rid CCAFS of every rodent or insect; but, rather, to manage their populations so as not to interfere with the overall mission of CCAFS.

HEALTH AND SAFETY

Pest Control Operators are required to receive specialized annual physicals at the KSC Occupational Health Facility. These are:

1. Insect, Pest, Rodent Control (IRC)
2. Respirator 1 and 2 (RE1, RE2)
3. Heavy Equipment (HE)

There are two good reasons for using pesticides safely:

1. To protect yourself and other people from being poisoned, and
2. Avoid damaging the environment.

All chemicals used in pest control operations are to be considered irritating or toxic; therefore, the safe-handling procedures listed below will be followed to prevent harmful effects to personnel working in this field.

1. *Always read the labels on pesticide containers.* The Pest Control Operator should always familiarize himself/herself with the safety precautions listed on the product label. Basic safety procedures as listed below will apply to all pesticides, but some chemicals may require special handling precautions during storage, mixing or applications.

2. Observe all fire precautions when mixing, applying, or storing sprays.

3. Do not smoke or eat when handling pesticides. Residual sprays can be transferred from hands to foodstuff and ingested easily without detection. Pesticides can also be absorbed through the skin. Always wash thoroughly after handling pesticides.

4. Mix all pesticides in well-ventilated areas or outdoors. Do not transport pesticides in the passenger space of cars or trucks.

5. Pesticides used as bait shall be enclosed in approved containers that have been labeled "POISON."

6. Electrical boxes will be treated with dusts or powders when treatment is necessary. Avoid spraying electrical switch boxes, outlets, wires, etc., with pesticides, especially water-based sprays. Do not operate electrical equipment on wet surfaces.

7. Food preparation areas will be treated with FDA approved pesticides, when treatment is necessary. Do not use residual sprays on surfaces where food is prepared and served. To prevent contamination, remove or otherwise protect all foods, food utensils, etc. before spraying. Residual sprays include Ficam, Demon Tempo, and most aerosol sprays.

8. Oil resistant rubber gloves must be worn when handling or mixing concentrates. Gloves need not be worn when applying diluted sprays providing there are no leaks in the sprayer, or when there is no danger of spilling the spray on the hands. However, hands and face should be washed with soap and water immediately after completion of these processes.

9. Goggles and respirators approved by Environmental Health, and equipped with filter cartridges specifically designated for pesticide use should be worn when applying spray in the following areas:

    a. poorly ventilated indoor areas
    b. outdoor insecticide applications

    Goggles should be worn in some instances when respirators are not required as some pesticides are easily absorbed through the eyes, especially the dust from wettable powders. Goggles and respirators will be washed inside and out after use. Cartridge filters should be changed after each eight hours of use. Change sooner if a pesticide odor is detected.

10. Remove insecticide contaminated clothes as soon as possible and bathe with plenty of soap and water. Use detergent when petroleum-based pesticides have been used. Do not wear contaminated clothes until they have been laundered.

11. Pesticides shall be stored in a manner to ensure the safety of personnel. Always store pesticides in their original container or one properly labeled. Do not store pesticides of any type near food.

IMPORTANT
If you feel you have been poisoned due to exposure to a toxic chemical, immediately contact emergency services by calling:

- 911
- KSC cell phones – 867-7911
- CCAFS cell phones 853-0911

For a minor exposure call or proceed immediately to the Occupational Health Facility, Kennedy Space Center (KSC), 867- 3346. Do not drive if you are in any way incapacitated, dizzy, or faint.

HAZARDS
1. Pest Management Personnel are exposed to poisonous chemicals that may enter the body through skin contact, inhalation or ingestion. Other hazards include but are not limited to: Bee stings, spider bites, animal bites, heat exhaustion, possible head injury from crawling under buildings, falls from ladders, back injury due to heavy lifting, biting from wild animals, dropping heavy objects on toes, electrical shock from use of power drills and hazardous noise.

2. The public may come in contact with pesticides before they are dry; therefore, proper placement of pesticides is crucial. Pest management personnel are trained to avoid chemical placement that would represent a hazard by human contact.

3. Pest Management Personnel who apply pesticides shall receive occupational physical examinations at least once each year. These examinations shall be scheduled through the Occupational Medical and Environmental Health Services.

PEST CONTROL BUILDING #44633
There are two emergency showers and eye wash stations available to personnel. A regular shower is also available for use. A washer and dryer are available to wash contaminated clothing used for applying chemicals. The washer and dryer are **only** used for this purpose. The office is

equipped for personnel required to do record maintenance when each task is completed. There is room to conduct training when needed to keep all personnel current in all phases of this career field. The chemical storage room is equipped with exhaust fans for all areas as to prevent vapors on insecticides and herbicides from mixing. The mixing room and storage room is also equipped with exhaust fans. The water system is fitted with back flow preventers to protect the water supply. All pesticides are measured and mixed carefully to insure all solutions are totally used on the job for which they are mixed.

VEHICLES
CMT provides general service and specialized mosquito fogging or chemical spraying vehicles as necessary.

TRAINING
The Pest Management Supervisor or an appointed trainer conducts training in the following categories ensure safe handling of chemicals:

1. Label comprehension.
2. Equipment operation, calibration and minor repair.
3. Use of safety equipment on all operations.
4. Larvicide and fogging operations for mosquito control.
5. Operating procedures for all uses of the pesticide equipment and mixing according to label instructions and pests to be controlled.
6. Triple rinsing of chemical containers.
7. Baiting and spraying techniques.
8. Training on a local level is continuous. Various companies prepare information on pest control and personnel are encouraged to stay abreast of the latest pest control techniques. Certified operators are required to be re-certified every year.

POLLUTION CONTROL PROJECT
The equipment room floor in the pesticide building is designed without a floor drain to control any spills that may occur allowing clean up without causing any contamination to the environment. Containment allows total control of pesticides in the storage area. Pesticides are carefully mixed for each job to cover exactly what is needed for the task. The rinse water is reused in the herbicide tanks. The large equipment mixing area is designed to catch any spills of pesticides to prevent contamination of the environment.

The mixing area drains, floor and sink, feed into a sump that is separated and isolated from the CCAFS waste water sanitation system thereby eliminating any pesticides from entering into the base waste water system. The sump is emptied into vehicle tanks where it is reused.

POLLUTION ABATEMENT PROCEDURES
All chemicals used in the Pest Management Program shall be Environmental Protection Agency (EPA) registered. All pesticides utilized shall be on the Department of Defense (DOD) accepted list. The chemicals are applied by certified applicators or under their direct supervision. All empty containers are triple rinsed, made unreusable and properly disposed of. All chemicals used in the control of pests on CCAFS are accounted for monthly.

Part III

INSPECTIONS

Of primary importance in pest control is knowledge of what to look for and where to look in order to locate infestations of various pests. Effective treatment requires positive identification of the pest and the application of a pesticide which will control the target pest.

The following will aid the Pest Control Operator in the location and identification of pest infestation.

1. ***Cockroaches***
Using a flashlight, if necessary, inspect under sinks, tables, in cabinets, desks, drawers, and behind stoves and refrigerators. If an infestation is present, then cockroaches, or small smears of the droppings, will be present. The smears are black and shaped like a large comma (,). The droppings will be dark brown or black, about 1/8 inch long and about 1/32 inch in diameter (-).

2. ***Ants***
Observe baseboards, windowsills, door entrances and wall areas. The ants will generally form a line from the nest areas to the source of food. Where ants have been observed in rooms with an exterior wall, check the ground area adjacent to the outside of the wall for the possibility of an ant nest and the source of the ant problem. If cracks in the wall are providing interior access for the ants, building maintenance should be advised of the problem.

3. ***Flies (Adult)***
It would seem obvious if an infestation of flies is present, they would be seen. However, when the infestation is small, which is the best time for control measures, they may not be very active and casual observation may not reveal the infestation. Scanning the ceiling, walls and floor will reveal flies either feeding or resting.

4. ***Flies (Larvae)***
The larvae can be found in the bottom of dirty garbage cans, areas that are wet from washing food waste from floors, garbage containers, or vehicles used to transport garbage.

5. ***Mosquitoes (Adult)***
During daylight hours when mosquitoes are resting, look at the undersides of plant leaves the eaves of buildings, ceiling and walls of sheds, and shaded sides of other buildings. Adult mosquitoes are active and flying during evening and night hours. Activity during daylight hours occurs usually when the mosquitoes have been disturbed.

6. ***Mosquitoes (Larvae)***
Mosquito larvae can be found in potholes with standing water, cans, bottles, tires, hollow trees and stumps, manholes, and other water holding items. Larvae hatching sites are commonly species specific. Proper control will require positive identification of the mosquito and the type of breeding site.

7. ***Rodents***
Evidence of rats and mice is revealed by droppings, damaged material, gnawed woodwork, or greasy marks around entrance holes or on rafters and along walls.

8. ***Bees and Wasps***

In general, bees and wasps will be easily observed at the point of annoyance, but locating the nest or hive must be accomplished for control. This can be done in the case of honey bees by following them on the return flight to the hive. Wasps generally are to be found near the point of activity with nests in shrubs, low trees, or hollowed nests in the ground.

9. ***Mud Daubers***

Easily mistaken for wasps, the mud daubers will not harm humans, but their presence in some areas qualifies them as pests. Their individual mud nests are usually found on the underside of roofs and structures and are easily identified.

10. ***Termites***

A. ***Subterranean -*** presence of earthen tunnels over masonry, concrete, steel, wood, etc., which connect the underground nest with the adjacent feeding area. Discarded wings and hollow spots in wood with dirt or excrement visible are signs of subterranean termites.

B. ***Dry wood*** - deposits of wood dust or wood powder and clean smooth cavities in wood are signs of the dry wood or non-subterranean termites.

SPECIES IDENTIFICATION

Scientists, naturalists and teachers have devised a method by which all living organisms can be identified and named by order in which they occur in nature. This systematic method, called a paired key, is used in conjunction with the taxonomic labeling of organisms to give one a means by which he can positively identify and name specific animals.

This is an example of the taxonomic system using the mosquito, Anopheles Quadrimaculatus.

Kingdom	Animalia	(all animals)
Phylum	Arthropoda	(animals with jointed appendages and exoskeletons)
Class	Insecta	(all insects, six-legged)
Order	Diptera	(two-winged flies)
Family	Culicidac	(all mosquitoes)
Genus	Anopheles	
Species	Quadrimaculatus	

All examples of a paired key for taxonomic identification is offered to ***25*** common female mosquitoes on Page 16-17 of the Public Health Pest Control Manual. Other keys are available upon request. Positive identification of a pest is imperative for successful control.

CONTROL METHODS

Several control methods are available to the Pest Control Operator and each must be given consideration to ensure proper control. In pest control, as with many other tasks, the situation often dictates the method of action. With some cases, a combination of two or more methods is needed to obtain the desired results. Effectiveness, cost, and possible undesirable effects on man, pests, plants and animals are important aspects of pest control that should be considered before treatment is decided upon. Prevention should also be incorporated into each pest control request and consideration must be made for previous pesticide application and their effectiveness.

1. ***Sanitation***

This method is easily achieved by practicing good housekeeping. The Pest Control Operator must remove or instruct the removal of trash and rubbish which serve as food, shelter and breeding grounds for pests. Unsanitary conditions can be located by casual observance before, during or after implementation of other control methods. Remove and discard old jars, cans, tires, etc., which can hold rain water and create a potential mosquito breeding area. Cuttings, leaves and any type of rotting organic material should be removed to the landfill. Education of area personnel, pointing out sanitation discrepancies and their relationships with the pest to be controlled, is also a responsibility of the Pest Control Operator. Unsanitary conditions found by Operators will be reported to Environmental Health.

2. ***Mechanical***

This type of control includes such things as installing screens on open windows to restrict entry by flying insects. Termite shields and sheet metal on the lower portion of doors will prevent the gnawing through of entry holes for both termites and rodents. Canal cleaning with a dragline also falls into this category as does the use of the catch-all animal traps, rat and mouse traps. Mechanical control devices should be installed as preventive controls where applicable.

3. ***Chemical***

Chemical controls involve the use of toxic chemicals to kill the target pests. Chemicals used in pest control vary with and are categorized by chemical ingredients, method of application, type of formulation and according to the pest to be controlled. Before chemical insecticide or herbicides are used, the Pest Control Operator will read and familiarize himself with the EPA registered label for that product. Exacting specifications for handling and application are provided on the label. The Pest Control Operator who works within these guidelines will perform his job efficiently, safely and with the desired results.

CHEMICAL MIXTURES FOR CONTROL OF SPECIFIC PESTS

1. ***Household Pests (Cockroaches, Ants, Spiders, Scorpions and Other Crawling Insects)***

   A. A mixture of 1 ounce of Talstar to one gallon of water will give a spray solution of 0.06%, or

   B. A mixture of 2 scoops of Demon WP in one gallon of water which gives a spray solution of 0.2%.

These spray solutions will be applied at the rate of one gallon per 4,000 square feet using a hand sprayer with a fan type nozzle. Application will be made to all cracks and crevices in walls and floors, around sinks, baseboards, cabinets, stoves, refrigerators and similar areas. Additional treatment, specifically for crack and crevices, can be obtained by applying Whitmire's Diazinon or Baygon Crack and Crevice Aerosol Spray. The nozzle extension should be inserted into crevices to ensure maximum dispersal inside the opening. Caution must be exercised when applying these chemicals in enclosed areas. Notify all personnel in the area regarding the work to be done and the chemicals to be applied.

2. ***Houseflies (Adult) - Outside Areas***

Using the 0.2% Demon W.P. mixture and equipment as for household pests, apply spray solution to inside and outside of refuse containers and on adjacent grounds.

3. ***Houseflies (Adult) - Inside Facilities***

Houseflies will be controlled by using an aerosol spray can containing Baygon or Golden Malrin Fly bait, 1% Methomyl.

4. ***Houseflies (Larvae)***

The best and most efficient method for control of housefly larvae (maggots) is ***daily*** washing or steam cleaning of all garbage containers. In garbage disposal areas (sanitary landfill), covering garbage ***daily*** with soil will give adequate control. In the event the daily washing of containers or covering of garbage with soil cannot be carried out, the containers and/or garbage can be treated with a .17% Demon W.P. and water solution at the rate of one quart per 1000 square feet.

5. ***Mosquitoes (Adult)***

   A. Use Permanone 31-66 in the concentrated form and apply with the ULV (Ultra Low Volume) cold aerosol fogger

   B. For use by field personnel, apply "OFF" in the aerosol spray can as per the label instruction.

6. ***Mosquitoes (Larvae)***

Apply ALTOSID Briquettes, insect growth regulator (IGR) over a 130 day period under typical environmental conditions.' Apply in non-flow, shallow depressions (up to two feet in depth); and treat on a basis of surface area, placing one ALTOSID Briquette per 100 square feet. Most mosquito larvae control will be handled and monitored by the Brevard County Mosquito Control District.

7**.** ***Bees and Wasps***

Whitmire Wasp freeze will be used for control of flying wasps and bees. By observing the ***flying*** pattern, the nest can often be located. Nesting areas will be thoroughly soaked with a 0.06% Talstar or a 0.2% spray of Demon.

8. ***Termites***

A solution using a 1% solution of Termidor will be applied per instructions outlined in the section dealing with termite control.

9. ***Pigeons, House Sparrows, Starlings and Sea Gulls***

Bird-X, Bird-Proof repellent containing Polybutene, will be used. This is a non-toxic, sticky chemical that makes a surface tacky and uncomfortable to birds. Birds avoid Bird-Proof like humans avoid wet tar. It is harmless to metal structures and applied with a standard 10" caulking gun, any surface where the birds roost or perch. It may be used in any weather, indoors or outdoors. The shipping weight is 10 lbs per case and each case of twelve 10.5 oz. Cartridges treats 120 linear feet.

Part VII

TERMITES AND DRY ROT

1. ***General***

A. Subterranean termite colonies become established and thrive in wood that has contact with moist soil and is located in dark areas. Under favorable conditions, the colony multiplies rapidly and constructs earthlike shelters over surface and through cracks or other openings to reach palatable wood. Termites swarm during the warm days of spring and early summer, shed their wings and become reproductive. The workers, white or light gray in color and wingless remain concealed and devour wood that is digested by enzymes secreted by protozoan living in their digestive tract.

B. To distinguish an ant from a termite, examine the shape of the body. Ants have a slender or constricted waist that joins the abdomen to the remainder of the body. Termites do not have a slender waist. Wings of swarming termites are twice the lengths of their bodies. Termites have four wings and each is of similar size and shape.

C. Dry wood or non-subterranean termites (identical in appearance to subterranean termites) also live in colonies but inhabit dry, sound, seasoned wood such as posts, stored lumber and furniture. They do not maintain a connection with the soil. Deposits of wood dust and clean smooth cavities in the wood are an indication of infestation. method of dry wood termite control is relatively expensive and hazardous under conditions of heavy infestations. The Range Contractor will not utilize "Tenting".

2. ***Detection of Subterranean Termites***

A. Presence of hollow earthlike tunnels over masonry, concrete, wood, steel, etc., which connect the nest in the soil to the feeding area.

B. Discarded wings inside or outside of buildings.

C. Hollow spots in wood with dirt or excrement present.

3. ***Termite Infestation Prevention Measures***

A. Remove stumps, logs, boards, stakes, wood scraps, etc., from beneath buildings.
B. Ensure proper grading and drainage.
C. Permit sufficient air circulation and cross ventilation.

4. ***Termite Control Measures for Infested Buildings with Wooden Floors Above Ground***

A. Utilize chemical Soil barriers by trenching completely around all foundation walls and piers to approximately six inches in depth and width. Apply Prelude solution at the rate of one gallon per four (4) linear feet into the trench. Replace dirt in trench and treat backfill with enough solution to wet thoroughly.
B. Destroy tunnels and nests and saturate with chemical barrier mixture.
C. Observe prevention measures contained in Paragraph 3.

5. ***Termite Control Measures for Infested Buildings with Concrete Slab Floors***

A. Trench outside foundation walls and treat the same as for buildings with wooden floors. Refer to Paragraph 4.A.)

B. Treat fill under slab by soaking through expansion joints or through 1/2 inch holes drilled in the slab or foundation walls as follows:
   1. Utilize piston type pump with required psi capacity, and 3/8 inch pipe, 20 feet in length, joined together by various lengths of pipe and couplings.
   2. Mix 1.0% Termidor solution with water in a tank or barrel.
   3. Place pump intakes hoses in the barrel with the solution and connect pipe sections to pump outlet hose.
   4. Insert pipe in holes drilled through foundation wall.
   5. Start pumps and turn on valve to allow solution to flow through pipe. Force pipe into fills under slab and guide along foundation wall beneath junction of slab.
   6. Apply four (4) gallons of solution per ten (10) feet of run.
   7. Treat all partition walls in this same manner. When partition walls have footings under slab, it will be necessary to treat both sides of footings rather than directly under the partition. The chemical barrier must be complete. Additional holes at 18-inch intervals may be required to saturate areas not accessible by pipes.
   8. When circumstances prevent the drilling of holes through the foundation walls, holes may be drilled down through the slab, or expansion joints, if installed, may be opened up to permit soaking for complete chemical barrier. Holes will be 18 inches apart and approximately one gallon mixture per hole applied.
   9. After completion of the treating operation, plug holes with cement mixture.
   10. Check at weekly intervals to determine that infestation is under control and treat, as necessary.

6. ***Dry Rot***

Dry rot (fungi) and termites often work in the same wood. The conditions that support termite activity also support dry rot.

Prevention measures specified in Paragraph 3 are applicable and, if observed, should maintain control.

MOSQUITO CONTROL

Mosquitoes are most effectively controlled by using a combination of methods. One method for controlling mosquitoes is referred to as prevention. Basically, this consists of decreasing the number of breeding areas. Mosquito eggs must be wetted to hatch. Eggs can be laid in containers which only temporarily hold water, low lying areas which flood only occasionally or any other areas of water entrapment. Locating and disposing of these water entrapments, by Pest Management Personnel, should be a principal part of mosquito control.

Another control method deals with the eradication of the mosquito larvae before it hatches into the adult. Since the aquatic larvae must breathe surface oxygen, they can be controlled by applying ALTOSID briquettes. This control method must be coordinated with the mosquito species life cycle and is effective during all of the larvae stage. Most larvaciding on CCAFS occurs in the Titan III area and is carried out by the Brevard County Mosquito Control District.

A type of control used on CCAFS almost daily during the summer months is Ultra Low Volume (ULV) Fogging. Permanone 31-66 is dispersed throughout CCAFS with ULV foggers mounted on pick-up trucks for the control of adult mosquitoes. Fogging will be performed as early as possible each day while mosquitoes are still engaged in morning activity.

Predators are introduced or cultivated in such a way as to help in the elimination of the target pests. Fish, which prey upon mosquito larvae, are present in the canal system on CCAFS. Improving their habitat by controlling aquatic weeds will allow the fish population to grow and expand their biological control capabilities. Some insects will prey upon various larvae species and adult mosquitoes, but their populations are not great enough to be considered a viable control agent. Helping to maintain minnow populations in the canals will be the limit of biological control at this time.

RODENT AND SMALL MAMMAL CONTROL

1. Rodents, mainly rats and mice, will be controlled by either of the two following methods or a combination of both.

   A. Spring traps will be set as required using the smaller traps for mice and the larger traps for rats. Pieces of bacon, cheese or red meat will provide good results. All traps will be collected on Friday to prevent odors from rats trapped over the weekend.

   B. Poison bait will be set out in plastic boxes marked POISON as needed for rat and mouse control. Anticoagulants, such as Talon, will be used as bait, approximately five ounces per box. Bait will be changed every two to three days to ensure freshness, thereby increasing acceptance by rodents.

   C. Small animals, such as raccoons, skunks, cats, etc., will be controlled by using the “Catch All” small animal trap. An open can of sardines will be placed in the trap for bait. Area personnel will lock traps using a chain and padlock to prevent relocation.

WEED CONTROL

1. All weed control on CCAFS will be on non-cropland areas. For example: Fence lines, Double Fence Security Zones, Railroads, Roadsides, Storage Areas, Utilities and Plant Sites.

2. The Herbicide of choice will be Krovar I DF, approved # NSN 6840-00-001-7710.

3. For control of annuals and partial control of perennials such as Bermuda grass, apply at 6 lbs. per acre. For hard-to-kill perennials such as Bermuda grass, bouncingbet, dogban, Johnson grass, nutsedge, and saltgrass, apply 10 lbs. per acre. User higher levels of dosage rates on absorptive soils (high in organic matter or carbon). Best results occur when application is made just before weed emergence or in early stages of weed growth.

4. When doing retreatments, apply 6 lbs., mixed with 100 gallons of water per acre when annual weeds and grasses reappear on sites where weed growth has been controlled.

5. When preparing the spray mixture, fill tank 1/2 full with water. Add the Krovar and continue adding water. Add the surfactant and continue adding water. When tank mixture is at desired level, stop and then thoroughly agitate.

6. Operators must familiarize themselves with the Product Labeling. It is very important to be aware of the Environmental Hazards and Statement of Practical Treatment. Familiarize yourself with the Pesticide Handling Section and the Storage and Disposal section.

SPECIAL APPLICATIONS

1. "Restricted Use" pesticides may only be applied by a Certified Operator.

2. *Ships:* Talstar will be used for the eradication of crawling pests aboard ships docking at Port Canaveral. Mix at a rate of one (1) fluid ounce per one gallon of water. Final spray concentration equals 0.5%. Baygon aerosol spray (Whitmire) will be used for crack and crevice treatments. This service is applicable to ships so designated by Military Sealift Command and Coast Guard, as per contract.

3. *Food Handling Areas*: Use Talstar, Baygon Aerosol, Perma-Dust Pt 240(Boric Acid) for crack and crevice and spot treatments only. Spot treatments will not exceed two square feet in area. Do not spray any pesticides on food handling surfaces.

4. Large areas with persistent fly problems can be treated with poison fly bait. Bait will be dispersed throughout the area in weighted pans. Inform personnel in the area of the poison and locations of the bait pans. Fly bait will be Golden Marlin.

CHEMICAL SPILL/RELEASE REPORTING

In the event of a spill of any hazardous material:

1. **Dial 911** (867-7911 for cell phones at KSC/CCAFS) and specify **Emergency** if the spill:
   a. Could result in a fatal, imminently fatal, or acute illness injury.
   b. Involves fire, explosion, or personal injury.
   c. Could adversely impact public health, the environment, or property.
2. **Dial 911** (867-7911 for cell phones at KSC/CCAFS) and specify **Non-emergency** if:
   a. The spill is contained.
   b. The spill can be controlled by shop personnel with existing training and protective equipment capabilities.
   c. Cleanup support may be required.
3. **Call J-BOSC Duty Office (853-5211)** if the spill:
   a. Is incidental to operations.
   b. Is cleaned up by site personnel.
4. **In the event of a chemical or hazardous material release, the following steps should be taken as appropriate:**
   a. Activate area alarms if evacuation is required.
   b. Evacuate the area if required.
   c. Make appropriate phone notification.
   d. Notify the area supervisor
   e. Terminate the operation and stop the source of the spill or leak, without risk of injury.
5. **The following information should be provided with notification:**
   a. Location of release.
   b. Extent of injuries, fire, and/or explosions.
   c. Substance release.
   d. Quantity released.
   e. Potential risk to human health or the environment, if possible.
   f. Need for cleanup assistance.
6. **Pollution Incident Report (KSC Form 21-555)**

   A Pollution Incident Report must be completed for all chemical releases and faxed within 24 hours to J-BOSC Waste Management at 867-7737.

ACCIDENTAL SPILL PROCEDURES
PESTICIDE SPILL REPORT

To be completed by Driver and Management personnel upon notification that an accidental pesticide spill has occurred in the field.

Please record the following:

Dial 911 (867-7911 for cell phones at KSC/CCAFS)

1. Name of caller (i.e. notifier and call back number) _____
2. Date of spill _____
3. Time of spill _____
4. Location of spill _____
5. Material spilled _____
6. Apparent cause of spill _____
7. Volume of spill and duration of spill _____
8. Present and anticipated movement of contaminants _____
9. Weather conditions at time and place of spill _____
10. ID of personnel on scene _____
11. Describe action initiated _____
12. Today's date _____

Your signature _____

Part XIV

INTERACTION WITH THREATENED AND ENDANGERED SPECIES

CMT, as the pest control contractor for CCAFS rarely has direct interaction with threatened and endangered (T&E) species on the installation. There are no federally protected T&E plants on CCAFS; however, there are some on the State protected list.

CCAFS has several federally and state- listed animal species; however, pest control personnel rarely come in contact with these species. Occasionally, a southeastern beach mouse (Federally protected threatened species) is captured in a live trap. The animal is subsequently identified and released. Live traps are utilized in areas where this species is commonly found, primarily within facilities located adjacent to the coastal dunes.

Other than beach mice, the only other protected species encountered are migratory birds, including the Florida Scrub Jay. Although not T&E, migratory birds are Federally protected by the Migratory Bird Treaty Act.

Wildlife tends to remain away from populated areas, such as buildings. Contact with wildlife is usually restricted to animals such as raccoons and opossums. CCAFS natural resources personnel do most wildlife interaction. Impacts to T&E species from pesticides are negligible due to the restrictions on the type and amount of pesticide that can be used.

WEIGHTS AND MEASUREMENTS

1 ounce (oz)	=	28.35	grams (GM)
1 pound (lb)	=	453.59	grams (gm)
1 fluid ounce (fl oz)	=	29.57 milliliters	(ml)
1 fluid ounce (fl oz)	=	2 tablespoons	(tbls)
1 quart (qt)	=	0.95	liters (l)
1 inch (in)	=	2.54	centimeters (cm)
1 mile (mi)	=	1.61	kilometers (km)
1 cubic yard (cu yd)	=	202.0 gallons	(gal)
1 acre (ac)	=	43,560	square feet (sq ft)
1 square mile (sq mi)	=	640 acres (ac)	
1 meter (m)	=	39.37	inches (in)

To convert inches to centimeters, multiply the number of inches by 2.54. When it is necessary to convert ounces to grams, multiply the number of ounces by 28.35.

1 pint	=	16 ounces
1 quart	=	32 ounces
1 gallon	=	128 ounces

NOTE: In common usage the terms cubic centimeters and milliliters are the same.

PEST MANAGEMENT PROGRAM INDEX

	TRADE NAME	USE
1	Altosid Briquets	Mosquito Larva
2	Amdro, Fire Ant Bait	Ants
3	Arsenal	Weeds
4	Baygon (Aerosol)	Ants, Roaches (General Pests)
5	Combat (Gel)	Ants
6	Combat (Gel)	Roaches
7	Deet	Insect Repellant
8	Demand C.S.	Ants, Roaches (General Pests)
9	Demon E.C.	Ants, Roaches (General Pests)
10	Demon T.C.	Termites
11	Demon W.P.	Ants, Roaches (General Pests)
12	Garlon 4	Pepper Trees
13	Gentrol	German Roaches
14	Golden Malrin	Flies
15	Kicker	Ants, Roaches (General Pests)
16	Krovar I D.F.	Weeds
17	Malathion	Ants, Roaches (General Pests)
18	Max-Force Bait	Roaches
19	Max-Force Bait Stations	Ants
20	Perma-Dust P.T. 240	Ants, Roaches (General Pests)
21	Permanone 31-66	Mosquitoes
22	Rodeo	Weeds
23	Round-Up	Weeds
24	Talon G.	Rodents
25	Talstar	Ants, Roaches (General Pests)
26	Tempo 20WP	Ants, Roaches (General Pests)
27	Termidor	Termites
28	Wasps Freeze	Wasps, Bees

GLOSSARY OF COMMON TERMS

Active Ingredient - The chemicals in a product responsible for the desired effects, which are capable in themselves, for preventing, destroying, repelling or mitigating insects, fungi, rodents, weeds, or other pests.

Annual - A plant that completes its life cycle from seed to seed in one year.

Anticoagulant - A substance which prevents normal blood clotting.

Antidote - A practical treatment, including first aid, used in treatment of poisoning.

Aquatic Plant - A plant that lives in water. There are three kinds: submergent, grows beneath the surface, such as waterweed and green algae; emergent, grows above the water, such as cattails and water lilies; floaters, such as water hyacinth and water lettuce.

Bare Ground Treatment - The use of residual herbicides at such rates as to provide semi-permanent control of plant growth.

Basal Treatment - A treatment applied to the stems or trunks of plants at and just above the ground line.

Biocontrol - The use of biological agents, insects, fish, pathogens, etc., to control a pest.

Biological Control - Control of pests by means of predators, parasites and disease-producing organisms.

Botanical Pesticide - A pesticide produced by and extracted from plants. Examples are nicotine, pyrethrum, strychnine and rotenone.

Botanical Plant Name - A scientific name made up of the genus and species. Sometimes the variety or subspecies is included. It is more reliable and more universal than common names.

Broadleaf Species - Botanical -- those plants classified as diocotyledons; morphologically - those having broad, rounded or flattened leaves as opposed to the narrow blade - like leaves of the grasses, sedges, rushes and onions.

Carcinogen - A substance or agent capable of producing cancer.

Chemical Name - One that indicates the chemical composition of the compound.

Chlorinated Hydrocarbon - A chemical compound containing chlorine, carbon and hydrogen. DDT is a chlorinated hydrocarbon.

Common Pesticide Name - A name given to a pesticide by a recognized committee. Many pesticides are known by a number of trade or brand names but have only one recognized common name. Example: the common name for Karathane, Arathane, Iscothane, and Mildex is Dinocap.

Common Plant Name - A common English plant name not of botanical description.

Concentration - Refers to the amount of active ingredient in a given volume or weight of diluent.

Contact Herbicide - A compound that kills primarily by contact with plant tissue rather than as a result of translocation. Only that portion of a plant that is covered by the herbicide would be killed.

Defoliant - A compound which causes the leaves or foliage to drop from a plant.

Dermal Toxicity - Ability of a compound when absorbed through the skin of animals to produce symptoms of poisoning.

Detergent - Surface active agent primarily used for cleaning. Also has sticking and spreading properties.

Diluent - Any liquid or solid material used to dilute or carry an active ingredient.

Direct Application - An application to a restricted area such as a row, bed, or at the base of plants.

Ecological Balance - The relationship of numbers and kinds of organisms in a designated area. An area is said to be “balanced” or “healthy” when a self-sufficient, diversified community is found.

Emulsifiable Concentrate - A concentrate solution of a herbicide and an emulsifier in an organic solvent which will form an emulsion spontaneously when added to water with agitation.

Emulsion - A mixture in which one liquid is suspended as minute globules in another liquid, i.e., oil in water. When the emulsion consists of a droplet of water in oil, it is known as an “invert” or “mayonnaise” emulsion.

Filamentous Algae - Algae which grow in long filaments, with one cell attaching to another in long strings.

Food Service Area - Any place where food is stored, prepared, or served.

Formulation - The pesticide product containing the active ingredient, the carrier and other additives required to make it ready for sale.

Granule - A type of formulation in which the active ingredient is mixed with, absorbed or pressed on an inert carrier forming a small pellet.

Growth Regulator - A substance active in controlling growth and development of plants. It may be either synthetic or a naturally-occurring compound.

Herbicide - A pesticide used for killing or inhibiting plant growth. A weed or grass killer.

Highly Toxic - (1) Substances are considered highly toxic by law if the LD 50 of a single oral dose is 50 milligrams or less per kilograms of body weight. (2) If LD 50 of toxicity by inhalation is 2,000 micrograms or less of dust or mist per liter of air or 200 ppm or less by volume of a gas or vapor when administered by continuous inhalation for one hour to both male and female rats or to other rodent or non-rodent species if it is reasonably foreseeable that such concentrations will be encountered by man. Or (3) If LD 50 of toxicity by skin absorption of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours with the bare skin or rabbits or other rodent or non-rodent species as specified.

Inert Ingredient - Ingredients in a product which do not contribute to the activity of the active ingredient.

Ingredients - The simplest constituents of the pesticide which can reasonably be determined and reported. Ingredients may be active or inert.

Insect - Any of the numerous small invertebrate animals generally having the body more or less segmented, for most part belonging to the class Insects, comprising six-legged, usually winged forms.

Insecticides - A substance or mixture of substances intended to prevent, destroy, repel, or mitigate any insects which may be present in any environment whatsoever.

Label - All written, printed or graphic matter on or attached to, or accompanying the pesticide or the immediate container.

LD 50 - Abbreviation of median lethal dose. It indicates the amount of toxicant necessary to kill 50 percent of the pest being tested. Measured in mg/kg of body weight. The lower the LD 50 rate the more toxic the chemical.

Non-selective Herbicide - A chemical that is generally toxic to plants without regard to species. A non-selective herbicide may kill or harm all plants.

Oral Toxicity - Ability to cause injury when taken by mouth.

Pelleted - A type of formulation for dry application consisting of pellets of active herbicide or of inert material containing a herbicide.

Penetrant - Chemical agent that helps a formulation to penetrate bark or leaf surfaces.

Perennial - A plant that lives for more than 2 years.

Pest - Forms of plant and animal life or viruses that exist under circumstances that make them injurious to plants, man, domestic animals or other animals, articles or substances.

Petroleum Distillate - Kerosene.

PPM - Parts per billion. A way of expressing amounts of chemicals in foods, plants, animals, etc. One part per million equals 1 lb. in 500 tons.

Rate - The amount of active ingredient of acid equivalent of herbicide applied to a unit area.

Residual - To have a continued killing effect over a period of time.

Residue - The amount of chemical which remains on the harvested crop.

Resistance - The degree to which a species of insect or other organism tolerates a toxic substance. Exposure of a population to a substance at such strength that only weaker individuals are killed raises the level of toleration in the breeding survivors and the organism in that area may increase its tolerance to the substance.

Rhizome - Underground stem, usually horizontally oriented, that produces roots and leafy shoots. Examples: the white underground parts of Johnsongrass and horsenettle; and black parts of Russian knapweed.

Selective Herbicide - A chemical compound used to destroy a particular group, genus, or species of plants not of that particular kind.

Slurry - A watery mixture or suspension of an insoluble pesticide. Example: fungicide slurries are applied to seeds to cut down on dustiness and aid in uniform coating with the pesticide.

Solute - The substances being dissolved.

Solution - Mixture of substances in which the ingredients are in the molecular state.

Solvent - A liquid which will dissolve a substance forming a true solution (liquid in molecular dispersion).

Species - A subdivision of a genus. A group of closely related individuals descended from the same stock.

Spot Treatment - The application of a pesticide to selected individual plants, animals or soil.

Spray Drift - The movement of airborne spray particles away from the intended application area.

Stolen - Above ground runners or slender stems that develop roots, shoots, and new plants at the tip of nodes as in the strawberry plant or Bermuda grass.

Surfactant - A material that improves the emulsifying, dispersing, spreading, wetting and other surface-modifying properties or herbicide formulations.

Synergism - The joint action of two or more pesticides that is greater that the sum of the pesticides when used alone.

Systemic Herbicide - A compound which is translocated within the plant and has an effect throughout the entire plant system.

Terrestrial - Living on land.

Tolerance - By law, a regulation that established the maximum amount of a pesticide chemical that may remain on a raw agricultural commodity.

Toxic - Poisonous injurious to animals and/or plants through contact of systemic action.

Toxicity - The natural capacity of a substance to produce injury. Toxicity is measured by oral, dermal and inhalation studies on these animals.

Trade Name - Name that designates a specific formulation of herbicides, i.e., “Hyvar” XL.

Translocation - Transfer of food or other materials, such as herbicides, from one plant part to another.

Vapor Drift - The movement of herbicidal vapors from the area of application.

Weed - A plant that is undesirable due to certain characteristics or its presence in certain areas. A plant growing in a place where it is not wanted.

Weed Control - The process of limiting weed infestations so that crops can be grown profitably or other operations can be conducted efficiently.

Wettable Powder - A finely ground powder plus a wetting agent to keep the particles from floating when added to water.

REFERENCES

1. Military Entomology Operational Handbook - AFM 85-7
2. SPI 43-08-001 Insect and Rodent Control
3. SPI 43-08-003 Weed Control
4. Insect Control Guide, Florida Agricultural Extension Services
5. Aquatic Plant Control (Part I and II)
6. Apply Pesticides Properly (CORE Manual)
7. Scientific Guide to Pest Control Operations (Purdue University)
8. FDA Food Code, Pesticides, 7-206.11
9. CFR 40 CFS 152 subpart, Restricted Use Pesticides, criteria

ATTACHMENT B

(SGS controlled document)

SGS INSTRUCTION Joanne Creech	NUMBER: EVH-I-S427
APPROVAL AUTHORITY: Manager, Environmental Health & Services Wilson R. Timmons, Jr.	DATE: 08/16/04
OFFICE of PRIMARY RESPONSIBILITY: Manager, Environmental Compliance & Public Health (EC&PH) Nancy Beaumont	REVISION: 02
TECHNICAL CONTACT: Senior Sanitarian	

SUBJECT: **MOSQUITO SURVEILLANCE, CCAFS**

PURPOSE:
To provide continuous surveillance of mosquitoes at Cape Canaveral Air Force Station (CCAFS) through a program of collection and identification. To determine the type and prevalence of biting mosquitoes that affects the health of personnel. To report the results to military public health officials. To share data with pest management contractor to help assess the effectiveness of mosquito abatement programs.

SCOPE:
This document establishes the instructions to be used by EC&PH personnel who support the mosquito surveillance program at CCAFS under the Joint Base Operations Support Contract (J-BOSC).

DEFINITIONS:

Mosquito Sampling Season: The sampling season begins the first week of May and ends the last week of October.

Mosquito Surveillance Plan: This plan is drafted by the Senior Sanitarian and submitted to the USAF Public Health Commander, 45 ADOS/SGPM, for concurrence. The plan includes number of mosquito trapping sites, larvae collection sites (when necessary), frequency of trapping events, duration of trapping events, and trapping methods.

Mosquito Surveillance Report: This report is generated by EC&PH and is provided to the Public Health Officer, 45 ADOS/SGPM. This report lists the number of mosquitoes collected per site and the number shipped. The medical significance of each species identified will be discussed when necessary with the military public health commander.

Mosquito Identification Report: This document is provided to EC&PH by the Air Force Entomologist from Brooks Air Force Base, Texas. This report identifies submitted mosquitoes by number and genera and species.

REFERENCE DOCUMENTS:

- .
- Florida Administrative Code 5E-13 Mosquito Control Program Administration
- Florida Administrative Code 5E-14 Pest Control Regulations
- Air Force Instruction 32-1053 Pest Management Program

- Air Force Instruction 48-102 Medical Entomology Program
- EC&PH Instruction EVH-I-P225 Field Records
- EC&PH Instruction EVH-I-S500 Reports to the Customer

RECORDS:

Record	*Responsible Organization*	*Retention Period*
Mosquito Surveillance Plan	EC&PH	3 Years
Female Mosquito and Larvae (when necessary) Identification Report from AL/OEM	EC&PH	3 Years

Equipment:

- C02 Baited Light Trap with components
- Basic Trap with gate valve and photo electric cell
- Rain shield
- Mesh holding bag
- Dry ice holder
- Fully charged battery
- Trap stands (with sand bags if necessary)
- Repair kit
- Dry ice, dry ice storage chest
- Cryogenic gloves
- Safety glasses or face shield
- Disposable petri dishes, large
- Tissue paper
- Marking pen
- Magnifying glass or microscope
- Tweezers
- Personal insect repellent
- Hand-held radio with RadHaz/y net
- Tape and packing materials
- Mailing label, envelope, cardboard box
- Field voltage meter
- Laboratory voltage meter
- Battery chargers
- Field logbook and pen
- EC&PH Task sheet
- Personal Protective Equipment (PPE) as appropriate
- Larvae Dipper
- Fish Net
- Plastic Cups with Lids
- Rubbing alcohol

- PROCEDURES:

Sequence of Events:

- Preparing supplies and equipment.
- Setting equipment in the field
- Retrieving mosquito specimens from the field

- Sorting, counting, packaging and shipping mosquito specimens for identification
- Interpreting and reporting mosquito surveillance data.

Preparing Supplies and Equipment:

- Review CCAFS Mosquito Surveillance Plan and determine the number of mosquito traps to be placed in the field.
- Draw the necessary traps, parts, equipment, dry ice, etc. from the mosquito storage room and proceed to CCAFS trapping sites.
- Assemble the required number of traps. Do not attach the mesh bag or dry ice container at this time.
- Check the traps to insure that the motor, photoelectric cell, and light are operational. To conduct the operational check, turn off the lights or cover the photoelectric cell; the light should illuminate and the fan should come on.
- Fill the dry ice holding containers from the dry ice storage bin that is located in the mosquito supply room.

SAFETY NOTE: *Always use Personal Protective Equipment (PPE) when filling bait containers with CO2 pellets. PPE should include face shield and cryogenic gloves.*

- Using cryogenic gloved hand, fill the dry ice storage containers pellets.
- Use a rubber mallet to tamper the pellets into the bait containers, then tightly secure the lids to the bait containers.

SAFTEY NOTE:

(1) *Load traps, accessories, etc. into the vehicle. Check to insure that all equipment is secure and presents no safety hazard to the vehicle or to you while driving.*

(2) *Open, or partially open, one or more windows of the vehicle to facilitate evacuation from inside the vehicle of any off gassed CO2 from the dry ice bait containers.*

- Proceed to mosquito trap site as per mosquito surveillance plan.

Setting Equipment in the Field:

- Set tripods in place making every effort to set them where there are no competing light sources to distract the mosquitoes from the traps. Attach rain guard to tripod.
- Tripod stands, once set out at surveillance sites, may be left in place during the entire mosquito surveillance season. (Special weather conditions, such as a hurricane warning, may require their removal to a secure place.)
- Traps are typically set in place on Monday afternoon and remain in place until Wednesday. Installation is as follows:
  - (a) Attach dry ice container to tripod and rain guard.
  - (b) Insert identification label with site number and date into the mesh collection bag and attach the bag to the trap.
  - (c) Attach battery connectors to the trap.
  - (d) Check trap for proper operation by blocking light from the photoelectric cell.

(e) Attach trap and assembly to dry ice container.

- Traps set on Monday afternoon are typically serviced on Tuesday. This service is intended to collect those mosquitoes trapped on Monday and to reset the trap. Servicing the trap includes the following functions:
  (a) Exchange mesh collection bag with an empty one.

Larvae Dipping in the field:
The location, months to sample and the frequency of sampling will be determined by the Senior Sanitarian depending on the variation of adult species caught and identified at the CCAFS areas and through proper coordination with the Entomologists at Brooks Air Force Base, San Antonio, TX:

- Identified locations where the mosquito larvae can be found for the dipping process at the CCAFS areas.
- Visually identified the “resting” position of the larvae in the water to determine the best method used for dipping.
- The collected larvae should be strained using the fish net and be transferred into the plastic cup filled with rubbing alcohol for immediate preservation.
- Labeled the plastic cup with the location, date of dipping and the technician initials.
- Further sealed the tightened plastic cup with tape around the lid area to prevent spills.

- Pack the plastic cup with the rest of the petri dishes for shipping to Brooks AFB.
  (b) Check battery for charge, exchange battery with a fully charged one if necessary.
  (c) Check trap for proper operation.
  (d) Exchange empty dry ice container with a filled dry ice container.

- Return the traps and attached equipment mosquito storage room on Wednesday after collecting mesh bags containing trapped mosquitoes.

Retrieving Mosquito Specimens from the Field:

- After servicing the traps, take the collected mesh bags containing trapped mosquitoes and place the bags into the dry ice bin located at the mosquito storage room. Place the mesh bags with the collected mosquitoes in the dry ice bin. The CO2 will kill the mosquitoes and permit subsequent sorting, counting and shipment.

Sorting, Packaging and shipping mosquito specimens for identification:

Sorting:

- Remove mesh collection bags from the dry ice storage bin.
- Find a well-lighted work area away from fans or drafts.
- Empty the mosquitoes from one mesh collection bag onto the surface of a piece of plain white paper.
- Sort males and non-target insects from the collection and discard.
- Count the number of females.
- Record pertinent data in the mosquito surveillance field log. (See EVH-I-P225, Field Records).

Packaging and Shipping:

- Review Mosquito Surveillance Sampling Pan and determine the frequency which samples are sent to AL/OEM for identification.
- There are four sampling weeks in a month, and usually the collected mosquitoes from two of those weeks are submitted to AL/OLEM for identification.
- Those mosquitoes that have been sorted and counted and are not to be submitted for identification may be discarded.
- Those mosquitoes that have been sorted and counted and are to be submitted to AL/OEM are to be packaged in the following manner:
  (a) Place a piece of tissue over the bottom half of a petri dish, with at least one-inch overlap on all edges.
  (b) Place 20-40 air-dried females on the tissue. Specimens should not overlap; leave some space between specimens.
  (c) Cover the mosquitoes with a second piece of tissue.
  (d) Position the top half of the petri dish over the second tissue and press the two halves together. Trim the excess tissue, and tightly tape the dish together to prevent separation during shipping. Use an indelible marker to label the dish.
  (e) The maximum number of mosquitoes to be sent from each trapping event is 200.
- Prepare forwarding document (Report to the Customer, EVH-I-P500) to include with the mosquitoes to be submitted AL/OEM.
- Place forwarding document in addressed envelope. Place envelope, petri dishes, and packing material in a cardboard box. Prepare for shipping. Attach mailing label.

- Specimens should be sent as soon as possible after collection. The specimens should be kept refrigerated until ready to ship; however, the specimens should not be held for more than one week before shipping.

Interpreting and reporting mosquito surveillance data:

- Female mosquito identification will be reported to you on AL/OEMB office form 2.
- Using Table 1, Biological Data on Medically Important Mosquitoes in the United States, prepare written report to 45 ADOSS/SGGM.
- Prepare written report in accordance with EVH-I-P500, Reports to the Customer.
- Address the written reports and provide distribution of the same in accordance with the EC&PH Correspondence List.

ALPHABETICAL INDEX

Appendix D

Antigua Air Station

Pest Management Plan

Revised 2006

PEST MANAGEMENT PLAN

ANTIGUA AIR STATION

LEEWARD ISLANDS

Prepared by:

Computer Sciences Raytheon
Environmental Services

Table of Contents

1. Summary

The basic philosophy of pesticide application at Antigua Air Station is to utilize unrestricted use pesticides wherever possible. Unrestricted use pesticides are the least toxic pesticides and are available to the general public. This plan discusses the pests and pesticides used to control them, personnel issues, the exotic plant eradication project, termite project and planned improvements in the pest management program.

2. Installation Implementation Authority

The Range Technical Services Contract F08650-00-C-0005, Statement of Work paragraph 1.10.1.14.1 and 1.10.3.2.10 requires the contractor to implement a pest control program. The "Antigua Island Final Governing Standards October 2002", DoDI 4715.5-G, 15 March 2000 and DoDI 4150.7 "DoD Pest Management Program" paragraph 4.3 requires the completion and implementation of a pest management plan.

3. Introduction

3.1. Objective of the Pest Management Plan

The primary objective of a pest management program is to control the spread of disease by insect and rodent vectors. Secondary objectives are to ensure human comfort and minimize facility and material damage from nuisance pests. The purpose of this plan is to provide a working document on how the objectives will be accomplished through an integrated pest management program.

3.2. Installation Description and Mission

Antigua Island is one of the Leeward Islands at the northern end of the Lesser Antilles. Antigua is 1,250 nautical miles southeast of Cape Canaveral Air Station. The U.S. Air Force Antigua Air Station is located on approximately 167 acres adjacent to the V. C. Bird International Airport in the northeastern portion of the island.

Antigua Air Station is an Air Force Eastern Range installation that provides tracking, command and destruct and communications for ballistic missiles, satellites, and other space vehicles. Antigua Air Station has four separate areas: a main base and three outlying instrumentation and utilities sites. Recently, a new lease agreement was signed land with the Government of Antigua returning unused land back to the Antiguan Government. The airfield is owned and operated by the Antigua Government. The Range Technical Services Contractor provides base support services at Antigua Air Station. These services include utilities, quarters, food, medical, commissary, transportation, laundry, and recreational facilities. Permanent and temporary personnel are furnished quarters' on base. Limited rental housing is available in the nearby communities.

3.3. Responsibilities for Conduct of the Pest Management Program

The 45th Space Wing's Environmental Flight (45th CES/CEV) retains the responsibility and authority for the conduct of the pest management program at the downrange stations. 45th CES/CEV reviews and approves all plans, reports, and projects related to pest management. Headquarters Air Force Space Command reviews and approves this plan and does an audit of the pest management program during external ECAMP (Environmental Compliance and Management Program) inspections every three years.

Antigua Environmental Technician – Prepared this report, researches pest and pesticide issues, inventories, orders, and issues pesticides and personnel protective equipment, supervises herbicide applicators, and prepares the monthly pesticide usage reports.

Antigua Clinic - Provides pulmonary function. The clinic can also provide quarterly cholinesterase medical testing; however, organophosphate, carbamate pesticides are not currently in use thus cholinesterase testing is not required.

Environmental Services - Reviews monthly pesticide usage reports.

4. Pest Management Requirements and Strategies for Applicable Pest/Disease Vector Categories

Appendices A, B, and C are spreadsheets showing the pesticides used during previous years.

Termite eradication projects ALMY 04-1201 and ALMY 05-1201 have been completed. Future termite projects will be performed as funding becomes available. Advance Termite Bait Stations and in-wall borate treatments will take place at those facilities that show signs of subterranean termites. Acacia eradication will use approximately 30-40 pounds of Garlon 4 herbicide between plot #1, CIF Graveyard, CIF and Radar 91.14. .

4.1. Disease Vectors and Other Health-Related Pests

The spread of malaria by mosquitoes has been a recurring threat at Antigua. At the present time there are no known diseases on or in the vicinity of Antigua Air Station spread by insect or rodent vectors. If mosquitoes become a nuisance, there is a London Fog Eliminator Ultra Low Volume Fogger that will control the problem. Masterline Aqua-Kontrol Mosquito Concentrate would be used as the product with the active ingredient of 20% Permethrin.

4.2. General Household and Nuisance Pests

Ants - treat with Hot Shot, Niban, Talstar, PT 565 d-trans-Allethrin, and Combat ant traps.

Fleas - are an occasional problem and are treated with Combat Foggers within facilities. Apply Talstar to turf.

Flies - are a continual problem on Antigua and are controlled by the use of Apache Fly Bait and PT-565.

Centipedes - are present on the Air Station and feared because of their painful bite. A bite from a large centipede will result in localized swelling that persists for about two days. Infection from a centipede bite is rare. Treat centipedes with Talstar, Demon WP, and Niban granules.

4.3. Structural Pests

Wood-boring termites - are present primarily in the shelving of supply warehouse #2, Facility 24900. A project was completed during July 2004 to tent and fumigate the Supply Warehouses 1 and 2, Satellite Club, Dorm E, and the Construction Warehouse. However, termites have reappeared in warehouse #2. American Environmental personnel performed an inspection on various facilities to determine if termites or any other pests have infested them. Supply Warehouse 25049 and the Supply Admin Office 25050, Picnic Pavilion 24960, and the Sewage Sump & Pump House 24927 now contain word-boring termites.

Subterranean termites – are becoming more apparent than previous years. During the inspection of various facilities, presently subterranean termites have been detected in Powerhouse Office 24904, Communication Operations 24911, Dorm G 24973, and the Radar Maintenance Building 34525.

Physical removal and replacement of infested wood is also an effective means of controlling termites. Wooden bait monitoring spikes have been placed under the foundation of Barracks F to determine if subterranean termites have recolonized. To date the wooden bait monitoring spikes have not shown any signs of termite re-infestation. If the spikes begin to show signs of termites then poison spikes containing Sulfluramid or Diflubenzuron would replace the wooden bait monitoring spikes.

In wall treatment with boric acid dust formulations and pretreatment of lumber with borate was introduced to Antigua Air Station during FY06. The Environmental Technician has ordered as a reoccurring supply item Advance Termite Bait Monitoring Systems and Diflubenzuron at 0.25% as the poison spikes. There will be service orders placed in one at a time through maintenance for those facilities that show signs of subterranean termites. Once a facility has the monitoring spikes installed, new service orders will be placed in for the next facility and supplies reordered.

4.4. Weed Control

Control weeds under fence lines, around transformer pads, etc., with Round Up and Garlon 4.

4.5. Stored Products Pests

Cockroaches - Are the primary pests of stored food products. Treat for roaches with Combat roach traps, Hot Shot, Maxforce FC gel, Niban granules, and Demon WP.

Rodents - Mice and rats are controlled with mechanical traps, sticky paper, Contrac, and Generation rodenticidal baits. Contrac and Generation baits have been used for the past six years and has proven effective. Recently, from advice given by the American Environmental personnel, the Environmental Technician ordered and began using Ditrac and Fastrac rodenticidal baits. This was to change the type of active ingredient so the rodents do not build up a tolerance. Contrac and Generation applied inside the bait stations will continue to be employed at Antigua to effectively decrease rat populations but it will be periodically changed out more often and amount used of both will decrease while the use of Ditrac and Fastrac will increase.

4.6. Pests of Ornamental Plants and Turf

The usual pests of ornamental plants and turf, caterpillars, fungi, chinch bugs, mole crickets, sod webworms, snails, slugs, and nematodes have not been a problem at Antigua AS. Outbreaks of ants, however, are common.

Ants – Eradicate ants in turf and ornamental gardens with Talstar and Niban granules.

4.7. Vertebrate Pests

Cows, Goats, and Pigs - Tend to graze on turf resulting in a fly problem. Fences and gates control access to the Air Station grounds. Herding the animals out of the enclosures is occasionally required.

Dogs – Are captured and transported to the Humane Society.

5. Administration

5.1. Service Orders

Pesticide and herbicide application is performed on a monthly basis via a recurring service order with a specific man-hour charge number. Trouble calls are dealt with immediately and the labor expended charged to the pest management program authorized work document (AWD) number.

5.2. Contracts

Soil treatment around and beneath new foundations for the control of subterranean termites is included in project specifications.

Project ALMY 03-1201 was performed in July 2004 at $30,000.00 to fumigate Supply Warehouses #1 and #2, Dorm E, Construction Warehouse and the Satellite Club for dry wood-boring termites. This project also included injecting and foaming around the foundations of Dorm E and Administration/Dining Hall Facility with Termidor.

5.3. Resources

Funding - Funding for the purchase of pesticides, application, and personnel protection equipment is provided through PFMR (Project Funds Management Report) accounts administered by the Range Technical Services contractor. The 45th Civil Engineering Squadron provides funding for termite fumigation projects. CES/CEV also funded a project to control the exotic, alien, invasive species of acacia that grow on Air Force lease lands. The AS is trying to restore, preserve and protect the native, indigenous and endemic species of plants, trees and flowers that grow on the Air Force lease lands through eradication of the acacia. The project area test sites are located on the East perimeter of the Air Station (known as "Plot 1"), North perimeter of the Consolidated Instrumentation Facility, CIF Graveyard, and Radar 91.14. An environmentally friendly herbicide Garlon 4 will be applied into and on the soil to kill off the roots and seeds that fall from the trees and bushes, and the herbicide applied into the sliced trunk. All sites will be monitored periodically and conditions logged.

Staffing - Personnel assigned to the dining hall apply pesticides and grounds maintenance apply herbicides, on a part-time basis, under the supervision of the Environmental Technician and the Food Service Manager. Typically three personnel perform both the duties of pesticide and herbicide applicators.

Materials - Pest control equipment is limited to one-gallon and three-gallon hand-pumped sprayers, a centrifugal spreader for ant control, numerous rat and mice traps, half face respirators with appropriate cartridges, rubber gloves, rubber aprons, and goggles.

Facilities - Pesticides are stored in a prefabricated HazMat shelter located in the DRMO yard. Project ALMY 30-0000EC was funded by HQ AFSPC to purchase a prefabricated HazMat shelter that would be used for pesticide storage. Completion of this project closed two previous external ECAMP findings from 2001. Pesticide mixing is performed within the secondary containment located on the West side of this shelter. This facility is equipped with an emergency eyewash and shower. In June 2004, the External ECAMP Audit team gave a finding for inadequate pesticide management facility due to no self-locking device on the front door, no reduced pressure backflow preventor, no water heater and an improper mixing area due to no splashguard and

hardstand table. The self-locking door and backflow preventor have been installed. The other findings are negated by the following Air Force Space Command guidance and concurrence from the Armed Forces Pest Management Board.

From: Anderson Mary C Civ AFSPC/MSEV
Sent: Monday, June 27, 2005 12:26 PM
To: Hawkins Dale GS-12 45 CES/CEVP
Subject: FW: Antigua and Ascension Pest Facilities
Signed By: Verifying the signature. Click the icon for details.
Dale, here is the concurrence from the Armed Forces Pest Management Board, Deputy Director and the Program Coordinator. Please keep a copy in your files, those at each site, and include in their pest management plans. I will make sure that a copy is also included in the ECAMP Protocols to prevent like findings in the future.

Mary Anderson
AFSPC Pest Program Manager
AFSPC/MSEVP
DSN 692-5034

From: Fordham Wayne W Civ AFCESA/CESM [mailto:Wayne.Fordham@tyndall.af.mil]
Sent: Tuesday, June 14, 2005 7:28 AM
To: Anderson Mary C Civ AFSPC/MSEV; Fordham Wayne W Civ AFCESA/CESM; Carpenter, Terry, LtCol, OSD-ATL
Subject: RE: Antigua and Ascension Pest Facilities

Mary,

I concur with and support your findings.

Wayne Fordham
USAF Pest Management Program Coordinator
HQ AFCESA/CESM
Headquarters Air Force Civil Engineer Support Agency
139 Barnes Dr Suite 1
Tyndall AFB, FL 32403-5319
850-283-6465 DSN 523-6465 or 888-232-3721, ext. 6465
FAX: 850-283-6219 DSN 523-6219
E mail: wayne.fordham@tyndall.af.mil
http://www.afcesa.af.mil/ces/cesm/pest/cesm_pestmgt.asp

From: Carpenter, Terry, LtCol, OSD-ATL [mailto:Terry.Carpenter@osd.mil]
Sent: Tuesday, June 14, 2005 7:32 AM
To: Anderson Mary C Civ AFSPC/MSEV
Cc: Fordham Wayne W Civ AFCESA/CESM
Subject: RE: Antigua and Ascension Pest Facilities

Ms. Anderson,

AFPMB concurs.

VR,

Lt Col Carpenter

Terry L. Carpenter, Lt Col, USAF, BSC
Deputy Director, Armed Forces Pest Management Board
ODUSD (Installations & Environment)
Walter Reed AMC, Forest Glen Annex, Bldg 172
Washington, DC 20307-5001
DSN 295-7476, Tel 301-295-7476, Fax -7473
E-Mail <terry.carpenter@osd.mil>
Web Page: http://www.afpmb.org

-----Original Message-----
From: Anderson Mary C Civ AFSPC/MSEV [mailto:Mary.Anderson@PETERSON.af.mil]
Sent: Tuesday, June 14, 2005 8:34 AM
To: Fordham Wayne W Civ AFCESA/CESM; Carpenter, Terry, LtCol, OSD-ATL
Subject: Antigua and Ascension Pest Facilities

Sirs,

After discussion with AFSPC JAV, it was determined that e-mail correspondence with both of your offices will suffice in establishing pesticide facility requirements for Antigua and Ascension Island AF sites.

Firstly, this is AFSPC interpretation of the MIL-HNDBK regarding Antigua and Ascension Islands only.

Secondly, because the FGS for both counties requires compliance with the MIL-HDBK 1028/8A in regards to pesticide facility, we are required to comply with this guidance document as policy. The FGS Section C11.2.4 allows for the major command (AFSPC/MSEVP), field operating agency (AFCESA/CESM and AFPMB) to provide technical and management guidance for the conduct of installation pest management operations. All three pest management consultants (AFSPC/MSEVP, AFCESA/CESM, and AFPMB) have concurred through conversations and via e-mail that the pesticide facilities at both sites meet the intent of the MIL-HDBK 1028/8A regarding storage and mixing and due to the size of the program and amount of herbicides applied, there is no need to have the office within the same building.

That being stated, AFSPC is going to require compliance to the following conditions:

1. The certified pesticide applicator must wear/use disposable personal protective equipment (PPE) and dispose of any pesticide contaminated PPE IAW with labeled pesticide.
2. The pesticide storage and mixing facility is a stand-alone, secure, fenced, and signed.

The following sections from the Military Handbook (MIL-HDBK-1028/8A) are addressed to support the pest management facilities at both Antigua and Ascension and this is AFSPC/MSEVP interpretation of how both these sites comply with the MIL-HDBK-1028/8A.

1.1 The facility is to be designed to support site operations and provide for safe storage, safeguard the health and safety of employees, prevent environmental contamination, contain spillage and be secure against theft and vandalism. The pesticide storage facility at both Antigua and Ascension meet these conditions.

2.3.1 The facility size and components is based on the AFSPC Pest Program Consultant (MSEVP) and from the pest management plan for each installation. Facilities shall provide adequate space for personnel and equipment necessary to address installation pest problems.

The pesticide program at both Antigua and Ascension is limited to application of herbicides to control invasive species and both sites have adequate facilities and equipment to meet this task.

2.3.2 A single-use facility, the size should be no larger than 1,000 square feet (93 square meters) to include pesticide storage and equipment areas, mixing area, and a deluge shower and eyewash as a minimum. The pesticide facilities at both installations meet this requirement.

2.8 Because of the hazardous nature of pesticides stored and mixed in pest management facility, it is essential that such materials are secured and available only to qualified individuals. Security fencing and security gates are essential; a climb resistant fence shall enclose the entire facility. Both storage facilities are fenced, appropriately signed and have no windows or other points of egress. Both sites are secure from non-qualified personnel access and have self-closing and self-locking doors.

3.1.2 Obtain guidance on the actual size and components of the pest management facility from the AFSPC Pest Program Consultant (MSEVP). For the number of man-hours spent on pest control at both sites, the size and composition of both facilities are acceptable.

Therefore, there is no requirement to have a single, stand alone pest shop as long as the pesticide applicator has a pesticide-free office and a secure, fenced, signed pesticide storage, such as the current situation to work from.

An e-mail reply to concur with these points is requested. Thank-you for your time and support.

MARY ANDERSON
HQ AFSPC/MSEVP
150 VANDENBERG ST, STE 1105
PETERSON AFB CO 80917-4150
719-554-5034 OR DSN 692-XXXX
FAX XXX-3849
mary.anderson@peterson.af.mil

5.4. Reports and Records

Microsoft Excel spreadsheets, developed by CSR, have replaced DD Form 1532, AF Form 290, and AF Form 646. All reporting is done electronically via the local area network. CDRL A540A requires an annual pesticide management report to be updated with new data and any future projects that will be conducted. Quarterly metrics for HQ AFSPC are provided.

5.5. Training Plans

Certified pesticide applicators are not required, by federal regulation, for the application of unrestricted use pesticides. However, the "Antigua Final Governing Standards October 2002", DoD 4715.5-G, 15 March 2000 and the latest version of "DoD Pest Management Program" DoDI 4150.7, 22 April 96, do not make this distinction. Thus, even though unrestricted use pesticides are utilized at Antigua AS, DoD instructions require certified applicators. Range Technical Services (RTS) contractor environmental service personnel, including the Environmental Technician stationed at Antigua AS, and maintenance supervisory personnel have attended the pesticide applicators training and certification program offered by the Florida State Orange County Extension Service. All pesticide applicators and supervisory personnel attend Hazard Communication, Hazardous Waste Operator, and Respiratory Protection training.

Personnel have been trained in the use of in-wall borate treatments.

5.6. Coordination with Food Service Managers, Maintenance Personnel, etc.

The Food Service Manager and the Maintenance Supervisor schedule pesticide application in the areas under their control. Coordination with these individuals and the Medic is built into the pesticide application scheduling process.

5.7. Termite Inspection Plan

The pesticide applicators and facility maintenance personnel perform termite inspections. A contracted entomologist also completed a termite survey on 3 August 2004. Dry-wood boring termites were found in various other supply warehouses and office, wastewater treatment building, and picnic pavilion. Subterranean termites were found at Radar maintenance building, Communication buildings battery room and powerhouse office. In August 2003, the base gym had Dursban TC applied around the foundation due to evidence of subterranean termites. Then, in September 2003, subterranean termites were found in Dorm G and Talstar TC was injected through bored-out holes in the cement sidewalk around the foundation. Due to the way the dorm was built, an expansion joint between the sidewalk and the foundation of Dorm G, evidence of subterranean termites were determined during August 2004 survey. The Talstar TC that was applied probably never reached the nest under Dorm G's foundation due to this barrier that the expansion joint made. Dorm G will require close scrutiny and periodic re-inspection.

6. Health and Safety Measures

6.1. Requirements

DoDI 4150.7 Pest Management Program is the primary regulatory document and is implemented by AFI 32-1053. AFI 32-1053 also requires compliance with the OSHA, EPA, and DoT regulations contained in 29 Code of Federal Regulations (CFR) 1910, 1925, 40 CFR 150-189, and 49 CFR 171.

6.2. Methods to Reduce Potential Hazards to**:**

a. Pest Management Personnel

Pest management personnel are trained in hazard communication. Personnel are briefed on the hazards associated with prolonged exposure to pesticides; even those classified as unrestricted use. Emphasis is placed on reading and understanding the product label. All pesticide storage is consolidated in one facility. The Environmental Technician controls entry to the pesticide storage facility.

b. Installation Personnel and the Public

Station personnel are issued PT 565 d-trans-Allethrin and Combat fogger aerosol for use in their rooms, primarily to treat ants. Medical personnel are informed when spraying operations are being conducted in food storage areas.

Pest management personnel perform intensive pest control measures. Efforts are made to apply pesticides when facilities are unoccupied. Personnel exclusion zones are established if there is the potential for personnel to be exposed to drifting pesticide spray.

6.3. Safety and Health Measures Associated with Pest Management Control Shops

Personnel are provided respirators with the appropriate cartridge, gloves, mixing aprons, and goggles. Personnel receive annual physicals, pulmonary function tests, and respirator fit tests.

6.4. Safety and Health Measures Associated with Pest Management Vehicles

Operators of pest management vehicles firmly secure premixed pesticides contained in hand spray equipment to prevent spills within the bed of the vehicle. Spill response materials such as absorbent pads are carried in the vehicle.

7. Host Nation Laws

The host nation has no specific pesticide management requirements applicable to the U.S. Air Force.

8. Coordination with other Organizations and Agencies

The U.S. Air Force coordinates with the Antiguan Government if herding animals become a nuisance. Station personnel regularly remind V.C. Byrd International Airport operations staff members that herbicides or any other type of pesticide should not be used where stormwater runoff could enter the raw water collection system.

9. Pest Management Operations with Special Environmental Considerations

9.1. Operations using Restricted Use Pesticides

Certified contractors to control termites apply restricted use pesticides, primarily Vikane gas fumigant.

10. Other Pest Management Plan Issues

10.1. Applicable Pollution Control Projects

The Range Technical Services contractor will attempt to limit the damage and spread of termites by substituting recycled plastic and metal for wood in facility renovation and

construction projects. The use of Bora Care may be applied to untreated wood as a preventive maintenance practice to guard against termites.

10.2. Applicable Pollution Abatement Procedures

Pesticide application inside facilities with floor drains must be carefully monitored because the floor drains are connected to the sanitary sewer system and the wastewater treatment plant. Over-zealous application or spills of pesticides could endanger the activated sludge biological treatment process.

Pesticide containers are triple rinsed prior to disposal. The rinsate is utilized in pesticide mixing, i.e., the rinsate is applied as a pesticide, not disposed.

11. Outlying Areas

The outlying areas include the Consolidated Instrumentation Facility and Radar 91.14. The following is a list of pests and the pesticides used to treat these areas.

Ants - Demon WP, Hot Shot, Niban, & PT-565 XLO Plus
Fire Ants - Talstar PL
Roaches – Hot Shot & MaxForce FC
Rodents-Contrac, Ditrac, Fastrac & Weather Blok XT

11.1. Installation Map

Appendix D is the Main Base Map
Appendix E is the Consolidated Instrumentation Facility Map
Appendix F is Radar 91.14 Map

12. Pesticide Inventory Including Pesticide Name, Manufacturer, Unit of Issue, Quantity, NSN, etc. and Pesticide Equipment Inventory

Appendix G lists the pesticide and equipment inventory.

13. Pesticides Sold in Base Exchange

Appendix H lists the pesticides sold at the Base Exchange. The list also states the active ingredients, percentage, quantity and type of container.

14. Material Safety Data Sheets

Material Safety Data Sheets are maintained electronically at the Environmental Technicians office and are readily available through the internet. In the interests of brevity, MSDSs are no longer included as an appendix to this plan.

Appendix A FY2003 Pesticide Usage at Antigua Air Station

Pesticide	EPA Registration Number	Pesticide Applied lbs	Active Ingredient	Percent Active Ingredient	Active Ingredient Applied lbs
Apache/Flytek	270-255	2	Methomyl	1.00%	0.02
Combat Bait	64240-3	2.75	Hydromethylnon	2.00%	0.055
Contrac	12455-69	46.2	Bromadiolone	0.005%	0.00231
Demon WP	10182-71	0.02	Cypermethrin	40%	0.008
Drax	9444-131	1.4	Orthoboric Acid	5.00%	0.07
Dursban TC	62719-47	9.75	Chlorpyrifos	42.80%	4.173
MaxForce Roach Bait	64248-11	2.1	Fipronil	0.01%	0.00021
PT-565	499-310	49	Pyrethrins	0.25%	0.1225
Raid Room Foggers	1021-1623-4822	1.5	Pyrethrins	12.0%	0.18
Round-Up	524-475	3.6	Isopropylamine Salt of Glyphosate	1.5%	0.054
Talstar PL	82657-04-3	842	Bifenthrin	0.20%	1.684
Wasp Freeze	499-362	2	d-Trans Allethrin	0.129%	0.00258
Weather Blok XT	10182-339	9.78	Brodifacoum	0.005%	0.0489
	Totals:	972		Totals:	6.4

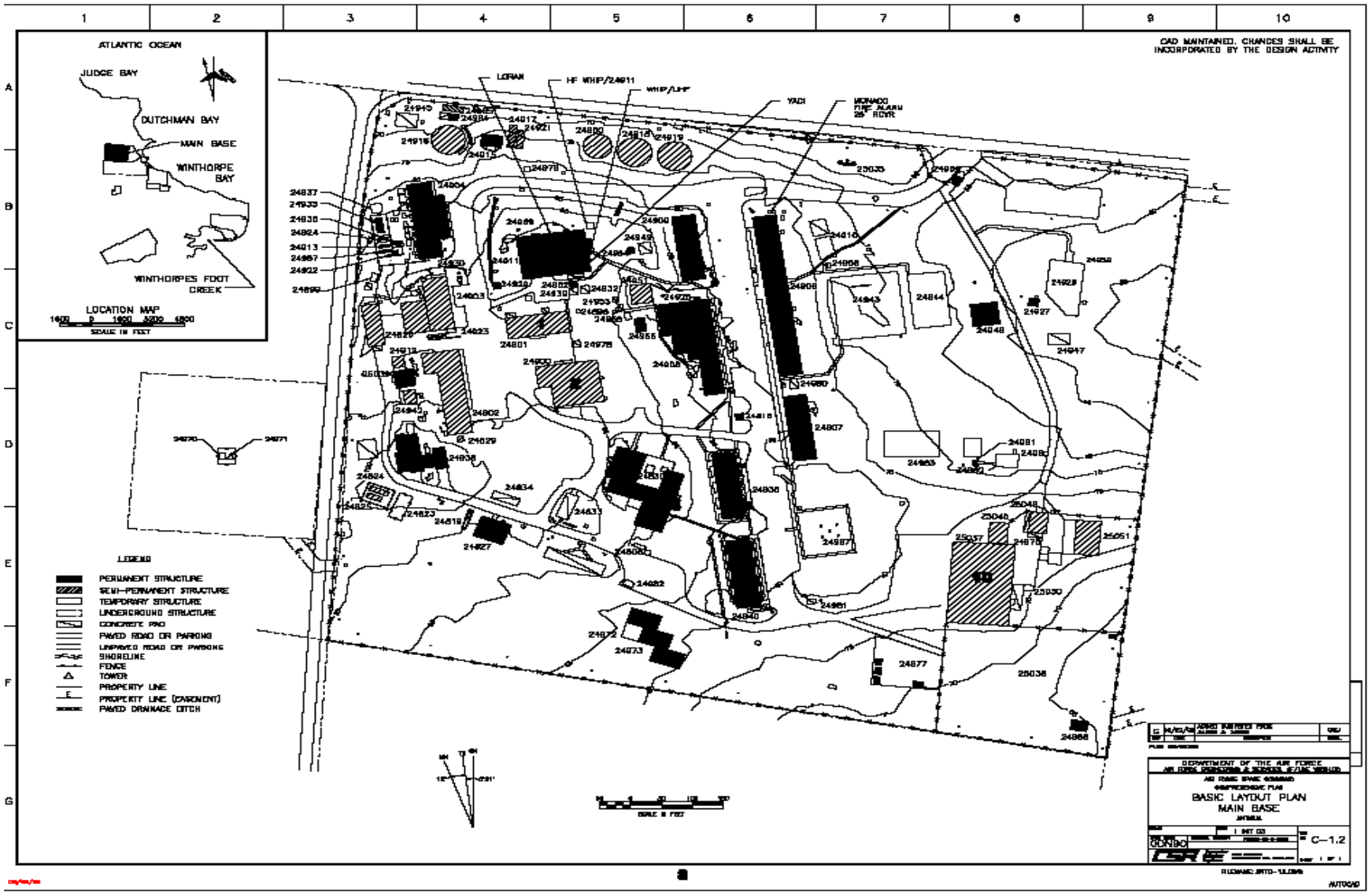
Appendix B FY2004 Pesticide Usage at Antigua Air Station

Pesticide	EPA Registration Number	Pesticide Applied lbs	Active Ingredient	Percent Active Ingredient	Active Ingredient Applied lbs
Apache	270-255	4.5	Methomyl	1.00%	0.045
Bora Care	64405-1	1	Disodium Octaborate Tetrahydrate	40.00%	0.40
Combat Bait	64240-3	0.8725	Hydromethylnon	2.00%	0.01745
Contrac	12455-69	49.4	Bromadiolone	0.005%	0.00247
Demon WP	10182-71	0.482775	Cypermethrin	40%	0.19311
Ditrac	12455-78	4.3125	Diphacinone	0.005%	0.000215625
Drax	9444-131	0.6	Orthoboric Acid	5.00%	0.03
Fastrac	12455-97	1.14	Bromethalin	0.001%	0.0000114
Garlon*4	62719-40	21.9375	Triclopyr	61.60%	13.5135
Hot Shot	9444-130-8845	2.9869	Orthoboric Acid	99.0%	2.957031
MaxForce Roach Bait	64248-11	2.625	Fipronil	0.01%	0.0002625
Niban	64405-2	10	Orthoboric Acid	5.00%	0.50
PT-565	499-310	74.375	Pyrethrins	0.25%	0.186
Raid Deep Reach	4822-452	0.5625	Cypermethrin	1.716%	0.00964525
Round-Up	524-475	1.875	Isopropylamine Salt of Glyphosate	1.5%	0.028125
Talstar PL	82657-04-3	1,570	Bifenthrin	0.20%	3.14
Termidor	432-901	10.0175	Fipronil	9.10%	0.9115925
Vikane Gas	62719-4	225	Sulfuryl Fluoride	99.8%	224.55
Wasp Freeze	499-362	1.09	d-Trans Allethrin	0.129%	0.0014061
Wasp Stopper Plus II	499-362-4024	4.5	d-Trans Allethrin	0.129%	0.005805
Weather Blok XT	10182-339	33.2295	Brodifacoum	0.005%	0.00166145
	Totals:	2,020.51		Totals:	246.49

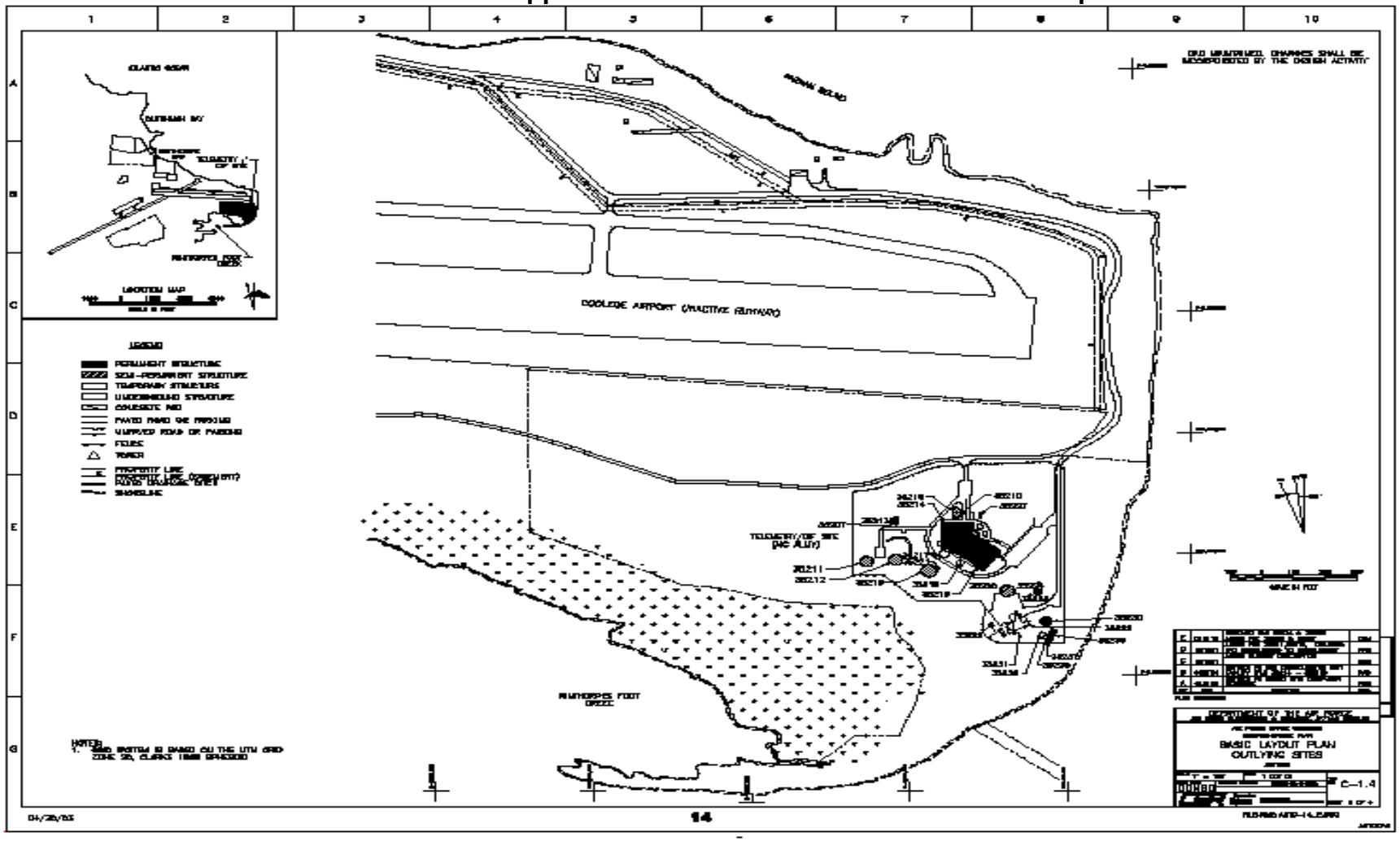
Appendix C FY2005 Pesticide Usage at Antigua Air Station

Pesticide	EPA Registration Number	Pesticide Applied lbs	Active Ingredient	Percent Active Ingredient	Active Ingredient Applied lbs
Combat Bait	64240-3	0.332	Hydromethylnon	2.00%	0.0058
Contrac	12455-69	51.32	Bromadiolone	0.005%	0.0026
d-Trans Allethrin	10900-64-59667	16.5	Resmethrin	0.20%	0.033
Demon TC	10182-107	0.75	Cypermethrin	25.30%	0.190
Demon WP	10182-71	0.603	Cypermethrin	40%	0.2412
Ditrac	12455-78	7.98	Diphacinone	0.005%	0.0004
Drax	9444-131	1.12	Orthoboric Acid	5.00%	0.056
Fastrac	12455-97	2.565	Bromethalin	0.001%	0.00003
Garlon*4	62719-40	6.5	Triclopyr	61.60%	4.004
Hot Shot	9444-130-8845	2.125	Orthoboric Acid	99.0%	1.875
Masterline	73748-1	8.8	Permethrin	20.00%	1.76
MaxForce Roach Bait	64248-11	3.6125	Fipronil	0.01%	0.0023
Mosquito Dunks	6218-47	0.57	*Bacillus thuringiensis*	10.31%	0.06
Niban	64405-2	43.50	Orthoboric Acid	5.00%	2.175
PT-565	499-310	35	Pyrethrins	0.25%	0.09
Raid [] Deep Reach	4822-452	3.375	Cypermethrin	1.716%	0.06
Talstar One	279-3206	6	Bifenthrin	7.90%	0.474
Talstar PL	82657-04-3	1,800	Bifenthrin	0.20%	3.6
Talstar TC	279-3206	0.25	Bifenthrin	7.90%	0.02
Wasp Freeze	499-362	16.34	d-Trans Allethrin	0.129%	0.0211
Wasp Stopper Plus II	499-362-4024	12	d-Trans Allethrin	0.129%	0.0155
Weather Blok XT	10182-339	45.28	Brodifacoum	0.005%	0.0023
	Totals:	2,064.53		Totals:	14.7

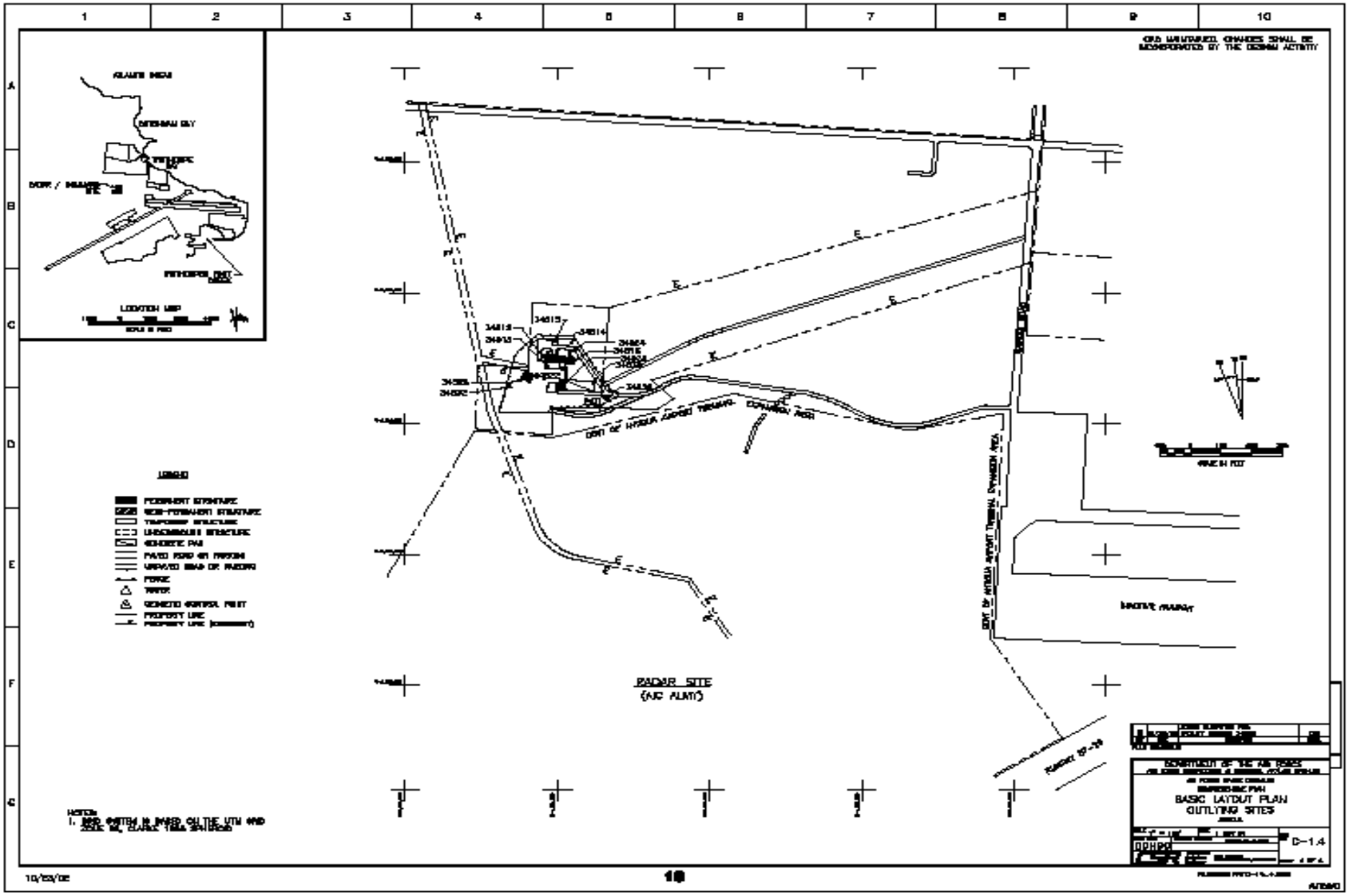
Appendix D Main Base



Appendix E Consolidated Instrumentation Map



Appendix F Radar 91.14 Map



Appendix G Antigua AS Pesticide and Equipment Inventory

NSN # or PART #	DESCRIPTION	MANUFACTURER	CONTAINER TYPE	QTY	CONTAINER SIZE
	4 ounce measuring cup			1	
	5-gal mixing bucket for termiticides only			1	
	8 Ounce measuring cup			1	
	Advance Termite Bait	Whitmire-Micro Gen St. Louis, MO	Box	2	Kit-6 blocks
6840-01-183-7244	Apache Fly Bait	Farnam Companies Omaha, NE	Cans	12	5 lbs.
	Bora-Care Termiticide	Nisus Corp. Rockford, TN	Plastic Bottle	2	1 gal.
	Boricyl Weed Killer	Simplot J.R. Co. Lathrop, CA	Lab Pack	1	20 lbs.
	Cat Cage			1	
	Combat Outdoor Ant Killing Stakes	Combat Oakland, CA	Boxes	200	0.635 ounces
	Combat Superbait (Large Trays)	Combat Oakland, CA	Boxes	1	1.27 ounces
	Combat Superbait (Small Trays)	Combat Oakland, CA	Boxes	36	0.70 ounces
	Contrac Blox Rodenticide	Bell Laboratories Madison, WI	Plastic Pail	3	18 lbs.
	Control Poll			1	
	Demon TC Termiticide	Zeneca Wilmington, DE	Plastic Bottle	1	1 gal.
	Demon WP	Zeneca/Syngenta Greensboro, NC	Packets	17	9.5 grams
	Ditrac Rodenticide	Bell Laboratories Madison, WI	Box	1	100 pks.
	Dog Trap			1	
	Drax Ant Kil Gel (Sugar Ants)	Van Waters & Rogers Orlando, FL	Syringes	8	30 cc
	Drax Ant Kil-PF (Protein Ants)	Van Waters & Rogers Orlando, FL	Syringes	21	30 cc
	Fastrac Rodenticide	Bell Laboratories Madison, WI	Pail	1	100 pks.
3740-00-252-3383	Fly Swatters	Laidlaw Corp. Scottsdale, AZ	Box	2	24 swatters
	Garlon 4 Herbicide	Dow Agro Sciences Indianapolis, IN	Plastic Bottle	9	2.5 gals.
	Herbicide Sprayers			3	
6840-01-067-2137	Insecticide, D-trans Allethrin	Sprayon Products Bedford Heights, OH	Cans	31	12 ounces
715656	JT Eaton Duster 530	Univar Inc. Austin TX	Duster	2	n/a
	Masterline Aqua-Kontrol Mosquito []	Univar Inc. Austin TX.	Plastic Bottle	4	Gallon

NSN # or PART #	DESCRIPTION	MANUFACTURER	CONTAINER TYPE	QTY	CONTAINER SIZE
	Masterline Foam Concentrate	Van Waters & Rogers Orlando, FL	Plastic Bottle	1	Gallon
ET's Refrigerator	MaxForce FC	MaxForce Oakland CA	Syringes	18	2.1 ounces
	MaxForce FC Ant Bait Stations	MaxForce Oakland CA	Bag	1	1.2 ounces
394850	Mini-Dust-R 1151-M	Univar Inc. Austin TX	Duster	2	n/a
	Mosquito Attractant - Nosquito	StingerProducts.com	Traps	6	0.93 ounces
	Mosquito Dunks	Summit Chemical Co. Baltimore MD	Package	0	
RTS902487	Mosquito Fogger			1	
695367	MSA Wasp Stopper II	Mine Safety Pittsburg, PA	Cans	65	12 ounces
	Niban Ant Granular	Nisus Corporation Rockford, TN	Bag	4	40 lbs.
	Pesticide Broadcast Spreader			1	
	Pesticide Sprayers			4	
	Pestifoam Foam Concentrate	Richway Industries Janesville, IA	Plastic Bottle	4	Gallon
ILS#353245 On order	Pestifoamer PF-6	Richway Industries Janesville, IA	Foam Machine	1	6 Gallon
6840-00-823-7849	PT-565 XLO Plus	Whitmire Research St. Louis, MO	Cans	12	20 ounces
	Raid Concentrated Deep Reach Fogger	SC Johnson & Son Inc. Racine, WI	Aerosol Cans	0	1.5 ounces
	Rodent Bait Stations	Spectra	Plastic	6	
	Spectracide Termite Bait Sticks Kit	PetSupply Dallas TX	Box	1	Kit-18 blocks
	Talstar One Multi-Insecticide	FMC Corp. Philadelphia, PA	Plastic Bottle	3	3/4 gal.
Supply Item	Talstar PL Granular	FMC Corp. Philadelphia, PA	Bags	15	25 lbs.
Supply Item	Talstart Termiticide	FMC Corp. Philadelphia, PA	Plastic Bottle	1	3/4 gal.
	Tim-Bor	Nisus Corp. Rockford, TN	Plastic Pail	1	25 lbs.
	Victor Rodent Glue Traps	Woodstream Litiz, PA	Boxes	3	24 pads/bx
6840-00-459-2443	Wasp & Hornet Killer II	CRC Industries Warminster, PA	Cans	12	12 ounces
02-0518	Wasp Freeze	Whitmire Micro-Gen St. Louis, MO	Cans	5	17.5 ounces
75998	Weather Blok XT Rodenticide	Syngenta Greensboro, NC	Plastic Pail	2	11 lbs.
	Zoecon Insect Traps	Zoecon Industries Inc.	Boxes	3	50 pads/bx

Appendix H Pesticides Sold at the Base Exchange

Description	Manufacture	Manufacture Address	Container Type	QTY	Size
Hot Shot Flying Insect Killer - d trans Allethrin 0.25%	Spectrum United Industries	St. Louis MO. 63114	Aerosol	18	18.75 oz.
Off Deep Woods Insect Repellent V - N,N-Diethyl-meta-Toluamide 23.8%	SC Johnson Wax	Racine, WI. 53403	Aerosol	24	6 oz.
Off Insect Repellent - Deet 15%	SC Johnson Wax	Racine, WI. 53403	Aerosol	24	6 oz.
Off Skintastic Insect Repellent IV - N,N-Diethyl-meta-Toluamide 6.65%	SC Johnson Wax	Racine, WI. 53403	Pump Spray	24	6 oz.
Raid Flying Insect Killer - Permethrin 0.10%	SC Johnson Wax	Racine, WI. 53403	Aerosol	18	15 oz.
Raid Ant & Roach Killer - Imipruthrin 0.100%	SC Johnson Wax	Racine, WI. 53403	Aerosol	18	17.5 oz.

Appendix E

Ascension Auxiliary Air Field

Pest Management Plan

Revised 2006

PEST MANAGEMENT PLAN

ASCENSION AUXILIARY AIRFIELD
SOUTH ATLANTIC OCEAN

Prepared by:

Computer Sciences Raytheon
Environmental Services

Table of Contents

Table of Contents - continued

1.0 Summary

The basic philosophy of pesticide application at Ascension Auxiliary Airfield is to utilize unrestricted-use pesticides wherever possible. Unrestricted-use pesticides are the least toxic pesticides and are available to the general public. This plan discusses the pesticides currently applied, personnel issues, the feral cat eradication program, rat eradication program and dry-wood termite fumigation.

2.0 Installation Implementation Authority

The Range Technical Services Contract FO8650-00-C-0005, Statement of Work paragraph 1.10.1.14.1 and 1.10.3.2.10 requires the contractor to implement a pest control program. The "Ascension Island Final Governing Standards May 2002", DoDI 4715.5-G, and DoDI 4150.7 "DoD Pest Management Program" paragraph 4.3 requires the completion and implementation of a pest management plan.

3.0 Introduction

3.1 Objective of the Pest Management Plan

The primary objective of a pest management program is to control the spread of disease by insect and rodent vectors. Secondary objectives are to ensure human comfort and minimize facility and material damage from nuisance pests. The purpose of this plan is to provide a working document on how the objectives will be accomplished through an integrated pest management program.

3.2 Installation Description and Mission

Ascension Auxiliary Airfield is located on Ascension Island, a British Island in the South Atlantic Ocean, 4,400 nautical miles southeast of Cape Canaveral Air Station. The Air Force installation is located on 3,856 acres occupied under an agreement with the government of the United Kingdom. Ascension Auxiliary Airfield includes thirteen separate areas; a main base site, an airfield with a 10,000-foot runway, and eleven outlying instrumentation and communication sites. Permanent and temporary duty personnel are furnished quarters on base.

Ascension Auxiliary Airfield is an Air Force Eastern Range installation that provides technical instrumentation and communications support for aerospace launch operations conducted from Cape Canaveral Air Station and Kennedy Space Center. Mission support requirements include real-time tracking, communications, and radar operations for the Delta, Atlas, Titan, Trident, Space Shuttle and other Department of Defense and commercial launches related to 45th Space Wing activities.

3.3 Responsibilities for Conduct of the Pest Management Program

The 45th Space Wing's Environmental Flight (45th CES/CEV) retains the responsibility and authority for the conduct of the pest management program at the downrange stations. 45th CES/CEV reviews and approves all plans, reports, and projects related to pest management.

Antigua's Environmental Technician - prepared this plan, researches pest and pesticide issues, and prepares the monthly usage pest management report.

Ascension Clinic - provides pulmonary function and medical testing. Cholinesterase medical testing of pesticide applicator personnel has not been required since restricted pesticides have not been used since 1999; however, during FY'04 external ECAMP preparations the Environmental Technician found on base from a previous subcontractor a gallon of Diazinon 4E

concentrate and a case of d-Phenothrin insecticide. Both of these products are restricted and cholinesterase testing will be performed on those who apply these pesticides during the FY'05.

4.0 Pest Management Requirements and Strategies for Applicable Pest/Disease - Vector Categories

Appendix A is a spreadsheet of the pesticides used during fiscal year 2003. Note that a total of 278.78 pounds of pesticide products were applied during the one-year period, of which 240 pounds was used for rodent control. This equates to a total of 0.4657 pounds of active ingredients, of which 0.012 was active ingredients of rodenticides.

Appendix B is a spreadsheet showing the types and amounts of pesticides applied during FY04. More than three fourths of the treatment efforts were directed at rodents. Note that a total of 548.24 pounds of pesticide products equaling 3.172 pounds of active ingredients were applied during the year; 512 pounds of rodenticide baits were used for rodent control.

Appendix C is a spreadsheet showing the types and amounts of pesticides used during FY05. Rodent bait usage is expected to increase due to the elimination of the feral cats and only limited control of rodents throughout the other areas and organizations on the island.

4.1 Disease Vectors and Other Health-Related Pests

At the present time there are no known diseases on Ascension Island spread by insect or rodent vectors.

4.2 General Household and Nuisance Pests

Ants - treat with Demon WP, PT 565 XLO Plus, d-trans-Allethrin, and ant traps.

Cockroaches – are an occasional problem and are treated with Demon WP, MaxForce FC gel and Combat bait trays.

Fleas - are an occasional problem and are treated with aerosol foggers within facilities.

Flies - are a continual problem on Ascension and are controlled by the use of PT-565 XLO Plus, Apache Fly Bait, and Flytek Fly Bait.

4.3 Structural Pests

A pest survey concluded that subterranean termites are not present on Ascension AAF. Instead, dry wood termites are prevalent.

Dry Wood Termites - present the largest pest problem at Ascension AAF. During a September 1997 survey over forty facilities were infested with dry wood termites. Project YXTK 98-1201 Termite Eradication was programmed for $180,000 to tent and fumigate the infested facilities with sulfuryl fluoride (Vikane) gas. This project was completed during October and November 2000.

A quality control inspection to determine the effectiveness of project YXTK 98-1201 was completed during August 2001. Probing tools, flashlights, and a moisture meter were used to determine if any live termites were present. Only one case of active termites was found in a pallet and an adjacent wall at Shipping and Receiving. Premis 2 residual foam was used to treat this infestation. Modular 26 and the AGE shop showed signs of termites because moisture

readings were higher than expected. However, no live termites were found. These two locations were foam treated with Premise as a precautionary measure.

Live termites were found in other buildings that were not treated during project YXTK 98-1201. These facilities were 12275, 12074, 12106, 12306, 12144, 12145, 12087, and 12264. A project will be programmed to treat these facilities. In the meantime, emerging swarms of termites will be treated with fogger aerosol, PT 565 XLO Plus and d-Trans-Allethrin. Lumber will be treated with Demon TC or Premise 2 and Premise 75 as a preventative measure. The physical removal and replacement of infested wood will also be used to control dry wood termites.

Existing stocks of untreated lumber are being replaced with pressure treated wood, including plywood. The Environmental Flight, 45 CEV is sponsoring a trial of recycled plastic sheeting to replace plywood shelving in supply storage areas. The goal is to determine if the recycled plastic sheeting can withstand a continuous heavy load without warping or deformation. If the trials are successful warehouse shelving will gradually be replaced with plastic sheeting as funds and opportunities arise. One obstacle to this plan is the current high price of recycled plastic sheeting. The price is expected to moderate as the supply increases.

Project YXTK 03-1200 wqas approved and funded at $19,000.00 that includes facilities: 12070, 12319, 12326, 12330, 12318, 12325, 12317, and 12316. This project was completed during December 2004.
The following list describes all termite eradication projects that have been programmed and are awaiting funding:
Project YXTK 04-1200 at $50,000.00 includes facilities: 12110, 12120, 12127, 12280, 12306, 12074, 12145, 12087, 12175, 12176, 12141

Project YXTK 05-1200 at $50,000.00 includes facilities: 12124, 12128, 12125, 12142, 12331, 12275, 12150, 12013

Project YXTK 06-1200 at $50,000.00 includes facilities: 12177, 12120, 12311, 12312, 12313, 12314, 12315, 12320, 12321, 12322, 12323, 12324, 12012, 12016, 12130, 12135, 12131, 12155, 24530, 12017, 12281, 12103, 12106, 12144, 12126, 12364

A pollution prevention (P2) project has been programmed for FY08 to purchase thermal treatment equipment, YXTK 08-7251 P2 – Thermal Treatment of Pests, FY08, $30K. This is a relatively new technology for termite and other wood boring pests. See Appendix O for details of the thermal treatment method.

4.4 Weed Control

Weed control under fence lines, around transformer pads, runway etc., is accomplished with Garlon 4 or Round Up Pro.

4.5 Stored Products Pests

Cockroaches - are the primary pests of stored food products. Treat for roaches with roach traps, Maxforce FC gel, and Demon WP.

Rodents - mice and rats are controlled with mechanical traps, sticky paper, Contrac Blox and oatmeal baits, and Generation rodenticidal pellet bait.

4.6 Pests of Ornamental Plants and Turf

The usual pests of ornamental plants and turf, caterpillars, fungi, chinch bugs, mole crickets, sod webworms, snails, slugs, and nematodes have not been a problem at Ascension AAF. Outbreaks of ants, however, are common.

Ants - Ants in turf and ornamental gardens are treated with Niban granular bait.

4.7 Pests of Natural Resources

The natural resources of concern are sea turtle hatchlings (primarily green sea turtles) and Wide-awake Terns during the nesting season. Both of these important and unique animals are subject to predation by feral cats and domestic cats that have gone feral. Since the arrival of cats during the early 1800s (imported to control rats and mice) there has been a significant decline in the Wide-awake Tern population.

During FY2002 and FY2003 the British Royal Society for the Protection of Birds (RSPB) completed an extensive campaign to completely annihilate feral cats. The cost of this project was projected at £1,000,000.00 which was to cover the expenses for the team of experts from Wildlife Management International Limited (WMIL) based out of New Zealand and the poison. They used a combination of Pesticide 1080 and cat traps. WMIL had 10,000 one day old chicks brought in and injected the 1080 pesticide into each of these chicks. One chick per each bait box was set in various locations throughout the entire island. As of date there are only a few feral cats left that have been detected and they believe that these feral cats are domestic cats that have run away from their homes. Baiting areas with Pesticide 1080 continues at spot locations such as Lizard Rock, Screw Pines, Devil's Cauldron, Cricket Valley, Grazing Valley, Boy Scouts Camp, Portuguese Track, One Boat Dump, Red Hill Dump, and Command Hill . The result of poisoning and eradicating all the feral cats from Ascension Island has now left the island over run with mice and rats. In FY2002 before the feral cat eradication project began 65.55 pounds of rodenticide was used during the year. Since the start of the program in February/March 2002 through August 2003, 240 pounds of rodenticide was used in over 140 bait stations. During FY2004 512 pounds of rodenticide was applied in 160 bait stations and in FY2005 it is projected that 550 pounds of rodenticide will be applied. The British can not afford to spend another £1,000,000.00 on a project to eradicate all of the rats and mice. They have done a study to see what it would take to have all other agencies do their own eradication program and as of this date the U.S. Air Force/CSR have a well enhanced eradication program in progress. CSR has covered one-fifth of the entire island with bait stations and will continue to apply bait at all locations until the rodent population is under complete control. In October 2003 AIG in conjunction with the conservation officers and the RAF joined CSR in eradicating rodents on their properties. Both agencies use Sakarat-D rodenticide with the active ingredient Difencoum at 0.005%. As long as all the other agencies do not cooperate and implement their own program we will see an increase in the amount of rodenticide used.

Monitoring the status of live feral cats is being done by using a small ball of cat biscuits made from stockings and hanging them from sticks that are stuck in the ground with sand around the base. Since cats are very inquisitive, they investigate these hanging biscuits leaving their footprints in the sand. This is the primary monitoring method being used and proving to be very useful in tracking down and destroying the last remaining feral cats in the field. In settlements, the conservation officers set up two infra red time-lapse video monitoring devices that will record the cats. After reviewing the video the officer can detect whether the cat has a collar around it's neck or not. If no collar is shown then baited chicks with pesticide 1080 is set-up to kill the cat. Also, weekly status reports now list the areas that were worked during that week and the

intended work areas for the following week. The reason for this is that two full time people are now employed by AIG for two years to work with the conservation people on a cat monitoring and control program. These two AIG personnel have been employed with funding from RSPB and OTEP. With increased staffing more of the island was covered at one time in a concentrated effort that appears to have eliminated all feral cats. WMIL left Ascension in mid-April. AIG continues to monitor for the feral cats but recent reports from them indicated monitoring has not detected any.

The only benefit of the feral cat eradication program is the increase in various seabird populations from offshore (Boatswain Bird Island) to the mainland. Wide-awake Sooty Terns have increased dramatically during both brooding seasons at Mars Bay and at Waterside. During FY2003 no evidence of any predation on the Terns by feral cats were observed; however, the week of March 30th 2003 there was a heavy rainstorm that occurred causing flooding which washed out several thousand nests at Waterside and tens of nests at Mars Bay. The first successful sign of birds laying eggs was in September/October of 2002 and continues to date at various locations throughout the mainland. Brown Boobies have been successfully scene fledging their nests at Northwest Point and Masked Boobies at Coconut Bay. Masked Boobies have also been scene looking for a nest site at the middle of Letterbox near the Devil's Inkspot. Yellow-Billed Tropicbird nest has been found near Northwest Point near the Booby nest. White-Tailed Tropicbirds have been scene in this same vicinity. In December 2002, both Masked and Brown Boobies were scene fledging at Southeast Bay. In March 2003 a Brown Noddy was found incubating an egg at Northwest Point; however, the following week due to heavy seas the nest was washed away. During the week of 8 June 2003, nine nests of Masked Boobies were underway on the mainland in four different areas. Also during this time, four Brown Booby nests at two areas were being occupied. No dead birds caused by cats have been found at any sites where the various species of birds are nesting and brooding their young. FY2004 gave more promising events on October 19th 2003, a Red-billed Tropicbird nest was found at Cocoanut Bay making this the first nest of this species found in a cat accessible site on the mainland, and is the fifth species to attempt to re-colonize the mainland since the eradication of the feral cats. In December, the Red-billed Tropicbird hatched with the adult guarding the small chick. Nearby are four Brown Noddy nests with an egg in each. On February 17th 2004 a Black Kite was seen on the island for the first time. In March, Masked Boobies started courtship at their nest sites whereas the previous years it was in April. By May there are 28 Masked Booby territories established on the mainland. As of mid-September a total of 86 new nests have been detected and monitored. This rapid re-colonization on the mainland is due to the drastic reduction in feral cat numbers, and better monitoring systems to control domesticated cats. The areas where most nest's have been established are at North West Point, South East Bay, Louis Ledge, Crater Cliff, Wig Hill, Cocoanut Bay, Letterbox, Hummock Point, Greek Hill, Mandela Hill, and Stacks 6, 7, & 8.

Green Sea Turtles, Chelonia mydas, have not shown an increase in success since the eradication program has been underway. This is due to the increase in rodents that have been detected and scene at the beaches eating the young after they have emerged from the nest or eating the embryos while they are incubating in the nest. Along the beaches at Paint Point throughout the area to the Saint's Beach Hut, CSR has provided each beach hut with a bait station and bait. The stations are checked weekly and new bait is either applied or if still good left in place. To date there has not been an actual count for survival on the young sea turtles. The WMIL team and the Conservation Officers have only been able to gauge by the destruction of the nest caused by rodents.

4.8 Golf Course Pests

The golf courses are operated by the British host nation. The U.S. Air Force does not participate in golf course pest control.

4.9 Miscellaneous Pests

Wasps - Wasps are a problem at the facilities located on the top of Cross Hill, including the U.S. Navy's portable tracking antenna. Wasps congregate on this antenna. The wasps are treated with Wasp Killer and Wasp Stopper II.

4.10 Vertebrate Pests

Donkeys and Sheep - Donkeys and sheep tend to gather around human habitations resulting in excessive flies. The Island Administrator has issued instructions that watering troughs be dismantled and feeding of donkeys and sheep cease in an effort to force the donkeys and sheep to uninhabited pasture areas.

5.0 Administration

5.1 Service Orders

Pesticide application is performed on a monthly basis via a recurring service order with a specific man-hour charge number. Trouble calls are dealt with immediately and the labor expended charged to the pest management program authorized work document (AWD) number.

5.2 Contracts

In the past treatment of the soil around and beneath new foundations was included in project specifications for new facility construction. However, a pest survey concluded that subterranean termites are not present on Ascension. Soil treatment is not effective against dry wood termites. Therefore, soil treatment around and beneath new foundations has been deleted from project specifications.

5.3 Resources

Funding - Funding for the purchase of pesticides, application, and personnel protection equipment is provided through PFMR accounts administered by the Range Technical Services contractor. CES/CEV also funded $30,000.00 to initiate a project to control the exotic, alien, invasive species of acacia that grow on Air Force lease lands. The project began near the Roman Catholic Grotto using heavy equipment to pullout the acacia from growing amongst the rocks. Acacia trees will also be cut down and Garlon 4 herbicide injected into the stumps and around root systems.

Staffing - Personnel assigned to the dining hall and grounds maintenance apply pesticides, on a part-time basis, under the supervision of the Environmental Technician, Maintenance Superintendent, and the Food Service Manager. Typically three personnel perform the duties of pesticide applicators.

Materials - Pest control equipment is limited to hand-pumped sprayers, numerous rat and mice traps, eight cat traps, and half face respirators with appropriate cartridges, rubber gloves, rubber aprons, and goggles.

Facilities - Pesticides are stored in a prefabricated HazMat shelter located behind the lumber storage building. Project YXTK 30-0000EC was funded by HQ AFSPC to purchase a prefabricated HazMat shelter that would be used for pesticide storage,

thus closing two major external ECAMP findings. Pesticide mixing is performed within the secondary containment located on the East side of this shelter. This facility is equipped with an emergency eyewash and shower. In June 2004, the External ECAMP Audit team gave a finding for inadequate pesticide management facility due to no self-locking device on the front door, no water heater and an improper mixing area due to no splashguard and hardstand table. The locking device has been changed. The other findings are negated by the following Air Force Space Command guidance and concurrence from the Armed Forces Pest Management Board.

From: Anderson Mary C Civ AFSPC/MSEV
Sent: Monday, June 27, 2005 12:26 PM
To: Hawkins Dale GS-12 45 CES/CEVP
Subject: FW: Antigua and Ascension Pest Facilities
Signed By: Verifying the signature. Click the icon for details.
Dale, here is the concurrence from the Armed Forces Pest Management Board, Deputy Director and the Program Coordinator. Please keep a copy in your files, those at each site, and include in their pest management plans. I will make sure that a copy is also included in the ECAMP Protocols to prevent like findings in the future.

Mary Anderson
AFSPC Pest Program Manager
AFSPC/MSEVP
DSN 692-5034

From: Fordham Wayne W Civ AFCESA/CESM [mailto:Wayne.Fordham@tyndall.af.mil]
Sent: Tuesday, June 14, 2005 7:28 AM
To: Anderson Mary C Civ AFSPC/MSEV; Fordham Wayne W Civ AFCESA/CESM; Carpenter, Terry, LtCol, OSD-ATL
Subject: RE: Antigua and Ascension Pest Facilities

Mary,

I concur with and support your findings.

Wayne Fordham
USAF Pest Management Program Coordinator
HQ AFCESA/CESM
Headquarters Air Force Civil Engineer Support Agency
139 Barnes Dr Suite 1
Tyndall AFB, FL 32403-5319
850-283-6465 DSN 523-6465 or 888-232-3721, ext. 6465
FAX: 850-283-6219 DSN 523-6219
E mail: wayne.fordham@tyndall.af.mil
http://www.afcesa.af.mil/ces/cesm/pest/cesm_pestmgt.asp

From: Carpenter, Terry, LtCol, OSD-ATL [mailto:Terry.Carpenter@osd.mil]
Sent: Tuesday, June 14, 2005 7:32 AM
To: Anderson Mary C Civ AFSPC/MSEV
Cc: Fordham Wayne W Civ AFCESA/CESM
Subject: RE: Antigua and Ascension Pest Facilities

Ms. Anderson,

AFPMB concurs.

VR,

Lt Col Carpenter

Terry L. Carpenter, Lt Col, USAF, BSC
Deputy Director, Armed Forces Pest Management Board
ODUSD (Installations & Environment)
Walter Reed AMC, Forest Glen Annex, Bldg 172
Washington, DC 20307-5001
DSN 295-7476, Tel 301-295-7476, Fax -7473
E-Mail <terry.carpenter@osd.mil>
Web Page: http://www.afpmb.org

-----Original Message-----
From: Anderson Mary C Civ AFSPC/MSEV [mailto:Mary.Anderson@PETERSON.af.mil]
Sent: Tuesday, June 14, 2005 8:34 AM
To: Fordham Wayne W Civ AFCESA/CESM; Carpenter, Terry, LtCol, OSD-ATL
Subject: Antigua and Ascension Pest Facilities

Sirs,

After discussion with AFSPC JAV, it was determined that e-mail correspondence with both of your offices will suffice in establishing pesticide facility requirements for Antigua and Ascension Island AF sites.

Firstly, this is AFSPC interpretation of the MIL-HNDBK regarding Antigua and Ascension Islands only.

Secondly, because the FGS for both counties requires compliance with the MIL-HDBK 1028/8A in regards to pesticide facility, we are required to comply with this guidance document as policy. The FGS Section C11.2.4 allows for the major command (AFSPC/MSEVP), field operating agency (AFCESA/CESM and AFPMB) to provide technical and management guidance for the conduct of installation pest management operations. All three pest management consultants (AFSPC/MSEVP, AFCESA/CESM, and AFPMB) have concurred through conversations and via e-mail that the pesticide facilities at both sites meet the intent of the MIL-HDBK 1028/8A regarding storage and mixing and due to the size of the program and amount of herbicides applied, there is no need to have the office within the same building.

That being stated, AFSPC is going to require compliance to the following conditions:

3. The certified pesticide applicator must wear/use disposable personal protective equipment (PPE) and dispose of any pesticide contaminated PPE IAW with labeled pesticide.
4. The pesticide storage and mixing facility is a stand-alone, secure, fenced, and signed.

The following sections from the Military Handbook (MIL-HDBK-1028/8A) are addressed to support the pest management facilities at both Antigua and Ascension and this is AFSPC/MSEVP interpretation of how both these sites comply with the MIL-HDBK-1028/8A.

1.1 The facility is to be designed to support site operations and provide for safe storage, safeguard the health and safety of employees, prevent environmental contamination, contain spillage and be secure against theft and vandalism. The pesticide storage facility at both Antigua and Ascension meet these conditions.

2.3.1 The facility size and components is based on the AFSPC Pest Program Consultant (MSEVP) and from the pest management plan for each installation. Facilities shall provide adequate space for personnel and equipment necessary to address installation pest problems. The pesticide program at both Antigua and Ascension is limited to application of herbicides to control invasive species and both sites have adequate facilities and equipment to meet this task.

2.3.2 A single-use facility, the size should be no larger than 1,000 square feet (93 square meters) to include pesticide storage and equipment areas, mixing area, and a deluge shower and eyewash as a minimum. The pesticide facilities at both installations meet this requirement.

2.8 Because of the hazardous nature of pesticides stored and mixed in pest management facility, it is essential that such materials are secured and available only to qualified individuals. Security fencing and security gates are essential; a climb resistant fence shall enclose the entire facility. Both storage facilities are fenced, appropriately signed and have no windows or other points of egress. Both sites are secure from non-qualified personnel access and have self-closing and self-locking doors.

3.1.2 Obtain guidance on the actual size and components of the pest management facility from the AFSPC Pest Program Consultant (MSEVP). For the number of man-hours spent on pest control at both sites, the size and composition of both facilities are acceptable.

Therefore, there is no requirement to have a single, stand alone pest shop as long as the pesticide applicator has a pesticide-free office and a secure, fenced, signed pesticide storage, such as the current situation to work from.

An e-mail reply to concur with these points is requested. Thank-you for your time and support.

MARY ANDERSON
HQ AFSPC/MSEVP
150 VANDENBERG ST, STE 1105
PETERSON AFB CO 80917-4150
719-554-5034 OR DSN 692-XXXX
FAX XXX-3849
mary.anderson@peterson.af.mil

5.4 Reports and Records

Microsoft Excel spreadsheets, developed by CSR, have replaced DD Form 1532, AF Form 290, and AF Form 646. All reporting is done electronically via the local area network.

5.5 Training Plans

Certified pesticide applicators are not required, by federal regulation, for the application of unrestricted use pesticides. However, the "Ascension Final Governing Standards May 2002", DoD 4715.5-G, 15 March 2000 and "DoD Pest Management Program" DoDI 4150.7, 22 April 96, do not make this distinction. Thus, even though unrestricted use pesticides are utilized at Ascension AAF, DoD instructions require certified applicators.

Further interpretation of the Air Force pesticide applicator regulations by the 2001 External ECAMP team, HQ AFSPC, is that supervision of non-certified applicators by a certified applicator means line-of-sight supervision. The impact is that all personnel involved in routine facility pesticide treatment require pesticide applicator training. The exception is personnel issued pesticides for use in their quarters do not require pesticide applicator training. The Range Technical Services (RTS) contractor uses the program offered by the Florida State Orange County Extension Service to train and certify Environmental Technician personnel as restricted use pesticide applicators.

The Air Force offers a Pesticide Management Journeyman Class J3AZR3E453-003 at Sheppard AFB, TX. This is a four week course, with a total cost for transportation, lodging, etc., of over $5,000 per person. The Range Technical Services contractor will send personnel to this school if an in-house program of tenting and fumigating facilities with Vikane gas to control dry wood termites is initiated.

All pesticide applicators and supervisory personnel attend Hazard Communication, Hazardous Waste Operator, and Respiratory Protection training.

5.6 Coordination with Food Service Managers, Maintenance Personnel, etc.

The Food Service Manager and the Maintenance Superintendent schedule pesticide application in the areas under their control. Coordination with these individuals is built into the pesticide application scheduling process.

5.7 Termite Inspection Plan

Facility programmers plan to set aside $10,000.00 per year for follow-up inspection and spot treatment. Larger fumigation projects at $50,000.00 will be programmed on a recurring year cycle. The next project YXTK 03-1200 is tentatively scheduled for November 2004. Other projected projects are YXTK 04-1200, YXTK 05-1200 and YXTK 06-1200 each at $50,000.00.

6.0 Health and Safety Measures

6.1 Requirements

DoDI 4150.7 Pest Management Program is the primary regulatory document and is implemented by AFI 32-1053. AFI 32-1053 also requires compliance with the OSHA, EPA, and DoT regulations contained in 29 Code of Federal Regulations (CFR) 1910, 1925, 40 CFR 150-189, and 49 CFR 171.

6.2 Methods to Reduce Potential Hazards to:

a. Pest Management Personnel

Pest management personnel are trained in hazard communication. Personnel are briefed on the hazards associated with prolonged exposure to pesticides; even those classified as

unrestricted use. Emphasis is placed on reading and understanding the product label. All pesticides are stored and mixed in one location. The Environmental Technician controls entry to the pesticide storage facility.

b. Installation Personnel and the Public

Station personnel are issued PT 565 XLO Plus, d-trans-Allethrin and fogger aerosol for use in their rooms, primarily to treat ants and termites. Medical personnel are informed when spraying operations are being conducted in food storage areas.

Pest management personnel perform intensive pest control measures. Efforts are made to apply pesticides when facilities are unoccupied. Personnel exclusion zones are established if there is the potential for personnel to be exposed to drifting pesticide spray.

6.3 Safety and Health Measures Associated with Pest Management Control Shops

Personnel are provided respirators with the appropriate cartridge, gloves, mixing aprons, and goggles. Personnel receive annual physical examinations, pulmonary function tests, and respirator fit tests. Quarterly cholinesterase blood level monitoring has been indefinitely suspended because organophosphate pesticides are not currently utilized at Ascension AAF.

6.4 Safety and Health Measures Associated with Pest Management Vehicles

Operators of pest management vehicles firmly secure premixed pesticides in hand spray equipment to prevent spills within the bed of the vehicle. Spill response materials such as absorbent pads are carried in the vehicle.

7.0 Host Nation Laws

The host nation has no specific pesticide management requirements for the U.S. Air Force.

8.0 Coordination with other Organizations and Agencies

The U.S. Air Force coordinates with the British Royal Air Force and the Island Administrator in controlling feral cat populations. Since the British Royal Society for the Protection of Birds have initiated the project to eradicate all feral cats, the group known as Wildlife Management International Limited has been trapping and poisoning cats. CSR is out of the feral cat trapping business but does lend out any of our cat traps if need be. As of October 2004, Ascension Island Government (AIG) and the Royal Air Force (RAF) have started a rat eradication program in correlation with CSR's program, which has been eradicating rodents since 2000.

9.0 Pest Management Operations with Special Environmental Considerations

9.1 Operations using Restricted Use Pesticides

Restricted use pesticides are not currently utilized at Ascension AAF. However, continuing dry-wood termite infestations will require restricted use fumigants and spot treatment pesticides. Florida State certified Environmental Technicians and subcontractors will apply these materials.

10.0 Other Pest Management Plan Issues

10.1 Applicable Pollution Control Projects

The Range Technical Services contractor will attempt to limit the damage and spread of dry-wood termites by substituting recycled plastic and metal for wood in facility renovation and construction projects.

10.2 Applicable Pollution Prevention Procedures

Pesticide application inside facilities with floor drains must be carefully monitored because some floor drains are connected to the sanitary sewer system and the wastewater treatment plant. Over-zealous application or spills of pesticides could endanger the activated sludge biological treatment process.

Pesticide containers are triple rinsed prior to disposal. The rinsate is utilized in pesticide mixing, i.e., the rinsate is applied as a pesticide, not disposed.

11.0 Outlying Areas

The outlying areas are treated with the following list of pests and the pesticides used to treat these areas.

Ants - Demon WP, Niban, PT-565 XLO Plus, and Drax
Roaches – Demon WP, MaxForce FC gel, and Combat
Rodents - Contrac Blox, Contrac Oatmeal, & Generation Pellets

11.1 Installation Map

Appendix D – Main Base, Wastewater Treatment Plant, and Cat Hill GPS/SatComm Map
Appendix E – Welding Shop and SIW Area Map
Appendix F – Transmitter Site Map
Appendix G – Radar 12.15 and Cross Hill Map
Appendix H – Mills Site and the Beaches Map
Appendix I – Command Hill, Powerhouse/Desalination Plant and the Hazardous Waste Facility Map
Appendix J – Consolidated Instrumentation Facility, Airfield Vicinity, and Weather Station Map
Appendix K - South Gannet Hill Telemetry Site Map
Appendix L – Receiver Site Map

12.0 Pesticide Inventory including Pesticide Name, Manufacturer, Unit of Issue, Quantity, NSN, & Equipment etc.

Appendix M - lists the pesticide inventory.

13.0 Pesticides Sold in Base Exchange

Appendix N - lists the pesticides sold at the Base Exchange. The list also states the active ingredients, percentage, quantity and type of container.

14.0 Material Safety Data Sheets

Material Safety Data Sheets for all of the pesticides in use throughout the 45 SW are readily available in electronic format. In the interest of brevity the MSDSs are no longer included within the pest management plan.

Appendix A
FY2003 Pesticide Usage at Ascension Auxiliary Airfield

Pesticide	Pesticide Applied lbs	Active Ingredient	Percent	Active Ingredient Applied lbs	EPA Registration Number
Combat Fogger	6	Telramethrin	0.20%	0.012	64240-1
Combat Quick Kill	0.405625	Fipronil	0.30%	0.001216875	64240-30
Combat Superbait	0.238125	Hydramethylon	2.0%	0.0047625	64240-3
Contrac Blox	199.8125	Bromadiolone	0.005%	0.009991	12455-69
Contrac Oatmeal	36.678125	Bromadiolone	0.005%	0.0018339	12466-36
Diazinon	9.25	Diazinon	50.0%	0.273875	10163-100
Drax	0.1625	Orthoboric Acid	5.0%	0.008125	9444-135
Generation	3.375	Difethialone	0.0025%	0.000084375	7173-211
MaxForce FC	1.05	Fipronil	0.01%	0.000105	64248-5
Niban	0.25	Orthoboric Acid	5.0%	0.0125	64405-2
PT-565	21.25	Pyrethrins	0.25%	0.053125	499-310
Round Up	0.0625	Isopropylamine Salt of Glyphosate	1.5%	0.025625	524-475
Spectracide Lawn & Garden	0.25	Diazinon	25.0%	0.0625	769-687
Totals:	278.78		**Totals:**	0.4657	

Appendix B
FY 2004 Pesticide Usage at Ascension Auxiliary Airfield

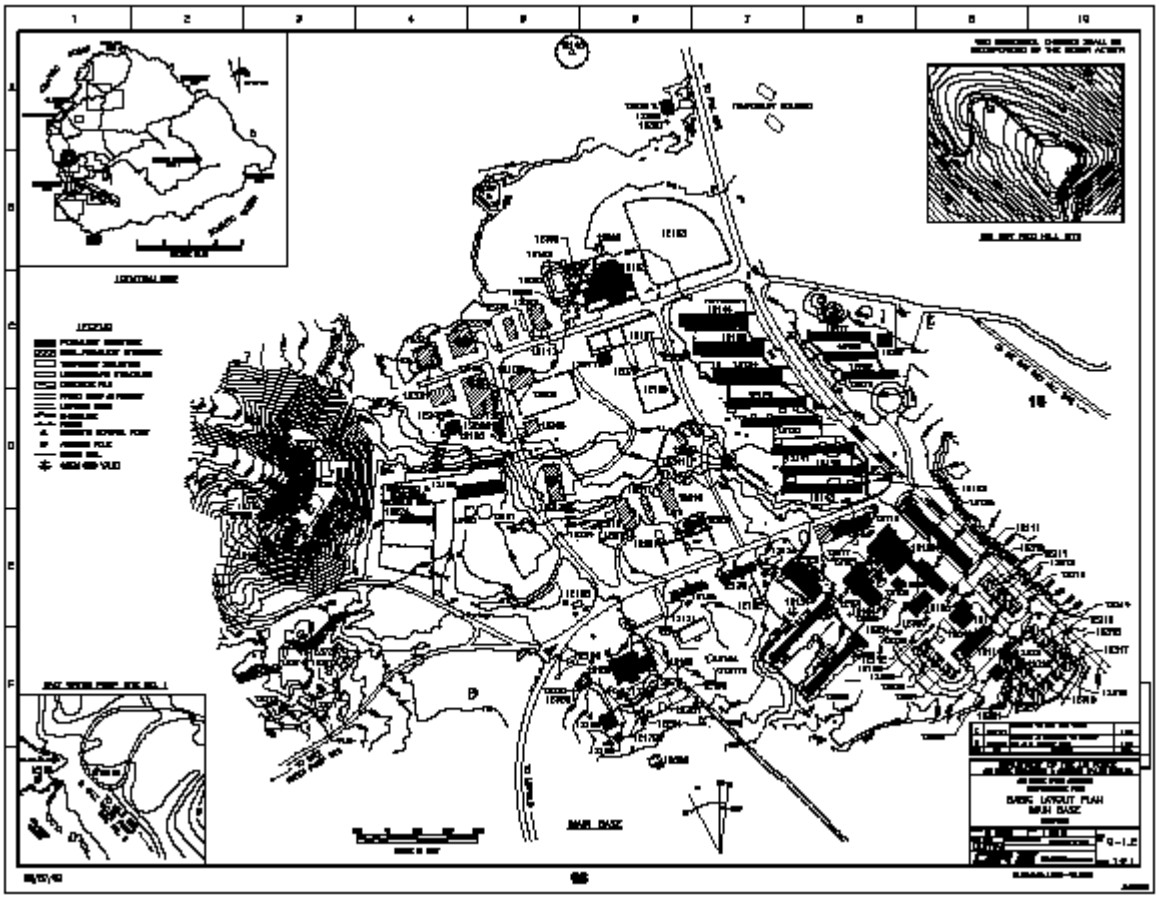
Pesticide	Pesticide Applied lbs	Active Ingredient	Percent	Active Ingredient Applied lbs	EPA Registration Number
Combat Superbait	0.435	Hydramethyon	2.0%	0.0087	64240-3
Contrac Blox	349.63	Bromadiolone	0.005%	0.0175	12455-69
Contrac Oatmeal	155.70	Bromadiolone	0.005%	0.0078	12466-36
d-Phenothrin	1.5	Trichlorofluoromethane	48.0%	0.72	901-82
Demon WP	1.65	Cypermethrin	40.0%	0.66	10182-71
Diazinon	2.9	Diazinon	50.0%	1.45	10163-100
Drax	1.044	Orthoboric Acid	5.0%	0.0522	9444-135
Generation	6.5	Difethialone	0.0025%	0.0002	7173-211
MaxForce FC	0.13125	Fipronil	0.01%	0.000013	64248-5
PT-565 XLO	16.25	Pyrethrins	0.25%	0.041	499-310
Raid [] Deep Reach Fogger	12.5	Cypermethrin	1.716%	0.2145	4822-452
Totals:	548.24		**Total:**	3.172	

Appendix C
FY 2005 Pesticide Usage at Ascension Auxiliary Airfield

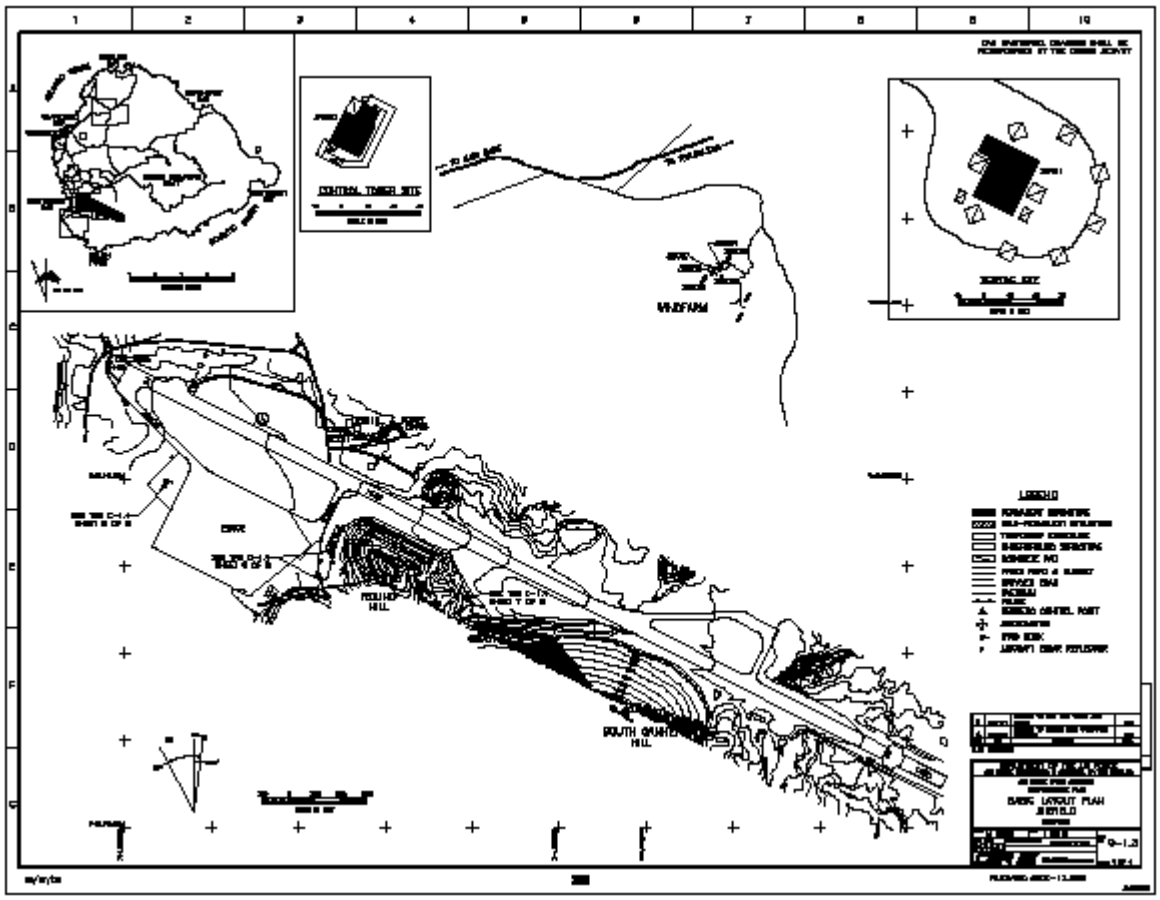
Pesticide	EPA Number	Active Ingredient	Lbs. Applied	Percent	AI Lbs.
Bora Care	64405-1	Disodium Octaborate Tetrahydrate	5	40.00000%	2
Contrac Blox & Meal	12455-69	Bromadiolone	298	0.00500%	0.0149
Drax	9444-131	Orthoboric Acid (Industrial)	1.21875	5.00000%	0.0609375
Demon WP	10182-71	Cypermethrin	4.995	40.00000%	1.998
Spectracide	10163-100	Diazinon	1.375	0.50000%	0.006875
Phenothrin Insecticide	39398-2	3-pheoxybenzyl	3.095	1.92000%	0.059424
PT-565 XLO Plus	499-310	Pyrethrin	61.25	0.25000%	0.153125
Raid Foggers	4822-452	Cypermethrin	6.795	1.17600%	0.0799092
Spray Pack Wasp Killer, Nu-Calgon	10807-196-65516	Pyrethrins	0.1428	0.10000%	0.0001428
Timbor	64405-8	Disodium Octaborate Tetrahydrate	89	98.00000%	87.22
		Total pounds applied	**470.87155**		**91.5933135**

Herbicide	EPA Number	Active Ingredient	Lbs. Applied	Percent	Ai Lbs.
Garlon 4	62719-40	Triclopyr	1.58	61.60000%	0.97328

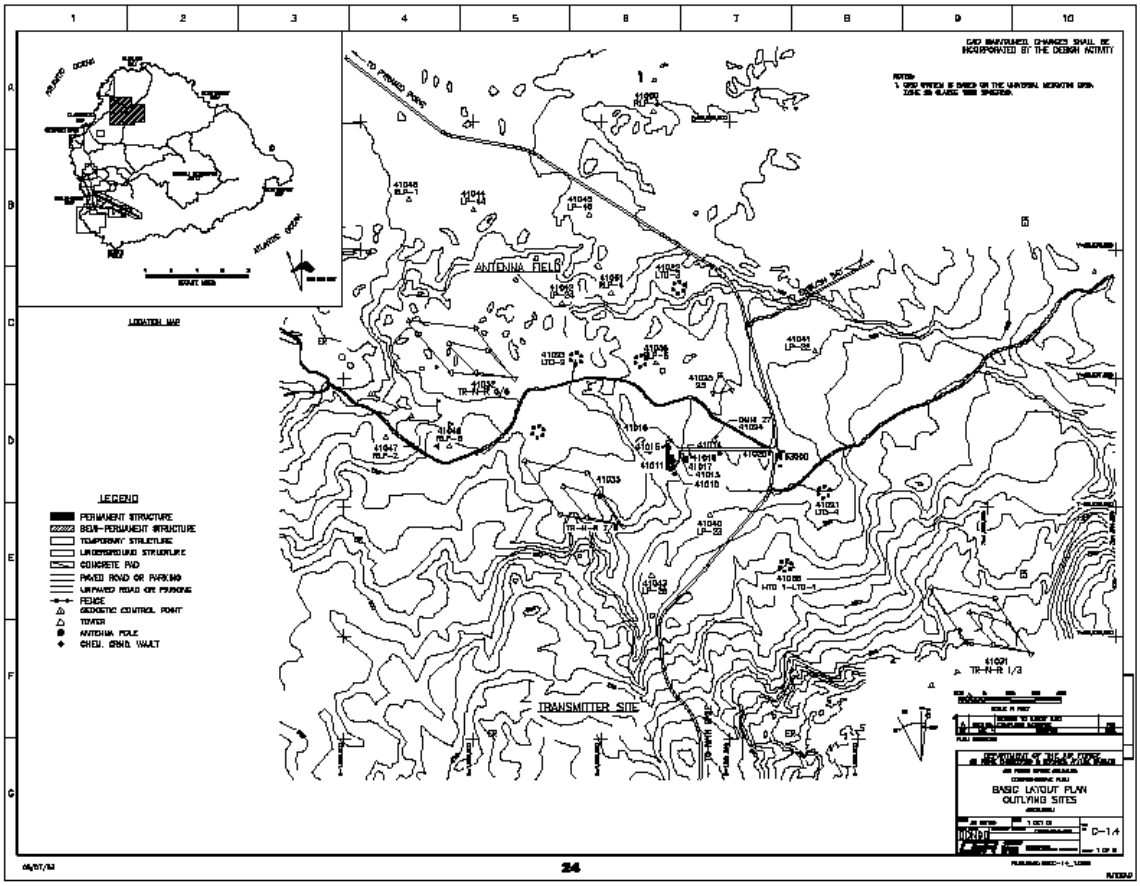
Appendix D
Main Base and Cat Hill Map



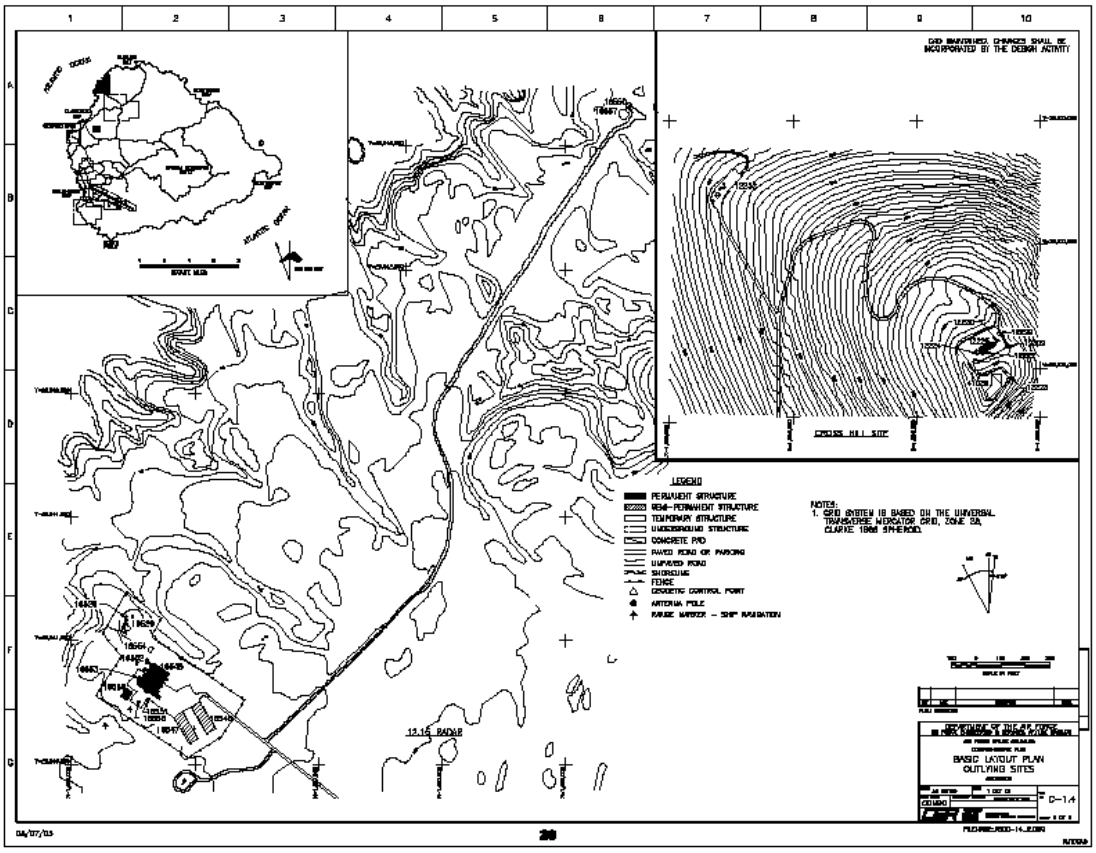
Appendix E
Welding Shop and SIW Area Map



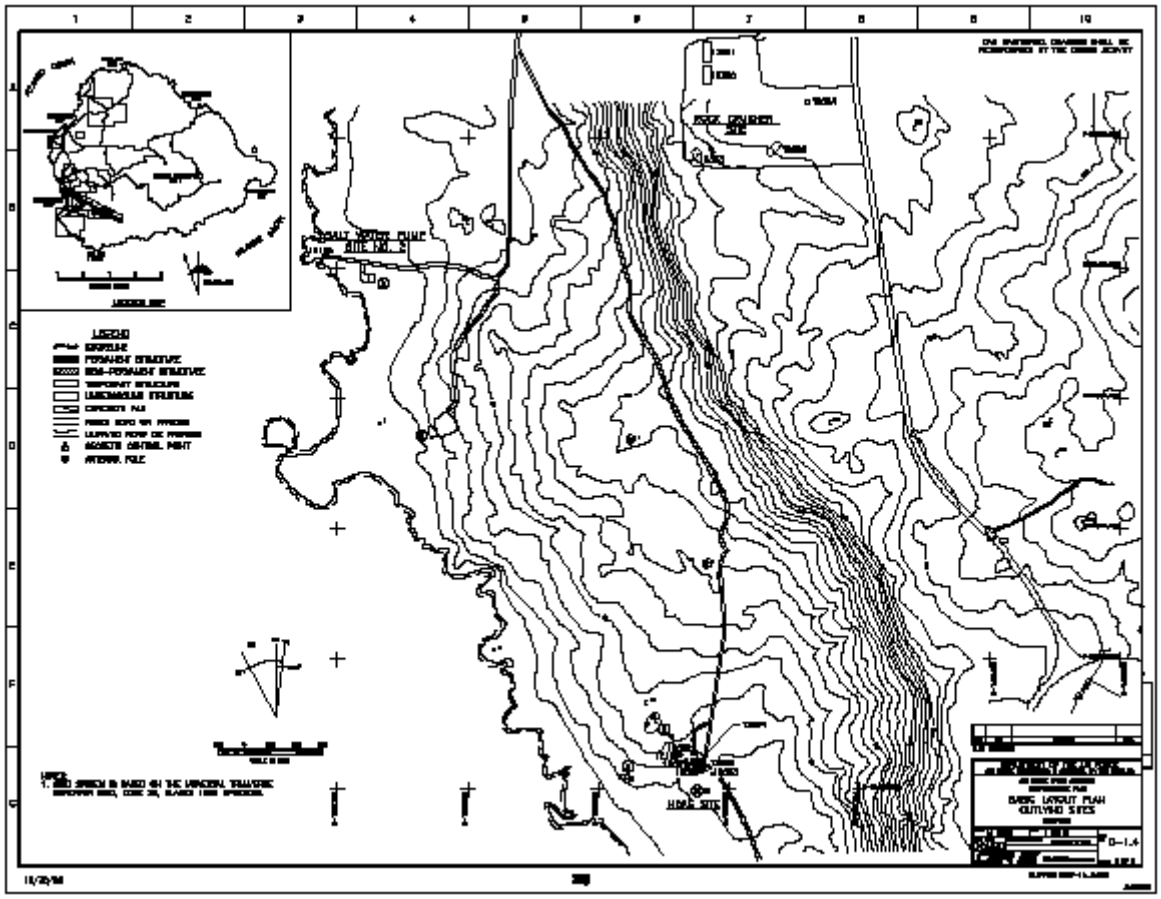
Appendix F
Transmitter Site Map



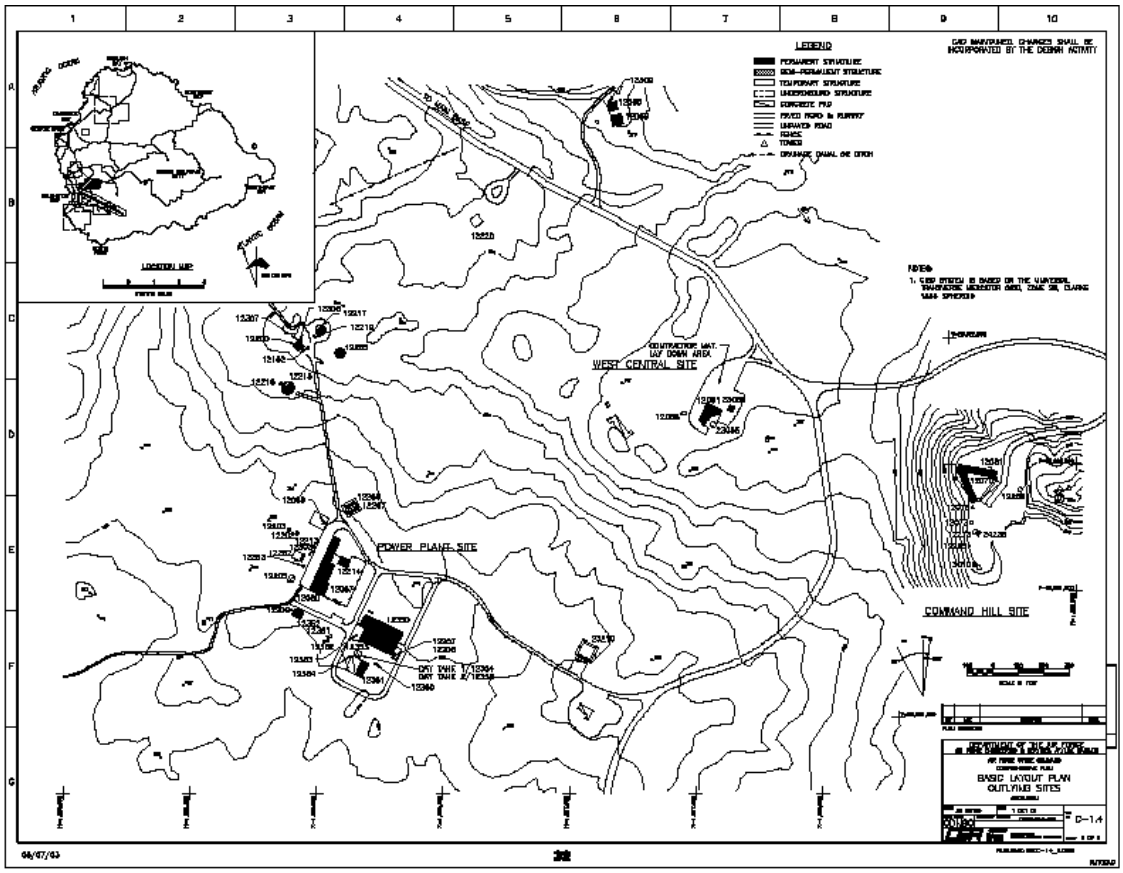
Appendix G
Radar 12.15 Map



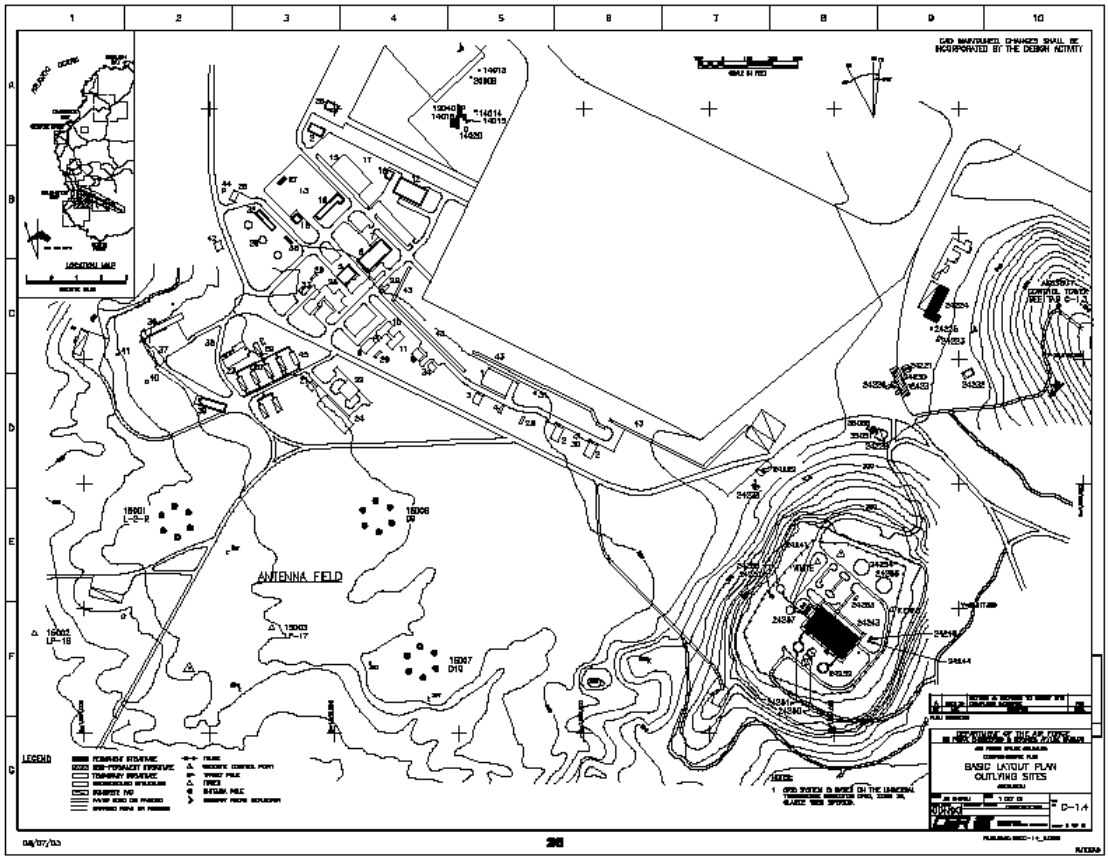
Appendix H
Mills Site and Beaches Map



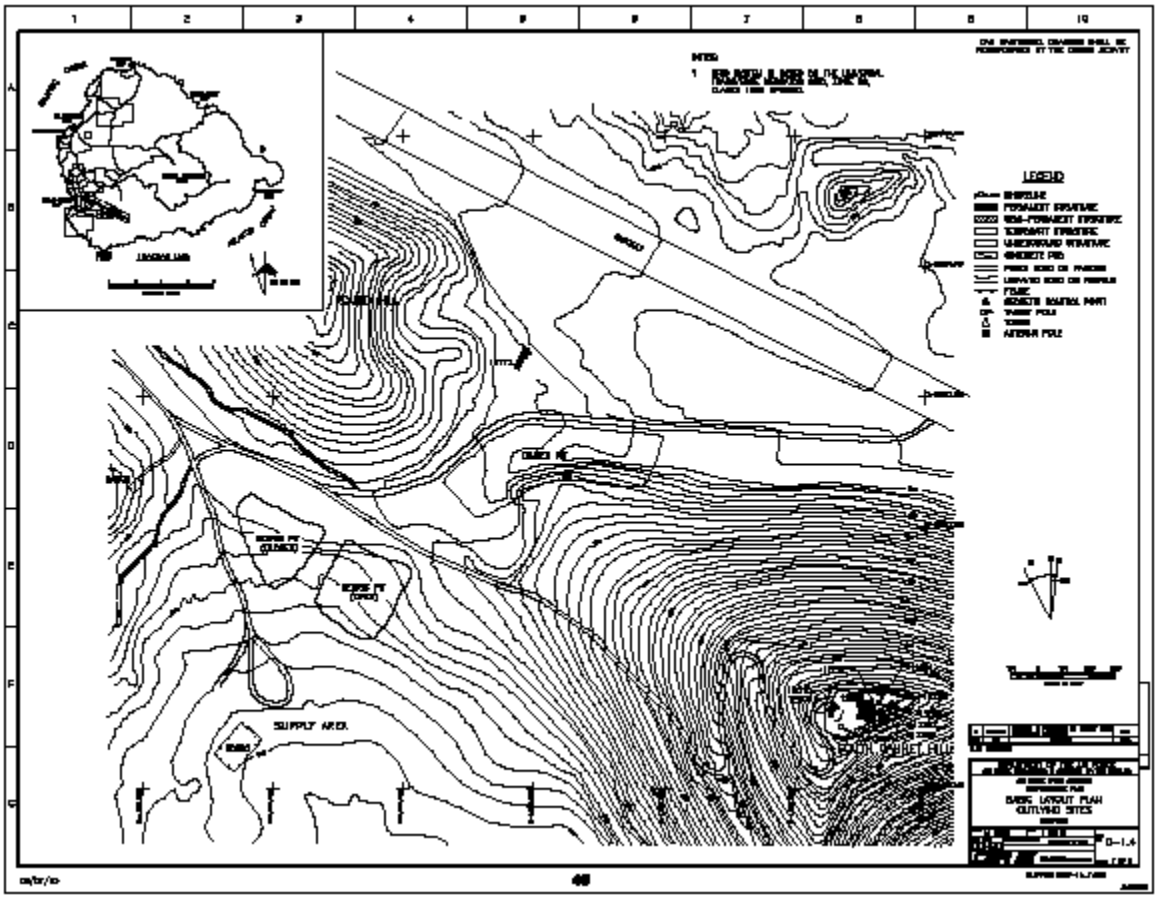
Appendix I
Command Hill, Powerhouse/Desalination Plant & Hazardous Waste Facilities Map



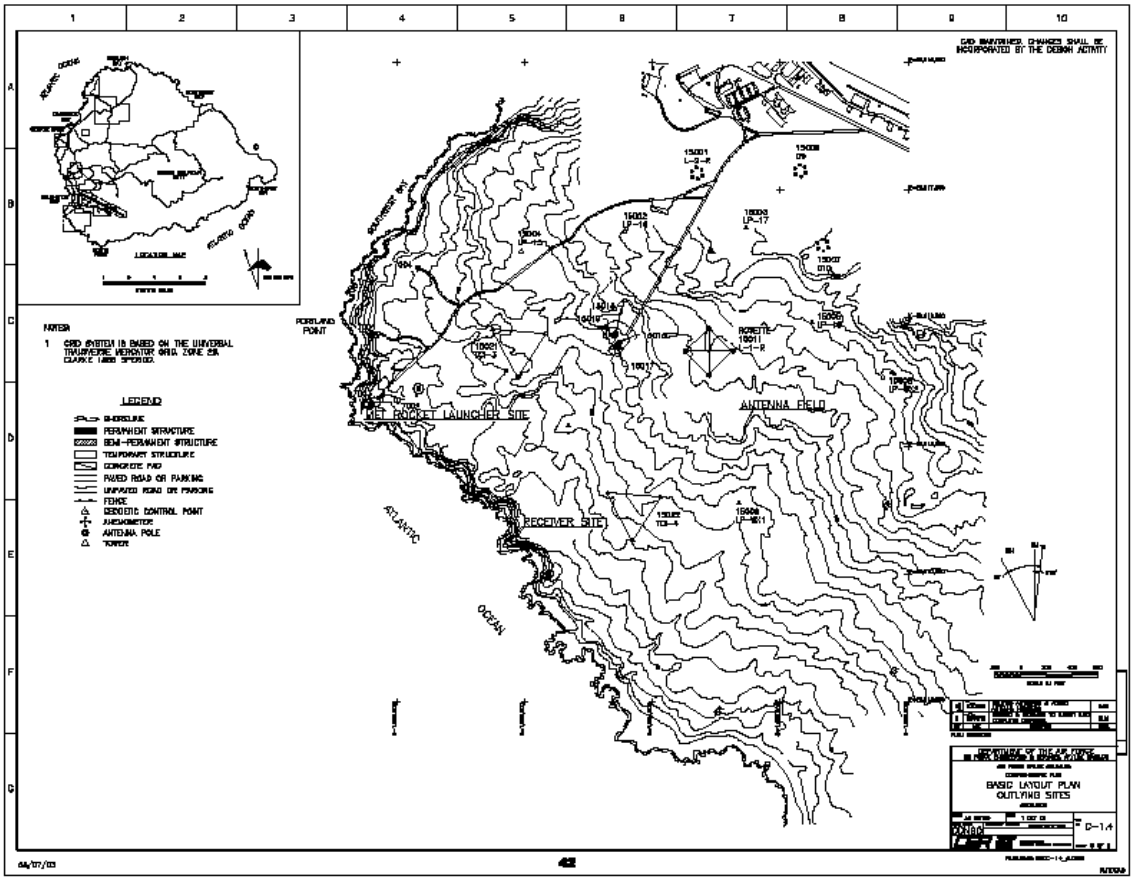
Appendix J
Consolidated Instrumentation Facility, Airfield Vicinity, Weather Station Map



Appendix K
South Gannet Hill-Telemetry Site Map



Appendix L
Receiver Site Map



Appendix M
Pesticide Inventory

NSN # OR PART #	DESCRIPTION	CONTAINER TYPE	QUANTITY	CONTAINER SIZE
6840-00-459-2443	Spray Pak Wasp Killer	Aerosol	66-aerosol cans	14 OZ
6840-00-459-2443	MSA Wasp Stopper II	Aerosol	96-aerosol cans	12 OZ
6840-00-823-7849	PT 565 Plus XLO	Aerosol	16-aerosol cans	20 OZ
6840-01-183-7244	Apache Fly Bait	Metal Can	24-metal cans	5 LB
6840-01-183-7244	Fly Tek Fly bait	Metal Can	3-metal cans	5 LB
6840-01-180-0167	Combat Roach Killing System	Box	3cases (12)	N/A
6840-01-180-0167	Combat Super Bait	Box	8cases (12)	N/A
	Demon TC	Plastic Jug	3-plastic jugs	GALLON
	Demon WP	Packets	4-packets	4-(0.37ozpackets)per pack
	Demand CS	Plastic Jug	2-plastic cont.	32oz.
	Niban Granular Bait	Plastic Jug	2	5 LB
6840-01-412-4634	d-Phenothrin Aerosol Insecticide	Metal Can	9	12 oz.
	DRAX Ant Kill Gel Sugar Feeding	Syringe	52-30cc syringes	30CC
	Max Force FC Raoch Killer Bait Gel	Syringe	3 boxes(3 syringe ea.)	6.3oz(each box)
	Premise 2 Insecticide	Plastic	1	240 ML
	Trapper Jacks Macadamia Nut Rodent Lure	Box Ind Wrapped	85	6 GRAM
	Victor Mouse Glue Traps	Packages	10-packs	2 PER PKG
6840-01-224-1269	Insecticide, Combat Superbait	Box	4	12-8 PACK L TRAY
6840-01-224-1269	Combat Quick Kill Large Insecticide Bait	Box	3	12-8 PK L RCH BAIT

	Blox Contrac All Weather Kills Rats & Mice	Plastic Container	4-plastic buckets	18LB
6840P021093	BOR/ACT Insect	Plastic	1-plastic bucket	25 LB
	Raid fogger	Metal	0	4.6oz per box
6840P635649	Contrac Meal	Plastic	2-10lb.plastic pails	10 lb. pail
	Martin's Diazinon 4E		1-plastic jug	gallon
6840-01-180-0167	Combat Roach Killing System		4 cases (12 trays each)	N/A
	Bora-Care		4-plastic jugs	gallon
	Timbor		4-plastic jugs	25lb.

Appendix N
Pesticides Sold at the Base Exchange

NSN# or P/N#	Description	Manufacture	Manufacture Address	Type of Container	QTY	Size of Container
	Black Flag Ant & Roach Killer - Methyl Carbamate 0.500%	Black Flag Insect Control System	Oakland, CA 94612	Aerosol	200	11 oz.

Appendix O

P2 Opportunity – Thermal Treatment of Pest at Ascension AAF & Antigua AS

KEYWORD: Hazardous Materials

FACILITY: Ascension AAF and Antigua AS

P2 PROJECT NAME: Use of Thermal Treatment for Pest Control at Ascension AAF and Antigua AS

FACILITY DESCRIPTION, MISSION, SIZE:

Ascension Auxiliary Air Field is located on Ascension Island, a British Island in the South Atlantic., and is located 4,400 nautical miles south of Cape Canaveral Air Force Station (CCAFS). The Air Force installation is located on 3,856 acres occupied under terms of an agreement with the Government of the United Kingdom. Ascension Auxiliary Air Field includes 13 separate areas: a main base site, an air field with a 10,000 foot runway, and eleven outlying instrumentation and communications sites.

The Antigua Air Station is located in the northeastern part of the island of Antigua in the Leeward Islands of the West Indies, and is located 1250 nautical miles southwest of Cape Canaveral Air Force Station (CCAFS). The Air Force installation is located on 167 acres of land.

ORIGINAL PROCESS, REQUIREMENT:

Antigua AS and Ascension AAF have one main contractor that performs operations and maintenace for the facility. Presently the main way Ascension AAF and Antigua AS have to treat for termites are to contract a fumigation sub-contractor to travel down range and treat the facilities. Fumigation application of facilities requires special training, licensing, and equipment. Neither Station has a local source for a vendor.
In this fumigation process Vikane gas has historically been used. Vikane gas has an active ingredient of Sulfuryl Fluoride.

During the last treatment at Ascension AAF in 2004 approximately 200,000 cubic feet of facilities were treated using 250 pounds of Vikane gas. This application accounted for 93% of the Stations total annual pesticide usage for the year. According to the pest survey performed by the fumigation sub-contractor at Ascension AAF the Station had, as of January 2005, approximately 2,528,000 cubic feet of facilities with evidence of termite activity.

During the last treatment at Antigua in 2004 approximately 356,000 cubic feet of facilities were treated using 225 pounds of Vikane gas. This application accounted for 91% of the Stations total annual pesticide usage for the year. According to recent surveys by Station environmental personnel 4 out of the five building treated in 2004 show signs of re-infestations by termites.
It should be noted that the heat treating process is not extremely effective on subterranean termites that are also present and are a problem at Antigua AS.

COMPLIANCE OPTION

The use of thermal treatment for termite eradication will reduce the need

to use toxic chemical treatment to control the pest. Based on usage rates at Ascension in 2004 and the volumes of presently infested facilities, it would require over twelve years at treating 200,000 cubic feet per year to address all the facilities at Ascension that are presently infested. That treatment would require over 3000 pounds of fumigant gas to perform the treatment. This treatment would incur a contractor cost (based on the 2004 contract), of over $225,000 ($0.09/cubic ft).

Monetary impacts from termite damage to facilities prior to treatment are extremely hard to distinguish from normal maintenance requirements and are thus very hard to quantify. However, based on the observed re-infestation that occurs and the extreme volume of presently infested areas, there are obvious maintenance benefits to the more timely Station controlled termite treatment.

Additional benefits/uses of thermal treatment capability:
1) The thermal treatment facilities will also rid buildings of ants, roaches, and mold.

2) Equipment also has the potential to be used for compliance with AFI24-202 which addresses Wood Packaging Material used for international shipments.

POLLUTION PREVENTION SOLUTION

Thermal treating for termites by the use of heat requires the building to be heated up to a minimum temperature of 130 degrees F for a period of at least 33 minutes. As earlier noted this treatment is mainly focused on dry wood termites. Ascension AAF has only dry wood termite infestations while Antigua AS has also subterranean species.

The purchasing of commercially available equipment will enable Station personnel self -treat for termites in facilities using heat treating techniques. This will significantly reduce the amount of pesticide used on each Station along with giving Station personnel the ability to treat the termite problem themselves without having to depend on sub-contractor, and funding availability.

INTIAL COSTS

Initial cost of the equipment which includes three 500,000 Btu/hr heaters, data software, data logger, lap top computer and associated cable regulators, is approximately $20,000.

On-site training on the proper use of equipment for Station personnel by vendor's technical staff is estimated at $5,000.00. Training would be held at one Station with personnel from both Stations participating.

One set of equipment could be used for both Ascension AAF and Antigua AS and shipped/flown as needed.

RECURRING COSTS

Manpower to support operation of the thermal treatment of termites is expected to be reduced due to the limited tenting required by thermal heating as compared to fumigation. However; electricians will be required to disconnect the heat detectors prior to treatment. It is expected that some of the Station's labor will be off-set by the expected reduction in monthly pesticide service orders that should be generated

for spot treatment of infested facilities.

It is estimated 24 man-hours for set up, three hours for electrical preparation and 12 hours of monitoring/supervision for a 60,000 cubic foot dorm (7-8) would cost approximately $0.01 per cubic foot.

The thermal treatment system requires the use of propane as fuel to generate the heat. Estimates of fuel cost requirements based on reported consumption of five pounds of propane per hour per heater, converters to a cost of approximately 0.01 per cubic foot treated. Based on a 60,000 cubic foot dorm requiring 12 hours of thermal heat treatment using all three heaters.

COMPLIANCE REQUIREMENTS ELIMINATED:	At the treatment rate of 500,000 cubic feet per year, and based on the last usage rate of fumigant gas during the last contract it would require 625 pounds of fumigant gas annually to perform the termite treatment, or a total of 3125 pounds over the five year period. This would reduce pesticide usage at the Stations by more than 90%.
PAYBACK PERIOD	Based on prices from a quote from the thermal treatment manufacturer and the two year old quote from the fumigation sub-contractor, and assuming the five year treatment plan at Ascension AAF the equipment will save the amount of the initial investment in less than a year.
OTHER BENEFITS (NON-MONETARY):	The following are secondary benefits of obtaining thermal treatment equipment. • Avoids international shipments of compressed gas cylinders of poisonous gas. • Equipment can be transferred between Ascension AAF and Antigua AS • Thermal treatment also kills ants, roaches, and living mold in facilities • Equipment could be used to comply with Wood Packaging Material Program (WPM) AFI24-202.
OBSTACLES:	Initial funding for the project.
CEV CONTACT:	Dale Hawkins, 45 CES/CEVC, 1224 Jupiter Street, PAFB, FL 32925, ph(321) 494-9259, fax 321-494-5965, dale.hawkins@patrick.af.mil
OPERATIONAL CONTACT:	Bobby Crumrine, CSR, Ascension, ph 922-2203 bobby.crumrine.ctr@patrick.af.mil Gary Milne, CSR, Bldg 402 PAFB ph 321-494-7418 fax 321-494-9911, gary.milne.ctr@patrick.af.mil

Appendix F

AIR FORCE FORM 813, REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Revised 2006