Landscape, Integrated Pest Management Plan

Integrated Pest Management Plan
Revised 10/10/2019
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Part 1 Overview

1.1 Introduction

Pest management and pests vary considerably depending on their purpose and use. The agricultural industry, recreational businesses such as golf courses and parks, residential, commercial complexes and government facilities all have variant threshold levels and categories of pests. The vegetation is protected for various reasons.

The County of Ventura GSA Landscape Department does not maintain its grounds to a level of agriculture for food consumption nor does it consider it from the perspective of recreation and human contact. Our grounds primary purpose is climate control and aesthetics. These pest control management plans and threshold levels are established based on this premise. From an ecological sense, there are no pests except humans because all organisms are part of the ecosystem. However, for the purpose of this report pests are defined as anything that degrades human health due to migration, exposure or damages the landscape to a level of noticeable degradation to its appearance as identified in the Federal Insecticide Fungicide and Rodenticide Act (FIFRA). Pests include all of the following categories of organisms:

- Pathogens (including fungi, bacteria, mollicutes and viruses)
- Weeds (all classes of vascular plants)
- Nematodes (roundworms)
- Mollusks (slugs and snails)
- Arthropods (including insects, mites, crustaceans, and other joint-legged invertebrates)
- Vertebrates (including amphibians, reptiles, birds, mammals)

Ideally, man can coexist with the birds and the bees. However, some of them are harmful to humans and our preferred landscape. Pests must be managed. This plan provides a responsible manner in which to control them with minimal impact to the ecosystem and the environment. Chemicals are used at a minimum while biological, natural, cultural and mechanical means are utilized to the fullest extent possible.

1.2 Policy Statement

The County of Ventura is committed to providing a safe and healthy environment for its employees and visitors. Whereas fertilizing plants, controlling weeds and other pests within the grounds is important for the enjoyment and sustainability of the environment, this policy limits chemical use within the grounds maintenance program. All forms of chemicals applied to the County grounds will follow the principles of Integrated Pest Management (IPM). As such, a variety of preventive and non-chemical management strategies shall be used or considered before using the least toxic approved chemicals. Approved herbicide, pesticide and fertilizer applications will be used in circumstances where alternative practices or products have failed to manage the pest or support healthy growth of desirable vegetation. Standards of practice for pesticide application on County property will continue to meet or exceed federal, state and local requirements.

1.3 The Purpose:
The purpose of this policy is to minimize the use of chemicals on County maintained grounds but where required, use them responsibly by ensuring that:

- Integrated Pest Management (IPM) principles (which include Cultural Mechanical/Manual, Biological and Chemical methods) are adhered to by all County Agencies/Departments.
- Sound pest prevention planning in the acquisition of new property is applied, not excluding the consideration of future plan health and care.
- Relevant staffing receives training and leadership in IPM.
- Management reviews the IPM program annually and makes recommendations for improvement.

1.4 Procedure:

All County Agencies/Departments that purchase, design, and maintain County owned grounds shall have an Integrated Pest Management Plan that considers:

- Pest Control
- Weed Control
- Plant Enhancement

1.5 The Plan:

*The plan shall specifically:*

- Prior to purchasing new property for the purpose of supporting the low chemical use approach:
  - Consider neighboring landscape and future developments prior to purchasing new property.
  - Obtain specialized review of proposed property and evaluate local compatibility.
  - Make changes to the purchase and adjust design and maintenance plans as necessary, including adjusting the design to minimize soil erosion and provide for compliance with County NPDES Storm Water Permit.
- Seek to avoid the need for use of chemicals through proactive landscape design.
  - Design new structures to minimize the intrusion and colonization by rodents and insects. Use pest resistant structural materials to avoid termite infestations, minimize exterior penetrations, and build in safe food storage/preparation facilities.
Design new landscaped areas that will minimize the need for fertilizers, insecticides, and herbicides. In particular:

- Choose plant material that is more resistant or tolerant of pests and disease that can coexist naturally.
- Select plants that will not highly depend on frequent or excessive chemical use (or watering) for fertilization.
- Use soil and drainage designs specific to microclimate and to planting the design objectives, aforementioned.
- Use plant assessable hard scape in support of mechanical weed removal.
- Minimize the use of chemicals in landscaping areas through refined maintenance and the use of the least toxic alternatives whenever possible. Control methods should include Cultural, Mechanical/Manual, Biological and Chemical. Specifically:
  - Use mulch and/or topping to cover bare soil areas.
  - Do not use broadcast herbicides on lawn areas (e.g. do not apply broadleaf killers to entire lawn areas) unless absolutely necessary.
  - Use the least toxic herbicide appropriate to the task (recognizing that herbicide choice will be dictated by the circumstance).
  - Continually evaluate and test new “least toxic” products as they become available.
  - Use application techniques to reduce off-target application to the minimum extent possible.
  - Use mowers, machine trimming and hand removal whenever possible.
  - Replant native or noninvasive naturalized plant species that will not require fertilizing and that are naturally resistant to local pests and diseases.
  - Whenever possible and affordable, use natural biologically derived (naturally occurring), organic fertilizers, pesticides and herbicides.
  - Keep eating and food preparation areas clean, eliminate nesting/breeding areas around building exteriors, avoid garbage accumulation, and encourage employees to use proper food storage and waste disposal practices to discourage pests.
Note: Water and energy conservation should always be considered to the fullest extent possible.
PART 2 Program Summary

2.1 Landscape Management Context

In compliance with aforementioned policy the following plan has been developed. It applies to Grounds maintained by GSA County of Ventura Maintained Property.

2.2 Description of Facility

The County of Ventura, General Services Landscape Department maintains sites throughout the County. The majority of the sites are maintained through contractor support. However, the Government Center Campus, which is 82 acres, 855 Partridge, 646 County Square Drive, 669 County Square Drive and 4651 Telephone Rd, are maintained using in-house resources. Nonetheless, the vendors are held to the same standards set forth in this plan. The locations are listed below:

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>LOCATION</th>
<th>ACRES</th>
</tr>
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<tbody>
<tr>
<td>GSA</td>
<td>Government Center</td>
<td>17.00</td>
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<tr>
<td>GSA</td>
<td>669 County Sq. Bldg. Multi Svc</td>
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<td>GSA</td>
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<td>GSA</td>
<td>Clifton Tatum Center</td>
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<td>GSA</td>
<td>577 N. Ventura Rd. Haz. Waste</td>
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<tr>
<td>GSA</td>
<td>Intake (384 Hillmont)</td>
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<tr>
<td>GSA</td>
<td>Saticoy Ops. Yard</td>
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<tr>
<td>GSA</td>
<td>Agriculture Dept.</td>
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</tr>
<tr>
<td>GSA</td>
<td>Animal Control</td>
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<tr>
<td>GSA</td>
<td>ITSD, Control Center</td>
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</tr>
<tr>
<td>GSA</td>
<td>Las Posas Sheriff/Police Station</td>
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</tr>
<tr>
<td>GSA</td>
<td>Rain Project</td>
<td>2.00</td>
</tr>
<tr>
<td>GSA</td>
<td>2220 Gonzales Rd Multi Svc</td>
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</tr>
<tr>
<td>GSA</td>
<td>1400 Vanguard Multi Svc</td>
<td>2.50</td>
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<tr>
<td>GSA</td>
<td>Juvenile Justice Center Courts</td>
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<tr>
<td>GSA</td>
<td>Juvenile Justice Center Juvenile Facility</td>
<td>10.00</td>
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</table>
Total Acreage is 134.44.

The plan will focus primarily on the Government Center because of its vast plant variety and size. However, the concepts presented within this plan are utilized throughout our programs.

2.3 Goals:

The General Services Agency (GSA) pest management mission is to prevent pests and diseases from adversely affecting the county’s property by establishing and maintaining a safe, effective, and environmentally sound Integrated Pest Management Program (IPM). The primary goal is to reduce the amount of pesticide actual ingredient used on the Government Center Campus by 20% using the base year 2005, and still maintain excellent plant conditions.

To accomplish this goal, many IPM techniques were used to maintain the same quality conditions and meet the 20% goal. These control techniques include physical, mechanical, cultural, biological, educational, and at last resort, chemical control using the least toxic products available.

The secondary goal for GSA landscape is to provide the best maintained grounds in the County given the conditions that must be worked with. We want to be the example others follow. The landscape maintenance operation is continually pursuing new techniques and methods to achieve this goal by attending local and state seminars our staff maintains pesticide and herbicide applicator and arborist licenses.
2.4 IPM program execution includes six steps that are routine procedures used to obtain the goals for each pest problem.

2.4.1 Identification of the Pest:

A crucial step in any IPM program is to identify the pest. The effectiveness of both proactive and reactive pest management measures depends on correct identification.

2.4.2 Development of a Control Plan/Strategy:

Strategies and prescriptions are the “bottom-line” of any pest management program. They provide the required product: adequate pest management. While conventional pest control programs have generally relied upon a single tool (pesticides) to achieve this objective, IPM programs utilize an array of tools that are integrated in strategies and prescriptions designed not only to control pests, but to manage them, focusing largely on options to prevent or mitigate the occurrence of pest problems.

2.4.3 Monitor the Pest Populations:

Monitoring involves systematically checking our grounds for pests and beneficial organisms, at regular intervals and at critical times, to gather information about the turf, pests, and natural enemies.

2.4.4 Control the Pest:

Pesticides are the option of last resort within the IPM programs because of their potential negative impacts on the environment, which result from the manufacturing process as well as from their application. Pesticides should be used only when other measures, such as biological or cultural controls, have failed to keep pest populations from approaching economically damaging levels.

2.4.5 Document the Results:

Documentation for the IPM program is maintenance of records and recording of decisions as required by the plan. An IPM program that is well-developed, implemented, and documented will minimize the need for and use of pesticides, maintain or improve the quality of our grounds, utilize fiscal resources efficiently, and promote political, administrative, and public approval and support.

2.4.6 Evaluation and/or Redesign the Plan:

Evaluation of individual program activities, system components, and the overall pest management program are an integral part of an IPM system. They are used to analyze the effectiveness, costs, and benefits of the program and its components, to highlight opportunities to adjust the program to better serve its intended implementation goals and objectives.
PART 3     PEST MANAGEMENT PRACTICES

3.1    Pest Management Practices at In-house Maintained Grounds

3.2    Scouting & Monitoring

During their daily inspection rounds, maintenance workers have identified certain hot spots to check for both disease and watering problems. If a crewmember finds something they cannot identify or are uncertain of, they will go to the landscape supervisor for verification. (The spray technician is also trained in pest identification). A decision will then be made for control measures. When the technician is out on a non-spray duty, he will monitor the areas he is working in. Scott Flammer, Landscape Supervisor, has a State of California Pest Control Advisors license. He has trained all technicians (GSA landscape employees). This includes scouting, monitoring and identification. The Landscape Supervisor also has a BS in Soil Sciences, which provides the basics for all management applications.

3.3    Hot Spots

The landscape scouts have identified hot spot areas that include rodent, weed and irrigation problems. Maps are used to identify these hot spots on a yearly basis for possible identification of future pressure areas.

3.4    Types of Pest

All pests will be monitored and treated appropriately.

3.4.1    Diseases:

The following diseases have been noted:
• Pink bud rot on king palms
• Powdery mildew rust on roses
• Root rot on shrubs and trees
• Oak Root Fungus

3.4.2    Rodents:
• Gophers
• Rats
• Mice

3.4.3    Insects:

The following insect pests have been identified:
• Bees
• Cockroaches
• Aphids
• Sod web worms (in grass)
• Snails and slugs
• Scale
• Mites

3.4.3 Weeds:

Weeds present a number of unique challenges that need to be recognized when developing management strategies. The intensity of weed problems during a growing season will be influenced by weed population levels in previous years. The axiom “one year’s seeding equals seven years’ weeding” is apt. There are various annual and perennial weeds growing on campus. They are:

• **Perennial** – field bindweed, common bermuda, dandelion, and clover.

• **Annual** – sow thistle, purslane, spotted spurge, and oxalis (both perennial and annual type).

Clovers and other broadleaf weeds are a real nuisance. The method of keeping these weeds in check is to spot treat bad areas. A few broadleaf weeds here and there are tolerable. On the grass, where weeds have not been a problem, applying broadleaf control product can be used to spot out the weeds if they develop. This is an “as needed” application.

The grounds department has come to live with the conclusion that a certain population of kikuyu grass is tolerable in the grass populations. The treatment eradication would be too costly to the environment. Over 60% of the open soil has been covered with mulch. This has added greatly in the reduction of chemical use.

3.4.4 Rodents:

Landscape Department chemical and bait control program is executed by our vendors of record. They are O’Connor Pest Control and Kastle Kare Rodent management. They apply dry and liquid anticoagulants to the grounds in order to exterminate rodents. See the attached MSDS (Material Safety Data Sheet(s) for further information regarding substances used.

Acknowledging that these chemicals may become harmful to the life cycle of the County of Ventura’s wild life and in response to Board of Supervisors’ letter of March 22, 2005, which supports AB 1548 (PAVLEY) Field Rodents by recommending the avoidance of the use of anticoagulants to the extent possible, the following has been accomplished. Specifically, we are complying with the request by taking a comprehensive program overview to seek opportunities to reduce anticoagulants where applicable and use alternative methods. Details are provided below:
3.4.4.1 Method:

The landscape department has examined physical conditions and practices that might invite rodent infestation and prescribed corrective measures, i.e. we will integrate starving them, keeping them off the premises and finally, extermination. Tenant and food services vendor practices will also be reviewed and recommendations made.

The landscape department routinely reviews the pest control vendors’ understanding of the biology of rodents, their needs and habits and employ a variety of alternate chemicals or bait to the program wherever feasible.

Specifically, the Integrated Pest Management (IPM) plan will reduce to the maximum extent possible, reliance on the chemical pesticides named brodifacoum, bromadialone, diphacione, or difethialone. While these anticoagulants offer short-term suppression of the rodent population, the goal of the IPM is to develop long-term pest control alternatives.

Currently, gophers are being controlled mostly with fumitoxin (Aluminum Phosphide); however, groundskeepers have had relatively good success with trapping gophers. Trapping is done whenever operations permit.

Please note: Pesticides, which include anticoagulants, will be utilized to control pests when other means prove inadequate.

3.4.4.2 Existing protocols:

Existing protocols for approval of any chemical application will be documented. Decisions are first based on the need for control, next on the failure of non-pesticidal control methods, and last on an evaluation of the various chemical options available, their toxicity, their potential for unwanted exposure and adverse impacts, and their demonstrated efficacy for the proposed application. Anticoagulants will be placed at the bottom of the list for desired chemicals to be used.

3.4.4.3 Preventive Measures:

Rodents on campus include gophers, mice, opossums and squirrels. In an effort to prevent and eliminate rodent populations, it is important that conditions favorable to their survival be reduced as much as possible or eliminated, thereby reducing the chemicals needed to treat these pests. Prevention begins with sanitation. Additionally, exclusion measures shall be taken that will make structures less hospitable or accessible. The following measures shall be taken:

- Trash containers are regularly cleaned and all waste, especially food and paper debris are routinely removed.
- Cracks in pavement and sidewalks are repaired as soon as possible.
• The facility is made rodent-proof by plugging holes in the foundation and walls. Steel wool is used as a temporary patch while waiting for permanent repairs to be done. (Attention should be given to areas where sewers and drains enter a building.)

• Water runoff is kept away from the building. Drains are screened with 2” hardware cloth to prevent rodent access and kept free of debris to reduce standing water.

• Loading dock areas are kept clean, free of debris, and doors should remain closed as much as possible.

• Trees, shrubs, vines, and brush are be trimmed away from the building at least 12”-18” to allow access for the pest control technician to monitor and place traps and bait stations if necessary. Grass should be mowed and trimmed.

• Dumpsters are kept in good condition with all doors closed and drain holes capped. They are located away from the building on a paved surface. Trash is contained and lids secured.

• Outdoor storage areas are managed using a first in, first out program. Inventory has been elevated on pallets or shelving that is 12” or more away from any wall.

• Areas where rodent feces are found are identified in the pest-sighting log and reported to our vendor of record for treatment.

3.5 Special Projects

Special projects conducted include:

3.5.1 Plant reduction:

The Landscape Department has removed approximately ½ of the prevailing border shrubs (Xylosmas) throughout the property, along with various plants on the “Victoria Avenue Hill” side of the property. This action reduced the habitat for rodents, reduced the amount of insect control agents needed because of a reduction in their food source and saved in labor expended on pruning and irrigation.

3.5.2 Use of Low Irrigation Plants/Groundcover

The Landscape Department continues to utilize plantings requiring less water along with natural ground cover (tree bark and red rock). These areas allow for reduction in the use
of water, pesticides and herbicides along with eliminating the need for more labor intensive mowing, (placing these plantings in narrow grass areas reduces the need for hand-mowing).

Additional plans include the use of Native California Plants. Native plants will provide us with a hearty variety that will do well with limited irrigation and local environmental conditions, further reducing the need for water, fertilizer and control management.

Among species Identified for inclusion are:

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<th>COYOTE BUSH</th>
<th>ELDERBERRY BUSH</th>
<th>SAGE</th>
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<tr>
<td>LEMONADE BERRY</td>
<td>CALIF. RYE GRASS</td>
<td>CEANOTHIS</td>
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3.5.3 Evapotranspiration

Evapotranspiration is the process by which trees and plants draw water from the ground and release the moisture into the atmosphere via their leaves. This movement of water is necessary for plant health and is the vehicle for plant metabolism. This water evaporates, drawing heat and cooling the air. Evapotranspiration is often referred to as “ET”, ET information is retrieved (Via the Internet) from local CIMIS weather stations that measure local weather conditions. Universities have developed crop coefficients for landscape plants and numerous agricultural crops. ET is multiplied by the crop coefficient to determine crop specific ET. Evapotranspiration is measured using a variety of information such as: temperature, day length, solar energy, humidity and wind velocity. This information is important to landscaping and is used as a tool to assure that plants, trees and turf are getting the right amount of water at the right time. Our goal is to give the plants what they need – not too much and not too little. It takes the guess work out of irrigation scheduling.

Weather Station: In December 2008, GSA Grounds installed a weather station at the GSA Service Building located on the Government Center Campus with satellite locations at County Square Drive and the Telephone Road Building. The wireless system sends valuable information to the Central Irrigation Computer. The weather station provides weather data that can be used for irrigation scheduling. The weather station takes weather information such as solar energy, temperature, humidity and wind velocity and converts this information into (ET) or Evapotranspiration. This is a measure of the amount of water that is used by turf, plants, and trees on a daily basis. ET is expressed in inches of water per acre. Soil moisture is depleted by plants twenty-four hours a day – ET tells us the amount of water that is depleted in the soil on a daily basis so we can replenish the soil water reservoir. The weather station also provides us with some weather forecasting based on changes in barometric pressure.

The benefits of the weather station are many; (1) water is conserved because the station shuts down automatically during rain events, (2) the weather station makes daily changes in the amount of applied water thus minimizing the potential for human error, (3) ET assures that the plants are getting the right amount of water at the right time – this makes for healthier plants that can resist pests and diseases thus minimizing the need for pesticide applications, (4) healthier plants make for a better looking campus.

GSA Grounds has realized a significant water savings and efficiency over the last several years using ET information collected from the Oxnard CIMIS weather station. We are currently tracking water use from the Government Center well and water meters located at several other County properties that are managed by GSA Grounds. Additional improvements in water conservation and irrigation efficiency are expected in the coming years using the onsite weather station.
In managing the existing landscape and planning new projects, this information is one of the tools utilized by the GSA Landscape Department. We have found that by using ET data to make educated decisions and adjustments in our irrigation scheduling that we are observing healthier plants that can better resist insects and diseases.

### 3.5.4 Tree Attrition Plan

An evaluation of every tree on the Government Center Campus has been completed, identifying sick, aged trees along with those that present safety issues. Removal and restoration of identified trees is in progress, along with the plan to install younger healthier native trees to replace those being removed. (See part 5 for more specifics).

## PART 4. Written Records

Monitoring goes hand-in-hand with recordkeeping. Records should not only provide information about when and where pest problems have occurred, but should also incorporate information about cultural practices (irrigation, cultivation, fertilization, mowing, etc.) and their effect on pest and beneficial populations. The effects of non-biotic factors, especially weather, on pest and beneficial populations should also be noted. Recordkeeping is simply a systematic approach to learning from experience. The State of California mandates record keeping as a mandatory job requirement. Pesticide application records are kept for every application; (see attachment (1) for a sample form). Information from previous year’s applications are used to give an intelligent idea of possible upcoming pest problems. This information is also reported to the agricultural department for the monitoring of yearly hot spots of different pests and mapping these areas, creating a guide to follow for next season’s treatments. Each year a schedule is developed, to keep programs on track and keep members informed of upcoming work. This keeps the “surprises” down to a minimum. Records are kept on quarterly inventories of:

- Pesticide and other hazardous products
- Irrigation and ground water usage
- A complete label and MSDS file of all products being used (See Attachment (2))
- Equipment maintenance
- Training records
- Operating instructions.

**Key Performance Indicators (KPI)** – Pesticide use and Irrigation Water use is posted on the General Services Agency intranet web site. Water use is updated and posted monthly. Irrigation water use is tracked via the Toro Sentinel II irrigation control system. The County has flow sensors and tracks flow at the Government Center (800 So. Victoria Ave), 646 County Square Drive, 669 County Square Drive 4651 Telephone Road, Saticoy Operations Yards, Gonzales Road, and the Juvenile Justice Center,. Others sites and installations are being considered at this time. Pesticide Use is updated and posted on a quarterly basis.
PART 5  Pest Control

5.1  Pest Control

Much research is done on the new products being developed. By going to the trade shows, seminars, field days, and brainstorming with other landscape departments, information on the effectiveness of these products is gained. Test plots are first developed to try a product if there is still uncertainty about its effectiveness. But experience is the best advantage on what products work or do not work on our grounds. Due to the goal of a 20% reduction in chemical usage, a closer look at the toxicity level of a product is done. Fortunately the newer products being developed have very low active ingredients. Switching from using the organic-phosphates and carbamates to using the newer natural organic insecticides for all surface feeding and foliar feeding insects is now standard practice. They do just as good a job for control, and have a much lower AI rate. It’s the research that is done on products and gained knowledge that ensures that the least toxic control method is used only after all other non-pesticide methods have been tried.

5.2  Pesticide Application Techniques

Granular products or soil-applied products are the preferred product as opposed to overhead spraying.

If the monitoring program indicates that the pest outbreak is isolated to a particular location, spot treatment of only the infested area will not only save time and money, but will conserve the natural beneficial organisms located in other parts of the grounds. The landscape supervisor times treatments to be least disruptive of other organisms and campus visitors & employees. This is yet another example where knowledge about the ecosystem is important.

5.3  Application Equipment

The following is a list of the most commonly used application equipment on the Government Center campus.

- Powered pump sprayer
- Broadcast spreaders
- Backpack and/or hand pump sprayers
PART 6  Control Techniques

6.1  Physical and/or Mechanical Control Practices

Methods included in this category utilize some physical component of the environment, such as temperature, humidity, light or soil to plant disturbance, to the detriment of the pest. Common practices used are tillage, soil solarization, hand weeding (performed by work release crews), weed barriers, decorative rocks, synthetic bark, and mulches to kill weeds or to prevent weed seed germination. The mulch comes from recycled wood chips provided by the Public Works Agency and private tree companies at no cost. Sixty percent of the bare soil and weedy areas have been covered. Although generally used in small or localized situations, some methods of mechanical/physical control are finding wider acceptance because they are generally friendlier to the environment.

6.2  Cultural Control Practices

Cultural controls are manipulations of the ecosystem that make the shrubs and beds system less friendly to the establishment and proliferation of pest populations. Although they are designed to have positive effects on the grounds ecology and pest management, negative impacts may also result, due to variations in weather or changes in management.

Techniques of this practice involve planting resistant grass cultivars, planting different plant varieties including native plants, developing healthy biologically active soils, sanitation, efficient irrigation practices, modifying mowing heights, and monitoring degree or growing days, removing planting areas that are habitats for various pests. Recent projects include removal of 50% Xylosmos shrubs, removal of Victoria bank ground cover composite and replanting it with the fescue grass.

Factors influencing the health and biodiversity of soils include the amount of organic matter, soil pH, nutrient balance, moisture, and parent material. Healthy soils with a diverse community of organisms support plant health and nutrition better than soils deficient in organic matter and low in species diversity.

6.2.1  Fertilization:

Our philosophy is to use minimal commercial fertilizers due to consideration of low watering. Currently the lawns are fertilized once a year, while our beds are fertilized less than once a year. The beds and shrubs are fertilized with mulching except for the courtyard, and entryways which contain red brick. It contains synthetic bark.

Both slow release and organic fertilizers are used on the premises; 95% of the fertilizer products we use on the grounds are slow release with the remaining products being organic (mulch, grass clippings).
6.2.2 Soil Tests:

As a steward of the environment, soil tests are done once a year to determine the true nutritional needs of our grass. Composite soil samples are collected which are more representative of the total landscaped area. The fertilization programs are based on the test results.

6.2.3 Irrigation:

The most important function of irrigation is cultural control. The irrigation system was installed in 2006 as part of this program. It is a Toro Sentinel control operated system. It is state of the art. With the information obtained from its data base on GPM and spacing, schedules are written to match plant and soil conditions. The Landscape Supervisor is responsible for checking the grounds each day for wet or dry areas. With an irrigation system, feedback on conditions can be used to make adjustments. The future plan is hooked into a weather system that sends evapotranspiration (ET) information to the central program. This information can adjust our ET setting for the day automatically, or a responsible person can take the information and set an adjusted ET rate. We also use local weather reports to check for pending weather fronts coming into the area. With this information a decision can be made to override the system so there is no worry about watering while it is raining. Weather reports also help in scheduling spray applications. Spray applications are not to be made within 48 hours of a rain event. If a storm occurs it could potentially wash off a valuable control application, the application can be held off until the rain passes. The goal is to maintain healthy growth and not to have any overly wet or dry hot spots that could eventually cause other problems or even cause the growth to die.

6.3 Biological Control Techniques

Biological control is the use of living organisms, such as parasites, predators, or pathogens, to maintain pest populations below damaging levels. They may be either natural or applied.

Natural biological control results when naturally occurring enemies maintain pests at a lower level than would occur without them. Mammals, birds, bats, insects, fungi, bacteria, and viruses all have a role to play as natural predators and parasites in the landscape system.

Biological control techniques will be examined each time a problem occurs.

6.4 Chemical Controls:

Included in this category are both synthetic pesticide and botanical pesticide control. Restricted materials are not to be used.
• Synthetic pesticides comprise a wide range of man-made chemicals used to control insects, mites, weeds, nematodes, plant diseases, and vertebrate and invertebrate pests. These powerful chemicals are fast acting and relatively inexpensive to purchase. Pesticides are the option of last resort in this IPM program because of their potential negative impacts on the environment, which result from the manufacturing process as well as from their application on the grounds. Pesticides should be used only when other measures, such as biological or cultural controls, have failed to keep pest populations from approaching economically damaging levels. If chemical pesticides must be used, it is to eradicate the pest but not harm non-target organisms such as birds, fish, and mammals. Pesticides that are short-lived or act on one or a few specific organisms are in this class. Examples include insecticidal soaps, horticultural oils and boric acid.

• Botanical pesticides are prepared in various ways. They can be as simple as pureed plant leaves, extracts of plant parts, or chemicals purified from plants. Pyrethrum and rotenone are examples of botanicals. Some botanicals are broad-spectrum pesticides. Botanicals are generally less harmful in the environment than synthetic pesticides because they degrade quickly, but they can be just as deadly to beneficial organisms as synthetic pesticides.

Because pest resistance to chemical controls has become so common, the landscape department is increasingly viewing susceptibility to pesticides as an issue of concern. The less a product is applied, the longer a pest population will remain susceptible to that product. Routine use of any pesticide is a problematic strategy. Rotation of the different pesticide classes and modes of action is the answer.

There are instances where pesticides are the only effective tool for controlling unacceptable pest problems. A clear example is fungus diseases. While cultural controls, use of resistant plant varieties, and replacement with other species can contribute to reductions in disease problems; once established these pests often cannot be managed without the use of pesticides.
<table>
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<th>Mth</th>
<th>Year</th>
<th>Bayer Advance Tree &amp; Shrub</th>
<th>Cleary's 3336 WP</th>
<th>Gallery 75 DF - Dow Agro Science</th>
<th>Gordons Atrimmec</th>
<th>Durham Metaldehyde Granules 7.5%</th>
<th>Monsanto Roundup</th>
<th>Syngente Fusilade II</th>
<th>Contrac Blox (Bromadiolone)</th>
<th>Fumitoxin</th>
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There has been a marked decrease in chemical use. Specifically, a decrease for weed removal from 2005-2006 occurred in the amount of 22%. The two-year objective of 20% was met the first year. Another 20% was gained from 2006-2007. The greatest reduction was in the use of Roundup. In 2005, 444 oz. of Roundup was applied. In 2006, 348 oz. were applied and we are proud to say that only 93 oz. were applied this year. The total projected use is 186 oz. for 2007. This reduction can be attributed to the application of mulch, brick, synthetic bark and the use of Work Release crews provided by the Probation Department. GSA was fortunate to obtain large crews at the reasonable price of $540 for a crew of 6-10 individuals. In addition, a concerted effort to reduce the toxicity of the products has also been made as shown in the below chart. As of 2019, GSA no longer uses Roundup (glyphosate) at all.

For use in FY 2007.

* For specifics see attachment (2).

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>Comments</th>
<th>Frequency (if needed)</th>
<th>Pest</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Bayer Advanced Tree &amp; Shrub</td>
<td></td>
<td>One time</td>
<td>Aphids</td>
<td>Tulip Trees</td>
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<td>* Gordons Atrimmec</td>
<td>Regulatory hormone growth retardant.</td>
<td>Annually</td>
<td>Rapid Growth</td>
<td>Xylosma</td>
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<td></td>
<td>Reduced trimming 6 to 2 times/yr.</td>
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<tr>
<td>* Durham Metaldehyde Granules 7.5%</td>
<td>Non-pellet safe around kids and pets</td>
<td>Annually</td>
<td>Snail</td>
<td>Beds</td>
</tr>
<tr>
<td>Syngenta Fusilade II</td>
<td>Low toxicity</td>
<td></td>
<td>Practice abandoned</td>
<td>Grass</td>
</tr>
<tr>
<td></td>
<td>Pre-Emergent with low toxicity</td>
<td></td>
<td>Practice abandoned</td>
<td>Weeds</td>
</tr>
<tr>
<td>Surfleas AS – Dow Agro Science</td>
<td>Pre-Emergent with low toxicity</td>
<td></td>
<td></td>
<td>Plant Beds</td>
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<tr>
<td>Surfleas AS - Dow Agro Science</td>
<td>Pre-Emergent with low toxicity</td>
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</tbody>
</table>
PART 7  Future Considerations

When installing landscape we change the environment. What was once the natural habitat for plants and animals has been eliminated and the survival and/or return to the environment have caused them to be labeled as pest’s. Future consideration will be given by the County of Ventura, Landscape Department to return its grounds to their natural habitat. We will strongly consider and use native planting in future landscape changes and additions. The pests will no longer be pests because they belong. This will reduce the need for weed, disease and insect control because they will have already achieved the ability to coexist.

Currently, the County of Ventura has two buildings that are LEED Certified. Other properties are being reviewed for certification as well. IPM is one component in LEED certification and sustainability.
The Integrated Pest Management (IPM) Plan for the County of Ventura Grounds Division has a three-pronged approach which includes:

- Inventory of the County’s woody and herbaceous plants and identification of pest problems.
- Monitoring of areas and organisms that have been pest problems in the past.
- Remediation using management tactics in the context of the particular pest and plant host.

8.1 Inventory

Our inventory is a database catalog of all the campus landscape trees. Every landscape tree is tagged with a unique identification number. This database identifies specific trees by their species, size, and other inventoried data. There are approximately 1,200 landscape trees. The inventory was prepared by Poly & Associates.

8.2 Monitoring

We use the tree inventory together with our knowledge of the County’s landscape to monitor for insect and disease occurrences and environmental stresses (e.g., leaf and bark scorch, girdling roots, nutrient deficiencies, etc.) before these occurrences become problems. In cases where the insect or disease occurrence is a problem, we use monitoring as a technique to measure population size and to determine if and when we need to use remediation measures.

For example, a soil drench application is used whenever possible for aphid control, eliminating the technique commonly used whereby a hole is drilled into the tree (which causes irreparable damage to the tree) and the pesticide applied via a syringe. A soil drench application also eliminates the need for aerial spraying.

We observe and collect weather related data to estimate when certain insects will hatch their eggs and anticipate the outbreak of certain fungal diseases. An example of weather data monitoring occurs in the management of Elm Leaf Beetles using degree/day monitoring. A degree/day is a unit based on accumulated heat to measure physiological time.

8.3 Remediation

Before applying pest management control measures we determine what action is needed and whether that action is likely to be effective. The majority of our landscape pest problems are minor or do not threaten plant health and therefore no action is taken. When action is needed, we use more than one
method to provide more effective control. As a part of our Integrated Pest Management Plan we use cultural, mechanical, physical, biological, and chemical control measures.

We base our pest management program on cultural control. Cultural controls begin with selecting healthy specimens of pest resistant species, properly planting them, and maintaining their vigor with the necessary irrigation and fertilization. Providing plants with the proper care is our foremost consideration and the best line of defense against pests. In addition to proper installation and establishment, we give a lot of time and effort to pruning appropriately to minimize pest problems.

Our biological control attempts have been limited to successful use of *Bacillus thuriengensis* for the management of various caterpillars. We are exploring the use of predaceous insects, but have not worked with any species yet.

Annually, we will utilize chemical means for controlling landscape pests such as weeds, insects, and diseases. The use of chemicals on campus is a last resort tactic. We will use the least toxic chemicals available and have had great success using horticultural soaps and oil. All staff that applies pesticides are certified or trained in accordance with the California Department of Agriculture laws and regulations. We follow all occupational and environmental precautions and suggestions in addition to ecological common sense.
Part 9 Storm Water Strategy:

9.1 Storm Water Strategy

The County NPDES Storm Water Permit No. CAS004002, which regulates discharges from the storm sewer systems within the County, requires that the County of Ventura, as co-permittee, implement an Integrated Pest Management Program. The County IPM Program was introduced in 2011 and was designed to significantly reduce the use of harmful chemicals. Those chemicals have the potential to enter storm drain systems and contaminate our streams, rivers and ocean. Under the strategy, GSA does not apply pesticides in or near drainage or natural waterways. With respect to water runoff, pesticides are not applied 48 hours before, during or 48 hours after an irrigation or rain event. To ensure compliance, GSA's Grounds Department operates an onsite weather station and a computer operated irrigation system, with daily weather monitoring and forecasting.

9.2 Types of Pesticides

Current Practices:

GSA Grounds does not apply organophosphate pesticides. On one occasion, when other methods had been examined/tested and were not successful, a pyrethroid was used: careful consideration was taken so that it was not used within 48 hours of a rain or irrigation event. This is considered to be a BMP.

9.3 Contractor/Vendor Compliance

Vendors applying pesticides are required to supply copies of reports sent to the Ventura County Agricultural Commissioner's office and to the County Contract Administrator. Types and amounts of pesticides are reported annually on GSA websites. This information is used to monitor pesticide use and to implement the IPM Strategy. The Vendor and County Contract Administrator meet each month to discuss pesticide applications and IPM methods and procedures. These meetings are used to identify potential pest problems and solutions, including alternatives such as biological control, the use of beneficial insects, and the application of mulches for weed control, among others. This routine communication with vendors is considered to be a BMP.

GSA will provide storm water permit training for all vendors with activities that may affect storm water systems into its IPM Strategy. The training shall include the following:

- Promote a clear understanding of the potential for activities to pollute storm water.
- Review BMPs so that employees and vendors have a clear understanding of their importance and implementation.
- Review the Integrated Pest Management Program and the potential for pesticide-related surface water toxicity.
- Review proper use, handling and disposal of pesticides.
- Review the possibilities for reduction of pesticide use.
- The identification, investigation, termination, cleanup, reporting and documentation of incidents of discharges, including those that are illegal and/or inconsistent with the IPM program.
• GSA will include reference to the NPDES requirements in RFQs and vendor contracts.
• GSA will provide landscaping contractors with a fact sheet on Best Management Practices related to storm drains.

9.4 Pesticide Storage

GSA Grounds does not use or purchase any banned, unregistered or restricted materials. The Department has an on-site separate indoor facility for storage of pesticides. The room has a cement floor designed for containment in the event of a spill. The room has a DPR approved pesticide storage sign on the door. Should a spill occur, personnel have been trained on proper containment and disposal. This training occurs annually, at a minimum, and each time an employee uses a pesticide that he or she has not used before. Spill containment materials are located in the storage room.

GSA Grounds will include orientation on spill containment during annual Storm water permit training.

9.5 Staff Certification

Current practices:

The GSA Grounds Department Landscape Supervisor has a Pest Control Advisors License and provides Pesticide Safety Training for County employees that apply pesticides. Employees are trained annually for each pesticide material that they use, in accordance with the California Department of Pesticide regulations. The County holds a site ID and permit from the County Agricultural Commissioner's Office, requiring monthly reports. The permit is reviewed and renewed annually. Because the Department does not apply any restricted materials, only applies pesticides on County property and does not apply pesticides for hire, the Department is not required to have a QAL or QAC. This approach to staff certification is considered a storm water BMP, since it ensures that all measures are taken by qualified staff to minimize the discharge of harmful pesticides to the storm drain system.

9.6 Employee Training

Current practices:

As noted above, employees receive regular training, at a minimum annually, on the management of pesticides.

Employee training will be expanded to include a storm water component. Landscaping team leaders will be included in vendor training and will receive storm water factsheets to assist them in communicating with their staff.

9.7 Catch Basin Inspection and Clean-up

A catch basin is a part of a storm drain or sewer system which is designed to trap debris so that it cannot enter the drainage pipes. GSA Grounds is responsible for ensuring that debris from County property
does not enter storm drains.

The Grounds Department employs three grounds keepers to police the Government Center and to collect paper trash on grounds and Center roads as observed. At the remaining 23 properties for which GSA is responsible, trash is collected two to three times a week (depending upon size of facility) and/or upon special request. These practices reduce the amount of debris that enters catch basins. This preventive action is considered a BMP.

GSA's Facilities Department is responsible for maintenance and clean-up of the basins.

9.8 Bioswales and Drainage Basins

County of Ventura properties with bioswales or drainage basins for which GSA Grounds is responsible include:

- 855 Partridge Avenue, Ventura (bioswale)
- 815 Spring Street, Moorpark (bioswale)
- 11251 Riverbank Drive, Saticoy Yard, Ventura (drainage basin)
- 4333 Vineyard Avenue, Juvenile Justice Center, Oxnard (drainage basin)

Bioswales and drainage basins are currently managed using landscape maintenance procedures adopted by GSA Grounds. This includes removal of organic and inorganic debris and regular mowing of bioswales.

The Grounds Supervisor conducts periodic (once every 4-6 weeks) inspection for erosion, damage to vegetation, and sediment and debris accumulation. The areas are checked for pools of standing water, debris and sediment accumulation.

Under a maintenance permit for the Juvenile Justice Center, the drainage basin is cleaned twice a year, under the supervision of GSA Grounds.

The Saticoy Drainage Basin is cleaned once a year.

For both facilities with drainage basins, any unusual buildup of debris that is identified during period inspections is removed to ensure proper operation of the basins.

Bioswales themselves are considered to be a BMP because they reduce the need for irrigation and pesticides and filter water before it reaches the storm sewer system.

These practices are considered to be consistent with BMPs for bioswales and drainage basins.
References

1. University of Michigan Grounds & Waste Management Department sample plan
2. U.S Air Force sample Plan
3. Integrated Pest Management Plan, New York
   National Pollution Discharge Elimination System (NPDES) Permit No. CAS004002, Ventura County, 2009.
PESTICIDE APPLICATION RECORD

Location: ______________________________________________________________

Applicator____________________Date________Day______Time_____AM_____PM

PESTICIDE INFORMATION
(CIRCLE) FUNGICIDE INSECTICIDE HERBICIDE GROWTH REG.

Pesticide Name: __________________________ ______________________________
(Trade Name)                                       (Chemical Name)

C. E.P.A. REG.#
Formulation (% Active Ingredient)

Soluble______ Flowable______ Wetable Powder_______ EC________
Granular_____ WDG_________ Aerosol________

(CIRCLE) CAUTION WARNING DANGER

APPLICATION INFORMATION
Identify Target Pest________________________________________________________
Type of Area Treated______________________________________________________
Location of Treated Area___________________________________________________
Total Area Treated (Acres)________________________________________________
Total Actual Pesticide Used________________________________________________
Application Rate of Formulated Product: _________Per Acre _______Per 1000 sq. ft.
Total Amount of Formulated Product________________________________________
Application Equipment_____________________________________________________
Amount of Carrier Used:  Dry________________  Liquid_______________________
Weather Conditions at Time of Application:  Air Temp.______ Wind Dir._______ (Get From
Weather Station or Forecast)  Humidity _________ Wind Velocity___________
Time of Application_______________________________________________________
Total Hours (include mixing & cleanup)_____________________________________
Special Label Instructions _________________________________________________
Comments/Results ________________________________________________________
Tank Mixture (if any) _____________________________________________________

AMOUNT OF MATERIAL USED per LOAD_____________________________________

FOLLOW ALL LABEL INSTRUCTIONS

Signature______________________________________________________________
License Number _________________________________

Attachment (1)
VENTURA COUNTY AGRICULTURAL COMMISSIONER
P.O. BOX 889
SANTA PAULA, CA 93061-0889
Office: (805) 933-2926
Fax: (805) 925-8922
Recorder (NOFs): (805) 925-8922

OPERATOR IDENTIFICATION NUMBER

VENTURA CO. GROUNDS & MAINT
800 S. VICTORIA AVE.
VENTURA, CA 93009-

SCOTT BUSY
800 S. VICTORIA AVE.
VENTURA, CA 93009-

Permittee Type: Non-Certified

Operator Identification #: 56-11-56X0042
County District #: SP
Expiration Date: December 31, 2011
Effective Date: January 10, 2011

Home Phone: (805) 659-4895
Shop Phone: (805) 664-3821
Mobile Phone: (805) 207-6687
Fax: (805) 477-7178

SCOTT BUSY PCA #71951 EXPIRES 12/31/2012

Conditions: I.E.JJ

See end of permit for code descriptions.

I understand that this permit does not relieve me from liability for any damages to any persons or property caused by the use of these pesticides. I waive any claims of liability for damages against the County Department of Agriculture based on the issuance of this permit. I further understand that this permit may be revoked when pesticides are used in conflict with the manufacturer's labeling or in violation of applicable laws, regulations and specific conditions of this permit. I authorize inspection at all reasonable times and whenever an emergency exists by the Department of Pesticide Regulation or the County Department of Agriculture of all areas treated or to be treated, storage facilities for pesticides or emptied containers and equipment used or to be used in the treatment.

I have considered alternatives and mitigation measures pursuant to Title 3, California Code of Regulations, section 6426. Taking into account economic, environmental, social, and technological factors, I have adopted those that are feasible and would substantially lessen any significant adverse impact on the environment.

[Form PR-ENF-125 (Rev. 11/06) Pesticide Enforcement Branch]

Permit Applicant: Scott Busy
Title: Landscape Supervisor
Issuing Officer: [Signature]

Signed: Scott Busy
Issue Date: 1/10/11
Issue Date: January 10, 2011
Employees handle pesticides.

<table>
<thead>
<tr>
<th>Contact Name</th>
<th>License#</th>
<th>Exp. Date</th>
<th>Phone Number</th>
<th>Contact Type</th>
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<tbody>
<tr>
<td>CROP PRODUCTION SERVICES</td>
<td>37365</td>
<td>12/31/2010</td>
<td>(805) 487-0961</td>
<td>Pest Control Business Branches</td>
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<tr>
<td>KASITI KARE</td>
<td>30437</td>
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<td>(805) 484-8181</td>
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<tr>
<td>QUALITY LANDSCAPE CARE</td>
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<td>(805) 649-1030</td>
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<td>VENTURA CO. GROUNDS &amp; MAINT.</td>
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### PERMIT PESTICIDES

<table>
<thead>
<tr>
<th>Number</th>
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<th>Posts</th>
<th>Forms</th>
<th>Methods</th>
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<td>99900</td>
<td>NON-RESTRICTED USE</td>
<td>ALL PESTS</td>
<td>All Reg.</td>
<td>Ground</td>
<td>PG</td>
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### PERMIT SITES

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<tr>
<th>Site</th>
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<tr>
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# EMPLOYEE PESTICIDE SAFETY TRAINING RECORD

<table>
<thead>
<tr>
<th>EMPLOYEE NAME:</th>
<th>EMPLOYER'S SIGNATURE:</th>
<th>DATE:</th>
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<table>
<thead>
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<th>TRAINER NAME:</th>
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<table>
<thead>
<tr>
<th>APPLICATOR</th>
<th>FLAGGER</th>
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<tbody>
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<table>
<thead>
<tr>
<th>MIXER/LOADER</th>
<th>OTHER (SPECIFY)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
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## IMPORTANT:
- Training must be given before employees are allowed to handle pesticides, continually updated to cover any new pesticides.
- Pesticides will be handled and repeated and documented at least annually.

## IMMEDIATE AND LONG TERM HAZARDS:
- Involved, including hazards associated with exposure to pesticides known or suspected of chronic effects such as, tumors, cancer, birth defects, etc.

## SAFETY PROCEDURES:
- To be followed while mixing, loading, applying pesticides, or servicing contaminated equipment.

## ENGINEERING CONTROLS:
- When and how to use enclosed cabs, closed mining/loading systems.

## PROTECTIVE CLOTHING AND EQUIPMENT:
- Proper use and care of coveralls, gloves, goggles, boots, apron, rainsuit, respiratory equipment.

## EMERGENCY PROCEDURES:
- To be followed for handling non-routine tasks or emergency situations.

## WAYS POISONING OR INJURY CAN OCCUR:
- Through ingestion, inhalation, or dermal routes.

## IMPORTANCE OF IMMEDIATE DECONTAMINATION OF SKIN AND EYES:
- When exposure occurs.

## COMMON SYMPTOMS OF PESTICIDE POISONING:
- Pinpoint pupils, nausea, blurred vision, shortness of breath, dizziness, headache.

## WHERE TO OBTAIN EMERGENCY MEDICAL TREATMENT:
- Name, address and telephone number of medical facility where emergency medical care is available.

## PURPOSE AND REQUIREMENTS OF MEDICAL SUPERVISION:
- Required when handling pesticides with "Danger" or "Warning" signal word that contains an organophosphate or carbamate.

## APPLICABLE LAWS AND REGULATIONS:
- MSCSs, PICTs, LABEL REQUIREMENTS: Importance of complying with the laws and regulations and label requirements.

## EMPLOYEE RIGHTS:
- To personally receive information on pesticides they may be exposed to; to have physician or their representative receive this information, protected against discharge or discrimination.

## LOCATION OF DOCUMENTS/RECORDS:
- Location of written hazard Communication Program, use records, PSIs, MSDS, exposure and monitoring records.

*ENTER DATE TRAINING GIVEN FOR EACH PESTICIDE*