



Before planting, add organic matter to enrich the soil mixture in your garden plot.

compacted soil and create air spaces so that water and nutrients can reach the roots, buy or rent a tiller that breaks up the dirt and turns it over. Before planting, add sand and organic matter to enrich the soil mixture in your garden plot. Also, have the soil tested periodically to see whether you need to add more organic matter or adjust the pH (acidity/alkalinity) balance by adding lime or sulfur. Your County Cooperative Extension Service, listed in the telephone book, or local nursery should be able to tell you how to do this.

- ◆ Mulch your garden with leaves, hay, grass clippings, shredded/chipped bark, or seaweed. **Do not use newspapers** to keep down weeds or to fertilize plants. **Newsprint may contain toxic metals** such as lead and mercury.

Lawn Care

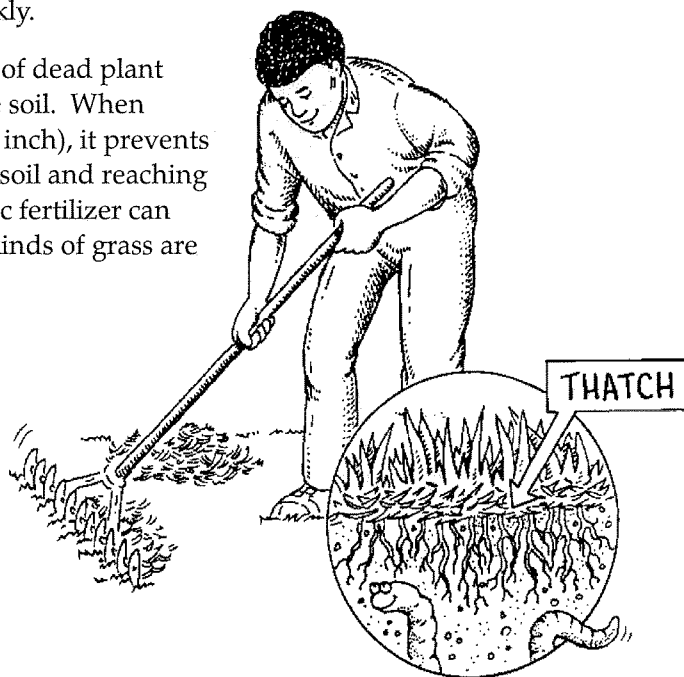
Tending a garden may not be your hobby; but if you rent or own a home, you might need to care for the lawn. You don't have to be an expert to grow a healthy lawn—the key is to work with nature. You need to create the right conditions for your grass to grow strong and stay healthy. A healthy lawn can resist damage from weeds, disease, and insect pests. **Set realistic** weed and pest control **goals** for your lawn.

Think of lawn care as a preventive health care program, like one you would follow to stay healthy yourself. The goal is to prevent problems from ever occurring.

Pesticides can be effective, but should not be relied on as the quick-fix solution to any lawn problem. Serious, ongoing pest problems are often a sign that your lawn is not getting what it needs to stay healthy. Pests may be a symptom of an underlying problem. You need to correct the underlying problem to reduce the chances of pests reappearing.

Make these six steps part of a preventive health care program for your lawn:

- 1 Develop healthy soil that has the right pH balance, key nutrients, and good texture.** You can buy easy-to-use soil analysis kits at hardware stores or contact your local County Cooperative Extension Service for a soil analysis.
- 2 Choose a type of grass that grows well in your climate.** For instance, if your area gets very little rain, don't plant a type of grass that needs a lot of water. Your local County Cooperative Extension Service can advise you on which grasses grow best in your area.
- 3 Mow high, mow often, and make sure the lawn mower blades are sharp.** Grass that is slightly long makes a strong, healthy lawn with few pest problems. Weeds have a hard time taking root and growing when grass is fairly long (around 2½ to 3½ inches for most types of grass). A foot-high meadow isn't necessary; just adding an inch to the length of your grass will give most lawns a real boost.
- 4 Water deeply but not too often.** The best rule is to water only when the lawn begins to wilt from dryness—when the color dulls and footprints stay in the grass for more than a few seconds. Avoid watering during the hottest part of the day because the water will evaporate too quickly.
- 5 Correct thatch buildup.** Thatch is a layer of dead plant material between the grass blades and the soil. When thatch gets too thick (deeper than ¾ of an inch), it prevents water and nutrients from getting into the soil and reaching the roots of the grass. Overusing synthetic fertilizer can create a heavy layer of thatch, and some kinds of grass are prone to thatch buildup.




Get rid of excess thatch by raking the lawn or using a dethatching rake.


In a healthy lawn, earthworms, spiders, millipedes, and a variety of microorganisms help keep the thatch layer in balance by breaking it up and using it for food, which releases nutrients into the soil. You can get rid of excess thatch by raking the lawn using a dethatching rake or by using a machine that pulls plugs out of the grass and thatch layer to break it up. Sprinkle a thin layer of topsoil or compost over the lawn after dethatching or aerating it to speed up the process of decomposition.

6 Set realistic weed and pest control goals. It is almost impossible to get rid of all weeds and pests. However, even a lawn that is 15 percent weeds can look almost weed-free to the casual observer. A healthy lawn will probably always have some weeds and some insect pests. But a healthy lawn will also have beneficial insects and other organisms like earthworms that keep pests under control. Improper use of pesticides can kill these beneficial organisms.


By following this preventive health care program for your lawn, you should be able to rely **very little, if at all**, on chemical pesticides for weed and insect pest control. For additional information, refer to EPA's booklet *Healthy Lawn, Healthy Environment*. (See page 42 in the Reference Section.)



If you use the preventive techniques just described, you reduce the chance of pests ever getting into your home or garden in the first place.



Using Non-Chemical Pest Controls

 **YOU'VE GOT PESTS**, and you want to control them with a dependable pest control method that does not contain chemical pesticides. Non-chemical pest control methods really work, and they have many advantages. Compared to chemical treatments, non-chemical methods are generally effective for longer periods of time. They are less likely to create hardy pest populations that develop the ability to resist pesticides. And many non-chemical pest controls can be used with fewer safeguards, because they are generally thought to pose virtually no hazards to human health or the environment. Two examples of non-chemical pest control methods are biological and manual treatments.

Biological Controls

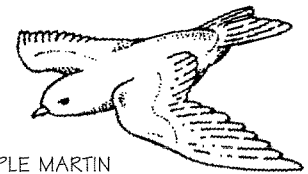
Did you know that pests themselves may be eaten or otherwise controlled by birds, insects, or other living organisms? You can use a pest's natural enemies (predators) to your advantage. These "biological controls," as they are called, take many forms:

- ◆ **Beneficial predators** such as purple martins and other birds eat insects; bats can eat thousands of insects in one night; lady beetles (ladybugs) and their larvae eat aphids, mealybugs, whiteflies, and mites. Other beneficial bugs include spiders, centipedes, ground beetles, lacewings, dragonflies, big-eyed bugs, and ants. You can install a purple martin house in your yard. You can also buy and release predatory insects. They are available from sources such as gardening catalogs and magazines.

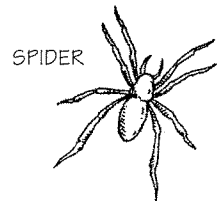
Contact your County Cooperative Extension Service, a nursery, or a garden association for information on how to attract and protect beneficial predators.

- ◆ **Parasitoids** such as miniature wasps lay their eggs inside the eggs or bodies of insect pests such as tomato hornworms. Once the eggs hatch, the offspring kill their insect hosts, making parasitoids highly effective pest controllers.

Beneficial Predators



PURPLE MARTIN



SPIDER



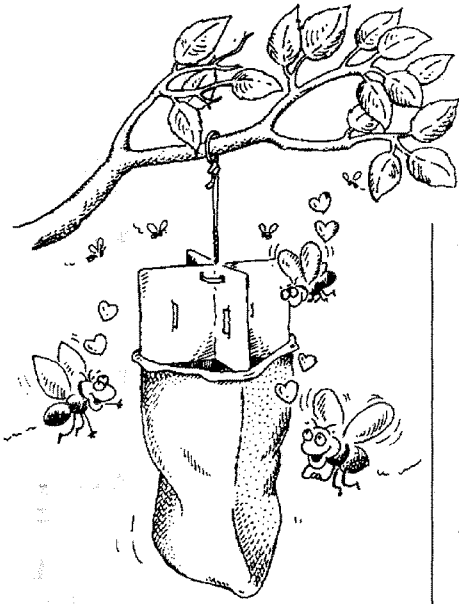
LADYBUG



CENTIPEDE

MINI-WASP





Pheromone traps lure pests.


- ◆ **Microscopic pathogens** such as fungi, bacteria, and viruses control pests. An example is milky spore disease, which attacks Japanese beetles. A number of these biological pesticides are available commercially at hardware and garden stores. (See page 43 in the Reference Section for more information.)
- ◆ **Biochemical pesticides** include pheromones and juvenile insect hormones. Pheromones are chemical substances released by various organisms (including insects) as means of communicating with others of the same species, usually as an aid to mating. Pheromones lure pests inside a trap. Juvenile insect hormones interfere with an insect's normal growth and reproductive functions by mimicking the effects of compounds that occur naturally in the pest.

Manual Methods

- ◆ Spading and hoeing to cut up weeds.
- ◆ Hand-picking weeds from your lawn and pests from your plants, indoors or out.
- ◆ Using a flyswatter.
- ◆ Setting traps to control rats, mice, and some insects.
- ◆ Mulching to reduce weed growth.

One or a combination of several non-chemical treatments may be just what you need for your pest problem. You must be patient because results may not be immediate. And, you must work to prevent pests from entering your home or garden in the first place.

Using Chemical Pest Controls

 **IF YOU DECIDE** that the best solution to your pest problem is chemical—by itself or, preferably, combined with non-chemical treatments—be aware that one of the greatest causes of pesticide exposure to humans is the use of pesticides in and around the home.

Anyone can buy a wide variety of “off the shelf” pesticide products to control weeds, unwanted insects, and other pests. No special training is required to use these pesticides. Yet many of the products can be hazardous to people, especially when stored, handled, applied, or disposed of improperly. **The results achieved by using chemical pesticides are generally temporary, and repeated treatments may be required.** Over time, some pests become pesticide-resistant, meaning they adapt to the chemical and are no longer harmed by it. This forces you to choose another product or method. If used incorrectly, home-use pesticide products can be poisonous to humans. As a result, it is extremely important for you to take responsibility for making sure that these products are used properly. The basic steps in reducing pesticide risks are—

- ◆ Choosing the right pesticide product.
- ◆ Reading the product label.
- ◆ Determining the right amount to purchase and use.
- ◆ Using the product safely and correctly.
- ◆ Storing and disposing of pesticides properly.

Each of these steps is described in more detail in the sections that follow.



Choosing the right product is a basic step in reducing pesticide risks.

Choosing the Right Pesticide Product

Once you decide to use chemical pesticides, you must decide whether to do the job yourself or hire a professional pest control service. If you are interested in hiring professionals, see pages 36–38 for advice. If you choose to tackle the job yourself, the next question is the most important. Which pesticide product is the best one for your situation?

Home-use pesticides come in many forms—including solutions, aerosols, dusts, granules, baits, and wettable powders. As the name implies, wettable powders are usually mixed with water and/or other liquids and then applied. Pesticide solutions are often diluted with water. Certain formulations work better for some pests and/or some target areas than others. Many pesticides also come in ready-to-use forms, such as aerosols and spray bottles, which are often more practical and easy to use because they don't require measuring or mixing.

Before you buy a product, read the label! Compare product labels, and learn as much as you can about the pesticide. Contact your County Cooperative Extension Service (listed in the telephone book), local pesticide dealers, the National Pesticide Telecommunications Network (NPTN) at 1-800-858-7378, or your state pesticide agency for assistance. (See pages 45–48 in the Reference Section for state contacts.)



Read the label before you buy or use a pesticide product.

When you are ready to buy a pesticide product, follow these recommendations:

- ◆ First, be certain that you have identified the problem correctly. Then, choose the least toxic pesticide that will achieve the results you want **and** be the least toxic to you and the environment.
- ◆ When the words “broad-spectrum” appear on the label, this means the product is effective against a broad range of pests. If the label says “selective,” the product is effective against one or a few pests.
- ◆ Find the signal word—either *Danger-Poison*, *Danger*, *Warning*, or *Caution* on the pesticide label. The signal word tells you how poisonous the product is to humans. (See page 16.)

Pesticide products labeled *Danger-Poison* are “Restricted Use” and are mainly used under the supervision of a certified applicator. For the most part, these products **should not** be available for sale to the consumer.

- ◆ Choose the form of pesticide (aerosol, dust, bait, or other) best suited to your target site and the pest you want to control.



Choose the form of pesticide best suited to your target site and the pest you want to control.



DANGER-POISON means highly poisonous.

DANGER means poisonous or corrosive.

WARNING means moderately hazardous.

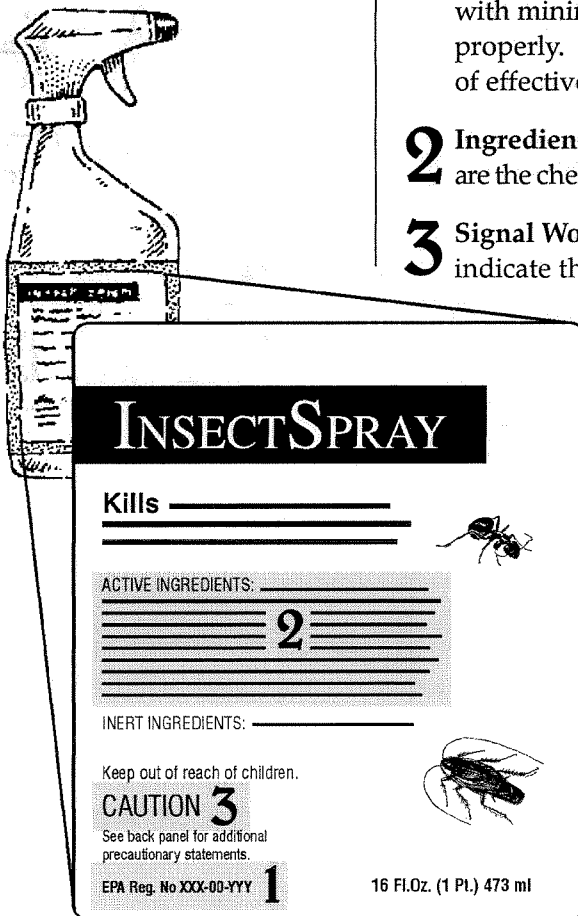
CAUTION means least hazardous.

Reading the Pesticide Label

The pesticide label is your best guide to using pesticides safely and effectively. The directions on the label are there primarily to help you achieve “maximum” benefits—the pest control that you desire—with “minimum” risk. Both depend on following label directions and correctly using the pesticide. *Read the label.* Read the label *before buying* the pesticide. Read the label *before mixing or using* the pesticide *each time*, and read the label before storing or disposing of the pesticide. Do not trust your memory. You may have forgotten part of the label instructions or they may have changed. Use of any pesticide in any way that is not consistent with label directions and precautions is illegal. It may also be ineffective and, even worse, dangerous.

The main sections of a pesticide label are described below:

- 1 EPA Registration Number.** This number tells you that EPA has reviewed the product and determined that it can be used with minimal or low risk if you follow the directions on the label properly. The number is not a stamp of approval or guarantee of effectiveness.
- 2 Ingredients Statement or Active Ingredients.** Active ingredients are the chemicals in the pesticide that kill or control the target pest(s).
- 3 Signal Words.** The signal words—*Caution, Warning, or Danger*—indicate the pesticide’s potential for making you sick. The word *CAUTION* appears on pesticides that are the least harmful to you. A pesticide with the word *WARNING* is more poisonous than those with a *Caution* label. Pesticides with the word *DANGER* on the label are very poisonous or irritating. They should be used with extreme care because they can severely burn your skin and eyes.



Main sections on front label.

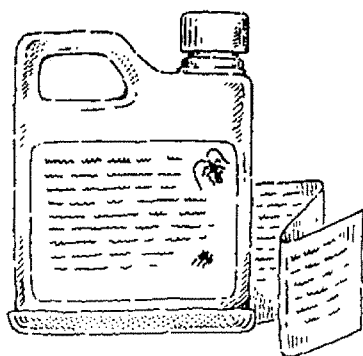
4 Precautionary Statements. This part describes the protective clothing, such as gloves or goggles, that you should wear when using the pesticide. The section also tells you how to protect children or pets by keeping them away from areas treated with pesticides.

5 Environmental Hazards. This section tells you if the product can cause environmental damage—if it's harmful to wildlife, fish, endangered plants or animals, wetlands, or water.

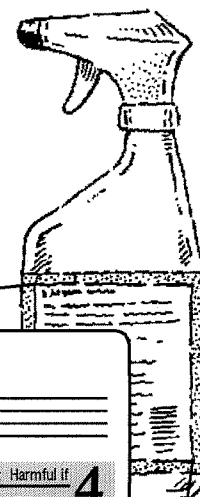
6 Directions for Use. Make sure that the product is labeled for use against the pest(s) that you are trying to control. (For example, products labeled only for termites should not be used to control fleas.) Use only the amounts recommended, and follow the directions exactly.

7 First Aid Instructions. The label tells you what to do if someone is accidentally poisoned by the pesticide. Look for this information in the *Statement of Practical Treatment* section. The instructions are only first aid. **ALWAYS** call a doctor or your local poison control center. You may have to take the person to a hospital right away after giving first aid. Remember to take the pesticide label or container with you.

8 Storage and Disposal. Read carefully and follow all directions for safe storage and disposal of pesticide products. Always keep products in the original container and out of reach of children, in a locked cabinet or locked garden shed.



Some pesticides have small foldout booklets containing the label information.



INSECTSPRAY
InsectSpray contains _____

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS—CAUTION: Harmful if _____ **4**

STATEMENT OF PRACTICAL TREATMENT (First Aid): _____ **7**

ENVIRONMENTAL HAZARDS: _____ **5**

PHYSICAL OR CHEMICAL HAZARDS: Keep away from _____

DIRECTIONS FOR USE: It is a violation of Federal law to use this product in a manner inconsistent with its labeling. _____ **6**

FOR USE ON: _____


KILLS: _____

STORAGE AND DISPOSAL:

Storage: _____ **8**

Disposal: _____

EPA Reg. No XXX-00-YYY
Distributed by INSECTSPRAY, INC.



67890
12845

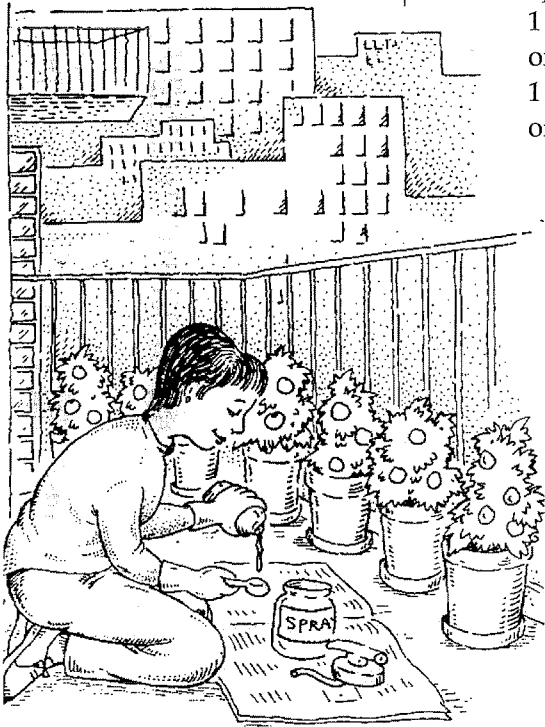
Main sections on back label.

Determining the Correct Amount To Use

Many products can be bought in a convenient ready-to-use form, such as in spray cans or spray bottles, that won't require any mixing. However, if you buy a product that has to be measured out or mixed with water, prepare only the amount of pesticide that you need for the area where you plan to use the pesticide (target area). The label on a pesticide product contains much useful information, but there isn't always room to include examples of different dilutions for every home use. Thus, it is important to know how to measure volume and figure out the exact size of the area where you want to apply the pesticide. Determining the correct amount for your immediate use requires some careful calculations. Use the following example as an illustration of how to prepare only the amount of pesticide needed for your immediate pest control problem.

An example: The product label says, "For the control of aphids on tomatoes, mix 8 fluid ounces of pesticide into 1 gallon of water and spray until foliage is wet." You have only 6 tomato plants. From experience, you know that 1 gallon is too much, and that you really need only 1 quart of water to wet the leaves on these 6 plants. A quart is only $\frac{1}{4}$ of a gallon. Because you want to use less water than the label says, you need less pesticide. You need only $\frac{1}{4}$ of the pesticide amount listed on the label—only 2 fluid ounces. This makes the same strength spray recommended by the label, and is the appropriate amount for the 6 tomato plants.

In short, all you need to do is figure the amount of pesticide you need for the size of your target area, using good measurements and careful arithmetic. For help in making these calculations, see pages 39–41 in the Reference Section.



When using pesticides that must be mixed, determine the correct amount for your immediate use.

Caution: When you use cups, teaspoons, or tablespoons to measure pesticides, use only **level** measures or level spoonfuls. **NEVER** use the same tools that you use for measuring pesticides—spoons, cups, bottles—to prepare food, even if you've washed them.

Using Pesticides Safely and Correctly

Once you have read the pesticide label and are familiar with all precautions, including first aid instructions, follow these recommendations to reduce your risks:

Before Using a Pesticide

- ◆ Wear the items of protective clothing the label requires: for example, long-sleeved shirts, long pants, overalls, non-absorbent gloves (not leather or fabric), rubber footwear (not canvas or leather), a hat, goggles, or a dust-mist filter. If no specific clothing is listed, gloves, long-sleeved shirts and long pants, and closed shoes are recommended. You can buy protective clothing and equipment at hardware stores or building supply stores.

When Mixing or Applying a Pesticide

- ◆ Never smoke or eat while mixing or applying pesticides. You could easily carry traces of the pesticide from your hands to your mouth. Also, some pesticide products are flammable.
- ◆ Follow the use directions on the label carefully. Use only for the purpose listed. Use only the amount directed, at the time and under the conditions specified. **Don't change the recommended amount.** Don't think that twice the amount will do twice the job. It won't. You could harm yourself, others, or whatever you are trying to protect.
- ◆ If the directions on the label tell you to mix or dilute the pesticide, do so outdoors or in a well-ventilated area. Use the amount listed on the label and measure the pesticide carefully. (Never use the same measuring cups or spoons that you use in the kitchen.) Mix only the amount that you need for each application. Do not prepare larger amounts to store for possible future use. (See "Determining the Correct Amount To Use" on page 18.)



When using a pesticide—

- ✓ Read and follow the label directions.
- ✓ Wear protective clothing.
- ✓ Don't smoke or eat.
- ✓ Mix and apply only the amount you need.





Mix pesticides outdoors or in a well-ventilated area.

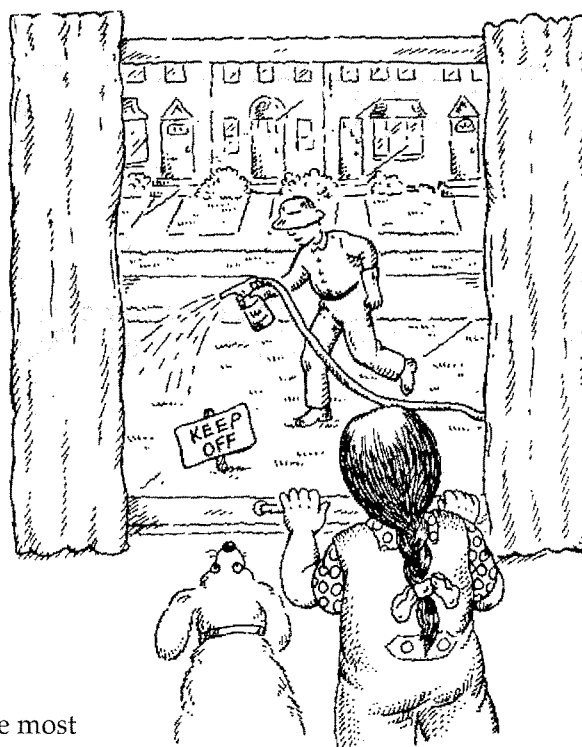
- ◆ Keep children, pets (including birds and fish), and toys (including pet toys) away from areas where you mix and apply pesticides for at least the length of time required on the label.
- ◆ **Never transfer pesticides to other containers**, such as empty soft drink or milk bottles. **Keep pesticides in their original containers**—ones that clearly identify the contents. Refasten all childproof caps tightly.
- ◆ If a spill occurs, clean it up promptly. Don't wash it away. Instead, sprinkle the spill with sawdust, vermiculite, or kitty litter. Sweep it into a plastic garbage bag, and dispose of it as directed on the pesticide product label.
- ◆ Indoors or outdoors, never put bait for insects or rats, mice, and other rodents where small children or pets can reach it. When using traps, make sure the animal inside is dead before you touch or open the trap.

Indoor Applications

- ◆ Use pesticides indoors only when absolutely necessary, and use only very limited amounts.
- ◆ Provide adequate ventilation. If the label directions permit, leave all windows open and fans operating after the application is completed. If the pesticide product is only effective in an unventilated (sealed) room or house, do not stay there. Put all pets outdoors, and take yourself and your family away from treated areas for **at least** the length of time prescribed on the label.
- ◆ Apply most surface sprays only to limited areas such as cracks; don't treat entire floors, walls, or ceilings.
- ◆ Remove food, pots and pans, and dishes before treating kitchen cabinets. Don't let pesticides get on any surfaces that are used for food preparation. Wait until shelves dry before refilling them. Wash any surfaces that may have pesticide residues before placing food on them.

Outdoor Applications

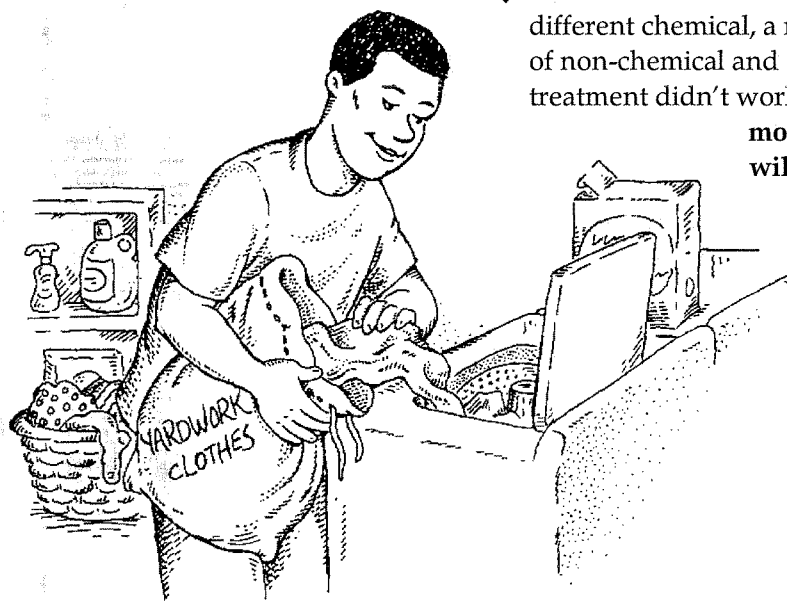
- ◆ Never apply pesticides outdoors on a windy day (winds higher than 10 mph). Position yourself so that a **light** breeze does not blow pesticide spray or dust into your face.
- ◆ Before spraying, close the doors and windows of your home.
- ◆ Use coarse droplet nozzles on your sprayer to reduce misting, and spray as close to the target as possible.
- ◆ Keep pesticides away from plants and wildlife you do not want to treat. Do not apply any pesticide to blooming plants, especially if you see honeybees or other pollinating insects around them. Do not spray bird nests when treating trees.
- ◆ Follow label directions carefully to ensure that you don't apply too much pesticide to your lawn, shrubs, or garden. Never water your lawn after applying pesticides. Before using a pesticide outdoors, check the label or contact your EPA Regional Office or County Cooperative Extension Service to find out whether the pesticide is known or suspected to run off or seep into ground water. Ground water is the underground reservoir that supplies water to wells, springs, creeks, and the like. Excessive application of pesticides could cause the pesticide to run off or seep into water supplies and contaminate them. Excess spray may also leave harmful residues on your home-grown fruit and vegetables, and could affect other plants, wildlife, and fish.
- ◆ Never mix or apply a pesticide near a wellhead.
- ◆ If you have a well, be sure it extends downward to water sources that are below, and isolated from, surface water sources. Be sure the well shaft is tightly sealed. For further information, see EPA's brochure *Pesticides in Drinking Water Wells*. (See page 42 for information on how to order a copy from EPA's Public Information Center.)
- ◆ When using total release foggers to control pests, the most important precautions you can take are to use no more than the amount needed and to keep foggers away from ignition sources (ovens, stoves, air conditioners, space heaters, and water heaters, for example). Foggers should not be used in small, enclosed places such as closets and cabinets or under tables and counters.



Keep children and pets away from areas where you apply pesticides.

After Applying a Pesticide, Indoors or Outdoors

- ◆ To remove pesticide residues, use a bucket to **rinse** tools or equipment **three times**, including any containers or utensils that you used when mixing the pesticide. Then pour the rinsewater into the pesticide sprayer and reuse the solution by applying it according to the pesticide product label directions. (See pages 24–25 for safe disposal guidelines.)
- ◆ Always wash your hands after applying any pesticide. Wash any other parts of your body that may have come in contact with the pesticide. To prevent tracking pesticides inside, remove or rinse your boots or shoes before entering your home. Wash any clothes that have been exposed to a lot of pesticide separately from your regular wash.
- ◆ Evaluate the results of your pesticide use. Consider using a different chemical, a non-chemical method, or a combination of non-chemical and chemical methods if the chemical treatment didn't work. Again, **do not assume** that using **more** pesticide than the label recommends **will do a better job**. It won't.



- ◆ Watch for negative effects on wildlife (birds, butterflies, and bees) in and near treated areas. If you see any unusual behavior, stop using that pesticide, and contact EPA's Pesticide Incident Response Officer (see page 35).

Wash clothing worn when using pesticides separately from other laundry.

Storing and Disposing of Pesticides Properly

Improper pesticide storage and disposal can be hazardous to human health and the environment. Follow these safety recommendations:

Safe Storage of Pesticides

- ◆ Don't stockpile. Reduce storage needs by buying only the amount of pesticide that you will need in the near future or during the current season when the pest is active.
- ◆ Follow all storage instructions on the pesticide label.
- ◆ Store pesticides high enough so that they are out of reach of children and pets. Keep all pesticides in a locked cabinet in a well-ventilated utility area or garden shed.
- ◆ Store flammable liquids outside your living area and far away from an ignition source such as a furnace, a car, an outdoor grill, or a power lawn mower.
- ◆ Never store pesticides in cabinets with or near food, animal feed, or medical supplies.
- ◆ Always store pesticides in their original containers, complete with labels that list ingredients, directions for use, and first aid steps in case of accidental poisoning.
- ◆ *Never* transfer pesticides to soft drink bottles or other containers. Children or others may mistake them for something to eat or drink.
- ◆ Use child-resistant packaging correctly—close the container tightly after using the product. Child resistant does not mean child proof, so you still must be extra careful to store properly—out of children's reach—those products that are sold in child-resistant packaging.
- ◆ Do not store pesticides in places where flooding is possible or in places where they might spill or leak into wells, drains, ground water, or surface water.
- ◆ If you can't identify the contents of the container, or if you can't tell how old the contents are, follow the advice on safe disposal in the next section.

Store pesticides in a locked cabinet out of reach of children and pets.



***Never* transfer pesticides to soft drink bottles or other containers that children or others may mistake for something to eat or drink.**



Safe Disposal of Pesticides

- ◆ The best way to dispose of small amounts of excess pesticides is to use them—apply them—according to the directions on the label. If you cannot use them, ask your neighbors whether they have a similar pest control problem and can use them.
- ◆ If all of the remaining pesticide cannot be properly used, check with your local solid waste management authority, environmental agency, or health department to find out whether your community has a household hazardous waste collection program or a similar program for getting rid of unwanted, leftover pesticides. These authorities can also inform you of any local requirements for pesticide waste disposal.
- ◆ **State and local laws regarding pesticide disposal may be stricter than the Federal requirements on the label.** Be sure to check with your state or local agencies before disposing of your pesticide containers.



Do not pour leftover pesticides down the sink, into the toilet, or down a sewer or street drain.

- ◆ If no community program or guidance exists, follow the label directions for disposal. In general, to dispose of less than a full container of a **liquid** pesticide, leave it in the original container with the cap tightly in place to prevent spills or leaks. Wrap the container in several layers of newspaper and tie it securely. Put the package in a covered trash can for routine collection with municipal trash. If you do not have a regular trash collection service, take the package to a permitted landfill (unless your town has other requirements).

Note: No more than 1 gallon of liquid pesticide at a time should be thrown out with the regular trash in this manner.

- ◆ Wrap individual packages of **dry** pesticides in several layers of newspaper (or place the pesticides in a tight carton or bag), and tape or tie the package closed. Put the package in a covered trash can for routine collection.

Note: No more than 5 pounds of dry pesticide at a time should be thrown out with the regular trash in this manner.

- ◆ Do **not** pour leftover pesticides down the sink, into the toilet, or down a sewer or street drain. Pesticides may interfere with the operation of wastewater treatment systems or pollute waterways. Many municipal systems are not equipped to remove all pesticide residues. If pesticides reach waterways, they may harm fish, plants, and other living things.
- ◆ An empty pesticide container can be as hazardous as a full one because of residues left inside. **Never reuse such a container.** When empty, a pesticide container should be rinsed carefully **three times** and the rinsewater thoroughly drained back into the sprayer or the container previously used to mix the pesticide. Use the rinsewater as a pesticide, following label directions. Replace the cap or closure securely. Dispose of the container according to label instructions. Do **not** puncture or burn a pressurized container like an aerosol—it could explode. Do not cut or puncture other empty pesticide containers made of metal or plastic to prevent someone from reusing them. Wrap the empty container and put it in the trash **after** you have rinsed it.
- ◆ Many communities have programs to recycle household waste such as empty bottles and cans. Do not recycle any pesticide containers, however, unless the label specifically states that the empty container may be recycled after cleaning.



Follow the label directions for disposal.

Reducing Your Exposure When Others Use Pesticides



EVEN IF YOU NEVER USE PESTICIDES YOURSELF, you can still be exposed to them—at home, school, work, or play—by being in treated areas, as a consumer of commodities that others have treated with pesticides, or through food, water, and air that may have been contaminated with pesticides.

This section describes sources of exposure other than your own use of pesticides. It also suggests ways to reduce your overall exposure. If you know or suspect that you, or others close to you, are sensitive to chemicals, consult an expert who can help you develop a strategy for handling your potential exposure problems.

Exposure Through Food

Commercial Food

To ensure a safe food supply, EPA regulates the safety of food by setting safety standards to limit the amount of pesticide residues that legally may remain in or on food or animal feed that is sold in the United States. Both domestic and imported foods are monitored by the Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) to ensure compliance with these safety standards.

Because most crops are treated with pesticides at least some of the time, foods you buy at the grocery store may contain small traces of pesticide residues. Pesticide levels tend to decline over time because the residues break down and because crops are usually washed and processed before reaching the marketplace. So, while we all consume small amounts of pesticides regularly, levels in our food generally are well below legal limits by the time the food reaches the grocery shelves.

Although EPA sets safety standards for the amount of pesticide residues allowed both in and on foods, you can take extra precautions to reduce the traces of pesticide residues you and your family consume in the food you buy. Follow these suggestions:

- ◆ Trim the fat from meat and poultry because residues of some pesticides concentrate in fat. Remove the skin from fish.
- ◆ Discard the fats and oils in broths and pan drippings.

- ◆ Rinse fruits and vegetables thoroughly with water. Scrub them with a brush and peel them, if possible. Taking these safety steps will remove most of the existing surface residues, along with any remaining dirt. Note that surface cleaning (rinsing and scrubbing) will not remove pesticide residues that are absorbed into the growing fruit or vegetable before harvest.
- ◆ Cook or bake foods to reduce residues of some pesticides even further.



Home-Grown Food

Growing your own food can be an enjoyable activity. It is also a way to reduce your exposure to pesticide residues in food—especially if you decide not to use chemical pesticides on your produce and you choose a garden site where drift or runoff from a neighbor’s use of pesticides will not result in unintended residues on your food. If your house is regularly treated for pest prevention, don’t plant your garden where the treatments are applied.

Rinse fruits and vegetables with water. Scrub them with a brush and peel them, if possible.

Food from the Wild

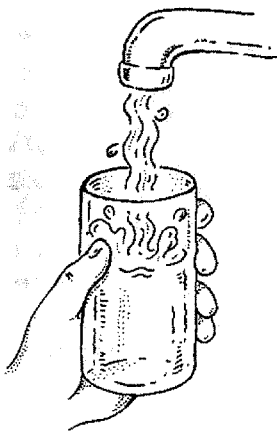
While it may seem that hunting your own game, catching your own fish, or gathering wild plant foods would reduce your overall exposure to pesticides, that isn’t necessarily true. If you eat wild animals or plants from areas where pesticides are frequently used, this food may contain pesticide residues. In addition, birds such as ducks and geese may absorb pesticide residues if they have stopped to eat treated crops anywhere along their flight path.

If you eat food from the wild, you may want to take the following steps to reduce your exposure to pesticides:

- ◆ Do not fish in water bodies where contamination has occurred. Pay attention to posted signs that warn of contamination.
- ◆ Consult with fish and game officials or other appropriate officials where you plan to hunt or fish to determine whether there are any chemical problems associated with the area.
- ◆ Do not pick wild plants that are growing right next to a road, utility right-of-way, or hedgerow between farm fields. These areas may have been treated with pesticides.
- ◆ When preparing wild foods, trim fat from the meat. Discard the skin from fish.



Do not fish in water bodies where contamination has occurred.



EPA sets standards for chemicals that may be found in drinking water.

Exposure Through Water

When pesticides are applied to land, a certain amount may run off into streams and rivers. This runoff, together with industrial waste, may result in low-level contamination of surface water. In certain settings—for example, when sandy soil lies over a ground-water source that is near the surface—pesticides can seep down through the soil to the ground water.

To ensure a safe supply of drinking water, EPA's Office of Water sets standards for pesticides and other chemicals that may be found in drinking water. Municipal water systems test their water periodically and provide treatment or alternate supply sources if residue problems occur. Generally, private wells are not tested unless the well owner requests an analysis. If you get your drinking water from a private well—

- ◆ Contact your state or local health department if you have any questions about pesticide or other chemical residues in your well water.
- ◆ If your well water is analyzed and found to contain pesticide residue levels above established or recommended health standards, use an alternate water source such as bottled water for drinking and cooking. The safest choice is distilled spring water in glass bottles. If you buy water from a local bottler, ask for the results of any recent pesticide analysis of the bottled water.

Exposure Through Air

Outdoors

Air currents may carry pesticides that were applied on properties nearby. You can reduce your exposure outdoors to airborne pesticide residues, or drift, by following these recommendations:

- ◆ If a close neighbor or someone else is applying pesticides outdoors near your home, you may want to stay indoors with your children and pets. Keep windows and exterior doors closed.
- ◆ If you live near fields, parks, or other areas that receive regular pesticide treatment, consider planting a group of hardy, thick-branched trees or shrubs to help serve as a buffer zone and windbreak.

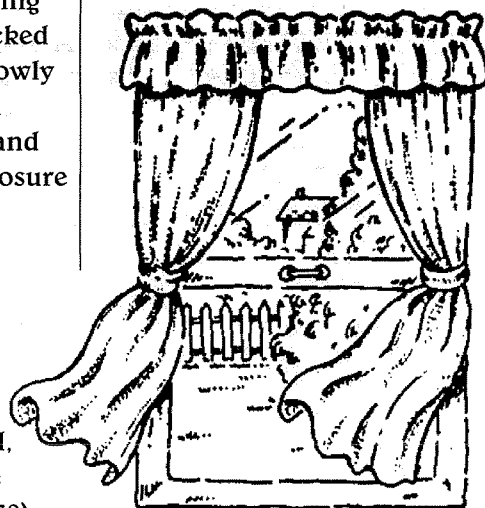
- ◆ Careless application can lead to drift or direct spraying of non-target sites. If your property is accidentally sprayed during an aerial pesticide application, you should call your local, state, or regional pesticide office. (See pages 44–48 in the Reference Section for phone numbers.) If you or someone in your family is accidentally sprayed, wash pesticide off immediately and change into clean clothes. Then call your local poison control center.

Some local governments require public notice before area-wide or broad-scale pesticide spraying activities take place. Affected residents are notified through newspaper announcements, fliers, letters, or signs posted in areas to be treated. Some communities have also enacted “right-to-know” ordinances that require public notice (usually through posting) of lawn treatments and other small-scale outdoor pesticide uses.

Indoors

The air you breathe may contain low levels of pesticide residues long after a pesticide has been applied to objects inside a building or to indoor surfaces and crawl spaces, or after it has been tracked in from outside. Pesticides break down and disappear more slowly indoors than outdoors. In addition, many homes have built-in energy efficiency features that reduce the exchange of indoor and outdoor air and thus aggravate the problem. To limit your exposure to indoor pesticide residues—

- ◆ Air out the building adequately after a pesticide is applied indoors. Open doors and windows, and run overhead, whole-house, or window fans to exchange indoor air for outdoor air rapidly and completely.
- ◆ If you suspect that the air in your building is contaminated, consult knowledgeable professionals in your local or state health department or EPA’s pesticide hotline (1-800-858-7378), 6:30 a.m.– 4:30 p.m. Pacific time (9:30 a.m.–7:30 p.m. Eastern time) Monday–Friday, for advice on the appropriate steps to take.



Air out the building adequately after a pesticide is applied indoors.

Poisoned by Pesticides: Don't Let This Happen to Your Child!

A 5-year-old boy drinks from a bottle of bleach that he found under the bathroom sink.

A 3-year-old girl tries to spray her hair the way mommy does, but sprays an aerosol disinfectant in her eyes instead.

A baby who has just begun to crawl eats green pebbles from behind the sofa. They look like candy, but are really rat poison.

Where do you store your pesticides?

A 1992 nationwide study conducted by EPA revealed that almost half (approximately 47 percent) of surveyed households with children under the age of 5 had at least one pesticide stored within their reach.

These accidents could happen to your children or to children visiting your home if you don't store pesticides out of their reach or if you don't read the label carefully before using the pesticide product.

The dangers are real. In 1993 alone, an estimated 80,000 children were exposed to or poisoned by a household pesticide product that was used or stored incorrectly.

Whether or not you have young children in your home, take the following precautions to protect all children from unintentional pesticide poisonings or exposures:

- ◆ Always store pesticides out of children's reach, in locked cabinet or garden shed. Installing child-proof safety latches or padlocks on cupboards and cabinets is a good idea. Safety latches are available at your local hardware store or building supply warehouse.
- ◆ Before applying pesticides—indoors or outdoors—remove children and their toys, along with any pets and their toys, from the area. Keep them away from the area that has been treated until the pesticide has dried and for at least the length of time recommended on the pesticide label.
- ◆ If you are interrupted while applying a pesticide—by a phone call, for example—be sure to close the pesticide container properly and put it out of reach of any child who may come into the area while you are gone.

- ◆ Never remove labels from containers, and never transfer pesticides to other containers. Children may mistake them for food or drink.
- ◆ Never put rodent or insect baits where small children can find them, pick them up, and put them in their mouths.
- ◆ Make sure you close any container marked “child resistant” very tightly after you use the product. Check periodically to make sure the product is securely closed. Child resistant does not mean child proof, so you should still be careful with products that are sold in child-resistant packaging.
- ◆ Make sure others—especially babysitters, grandparents, and other caregivers—know about the potential hazards of pesticides.
- ◆ Teach children that “pesticides are poisons”—something they should never touch or eat.
- ◆ Keep the telephone number of your nearest poison control center near each phone. Have the pesticide container handy when you call.
- ◆ Always keep Syrup of Ipecac on hand (in your medicine cabinet) to use to induce vomiting. (Be sure the date is current.) But do not give it to your child until a physician or poison control center advises you to do so. The pesticide label may not recommend using Syrup of Ipecac.



Store pesticides out of children's reach.

Handling a Pesticide Emergency

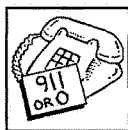
“Help! Someone’s Been Poisoned!” What To Do in a Pesticide Emergency



If the person is unconscious,
having trouble breathing,
or having convulsions . . .
ACT FAST! Speed is crucial.



Give needed first aid immediately.



Call 911 or your local emergency
service. If possible, have some-
one else call for emergency help
while you give first aid.



If the person is awake or conscious,
not having trouble breathing, and
not having convulsions . . .



Read the label for first aid
instructions.



Call a doctor, a poison control
center, a local emergency service
(911), or the National Pesticide
Telecommunications Network
(toll free at 1-800-858-7378).



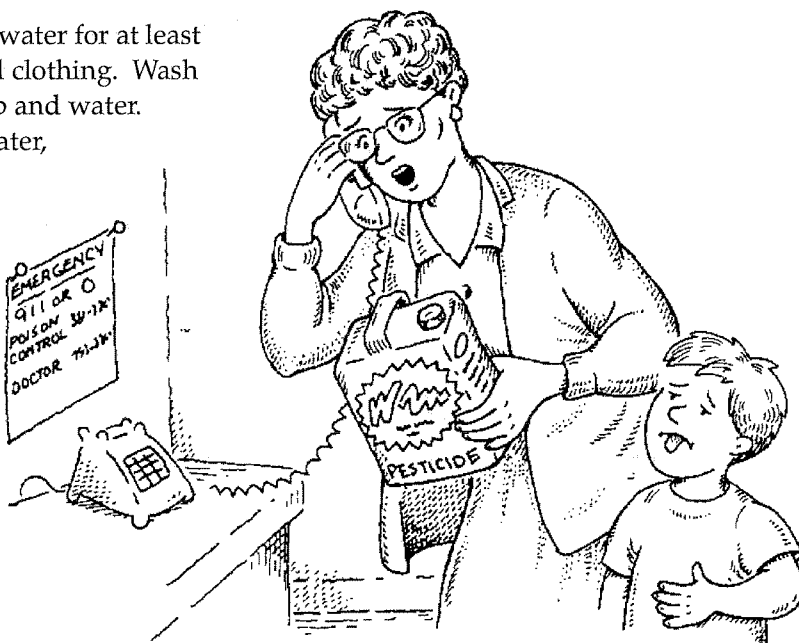
Give first aid.

First Aid for Pesticide Poisoning

When you realize a pesticide poisoning has occurred or is occurring, try to determine what the victim was exposed to and what part of the body was affected before you take action—taking **the right action** is as important as taking **immediate action**. If the person is unconscious, having trouble breathing, or having convulsions, **ACT FAST!** Speed is crucial. Give needed first aid immediately. Call 911 or your local emergency service. If possible, have someone else call for emergency help while you give first aid. If the person is awake or conscious, not having trouble breathing, and not having convulsions, read the label for first aid instructions. Call a doctor, a poison control center, a local emergency service (911), or the National Pesticide Telecommunications Network (toll free at 1-800-858-7378). Give first aid.

Read the *Statement of Practical Treatment* section on the product label. The appropriate first aid treatment depends on the kind of poisoning that has occurred. Follow these general guidelines:

- ◆ **Swallowed poison.** A conscious victim should drink a small amount of water to dilute the pesticide. Always keep Syrup of Ipecac on hand (in your medicine cabinet) to use to induce vomiting. Be sure the date on the bottle is current. Induce vomiting **only** if a poison control center or physician advises you to do so, or if instructions on the pesticide label say so. If there is no label available to guide you, do **not** induce vomiting. Never induce vomiting if the victim is unconscious or is having convulsions.
- ◆ **Poison on skin.** Drench skin with water for at least 15 minutes. Remove contaminated clothing. Wash skin and hair thoroughly with soap and water. Dry victim and wrap in blanket. Later, discard contaminated clothing or thoroughly wash it separately from other laundry.
- ◆ **Chemical burn on skin.** Drench skin with water for at least 15 minutes. Remove contaminated clothing. Cover burned area immediately with loose, clean, soft cloth. Do not apply ointments, greases, powders, or other drugs. Later, discard contaminated clothing or thoroughly wash it separately from other laundry.



If a poisoning has occurred, call for help, and be ready to read information from the pesticide label.

- ◆ **Poison in eye.** Hold eyelid open and wash eye quickly and gently with clean cool running water from the tap or a hose for 15 minutes or more. Use only water; do not use eye drops, chemicals, or drugs in the eye. Eye membranes absorb pesticides faster than any other external part of the body, and eye damage can occur in a few minutes with some types of pesticides.
- ◆ **Inhaled poison.** If the victim is outside, move or carry the victim away from the area where pesticides were recently applied. If the victim is inside, carry or move the victim to fresh air immediately. If you think you need protection like a respirator before helping the victim, call the Fire Department and wait for emergency equipment before entering the area. Loosen the victim's tight clothing. If the victim's skin is blue or the victim has stopped breathing, give artificial respiration (if you know how) and call 911 for help. Open doors and windows so no one else will be poisoned by fumes.

What To Do After First Aid

- ◆ First aid may precede but should not replace professional medical treatment. After giving first aid, call 911 or your local emergency service immediately. Have the pesticide label at hand when you call.
- ◆ Take the pesticide product container **with its label** to the doctor's office or emergency room where the victim will be treated. Carry the container in your trunk or flatbed away from the passengers in your vehicle. The doctor needs to know what active ingredient is in the pesticide before prescribing treatment. This information is on the label, which sometimes also includes a telephone number to call for additional treatment information.

Another good resource in a pesticide emergency is NPTN, the National Pesticide Telecommunications Network, a toll-free telephone service that operates Monday through Friday, from 6:30 a.m.– 4:30 p.m. Pacific time (9:30 a.m.– 7:30 p.m. Eastern time). NPTN provides information on pesticides and how to recognize and respond to pesticide poisonings. If necessary, staff at NPTN can transfer your call directly to a local poison control center. Call NPTN toll free at 1-800-858-7378.

**National Pesticide
Telecommunications Network
(NPTN)**

Call Toll Free 1-800-858-7378



NPTN staff answer questions about animal poisonings, too. To keep your pets from being poisoned, follow label directions on flea and tick products carefully. If you are concerned about the chemicals used in these products, consult your veterinarian.

How To Recognize Pesticide Poisoning

External irritants that contact skin may cause skin damage such as redness, itching, or pimples. External irritants may also cause an allergic skin reaction that produces redness, swelling, or blistering. The mucous membranes of the eyes, nose, mouth, and throat are also quite sensitive to chemicals. Pesticide exposure may cause stinging and swelling in these membranes.

Internal injuries also may occur if a pesticide is swallowed, inhaled, or absorbed through the skin. Symptoms vary from organ to organ. Lung injury may result in shortness of breath, drooling (heavy salivation), or rapid breathing. Direct injury to the stomach and intestines may produce nausea, vomiting, abdominal cramps, or diarrhea. Injury to the nervous system may cause excessive fatigue, sleepiness, headache, muscle twitching, and numbness. In general, different types of pesticides produce different sets of symptoms.

If someone develops symptoms after working with pesticides, seek medical help immediately to determine if the symptoms are pesticide related. In certain cases, blood or urine should be collected for analysis, or other specific exposure tests can be made. **It is better to be too cautious than too late.**

Avoid potential health problems by minimizing your exposure to pesticides. Follow all the safety recommendations on pages 19–25.

EPA wants to know about any adverse effects associated with pesticide exposure. If you have such information, contact—

Pesticide Incident Response Officer
Office of Pesticide Programs (7506C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Choosing a Pest Control Company



IF YOU HAVE a pest control problem that you do not want to handle on your own, you may decide to turn to a professional applicator. How can you be sure that the pest control company you hire will do a good job? Before you choose a company, get answers to these questions:

1 Is the company licensed?

Most state or local agencies issue state pest control licenses.

Make sure the pest control operator's licence is **current** if one is required in your state. Also, ask if the company's **employees are bonded**, meaning that the company reimburses you for any loss or damage caused by the employee.

You may want to contact your state pesticide agency to find out about its pesticide certification and training programs and to ask whether periodic recertification is required for pest control operators. (See pages 45–48 for addresses and phone numbers.)

In addition, possession of a city license—where they are issued—is one more assurance that the company you are dealing with is reputable and responsible.

2 Is the company willing and able to discuss the treatment proposed for your home?

Selecting a pest control service is just as important as selecting other professional services. Look for the same high degree of competence you would expect from a doctor or lawyer. Any company, including those advertising themselves as “green,” should inspect your premises and outline a recommended control program, including the—

- ◆ Pests to be controlled.
- ◆ Extent of the problem.
- ◆ Active ingredient(s) in the pesticide chosen.
- ◆ Potential adverse health effects and typical symptoms of poisoning associated with the active ingredient.
- ◆ Form of the pesticide and application techniques.
- ◆ Non-chemical alternatives available.

- ◆ Special instructions to reduce your exposure to the pesticide (such as vacating the house, emptying the cupboards, and removing pets).
- ◆ Steps to take to minimize your pest problems in the future.

3 Does the company have a good track record?

Don't rely on the company salesperson to answer this question. Research the answer yourself. Ask neighbors and friends if they have ever dealt with the company. Were they satisfied with the service they received? Call the Better Business Bureau or local consumer office and find out if they have received complaints about the company.

4 Does the company have appropriate insurance? Can the salesperson show proof on paper that the company is insured?

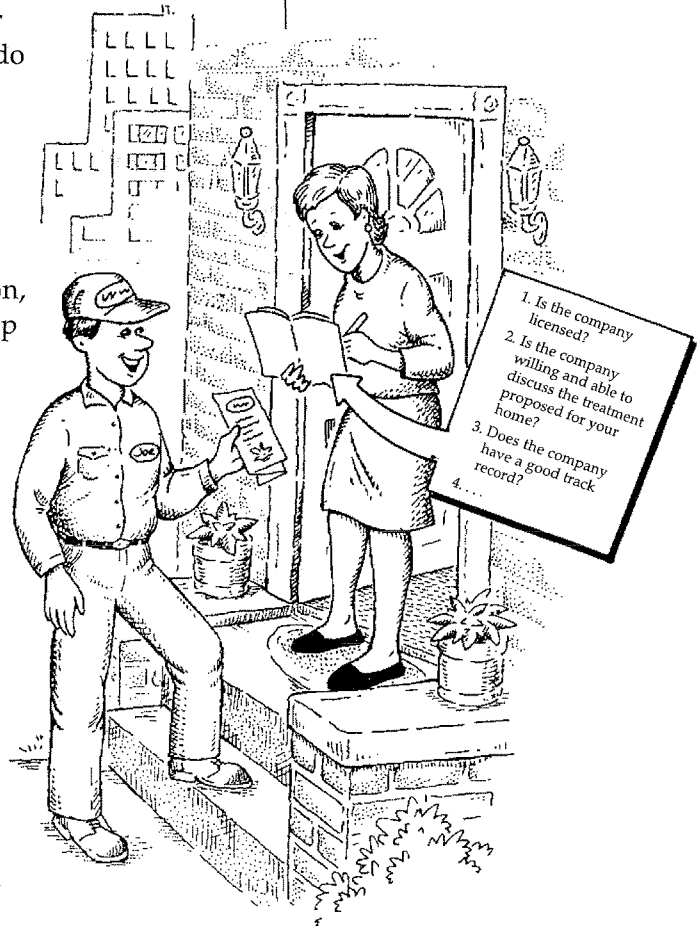
Most contractors carry general liability insurance, including insurance for sudden and accidental pollution. Their insurance gives you a certain degree of protection should an accident occur while pesticides are being applied in your home. Contractors may also carry workmen's compensation insurance, which can help protect you should one of their employees be injured while working in or around your apartment or house. Although most states do not require pest control companies to buy insurance, you should **think twice** before hiring a company that is not insured.

5 Does the company guarantee its work?

You should be skeptical about a company that does not guarantee its work. In addition, be sure to find out what you must do to keep your part of the bargain. For example, in the case of termite control treatments, the company's guarantee may become invalid if you make structural alterations to your home without giving prior notice to the pest control company.

6 Is the company affiliated with a professional pest control association?

Professional associations—national, state, or local—keep members informed of new developments in pest control methods, safety, training, research, and regulations. Members agree to honor a code of ethics. The fact that a company, small or large, chooses to join a professional association signals its concern for quality.



Ask questions before choosing a pesticide company.

You and the company of your choice should develop the contract together. Your safety concerns should be noted and reflected in the choice of pesticides to be used. These concerns may include allergies, sensitivities, age of occupants (infants or elderly), resident pets, and treatment near wildlife and fish. Wise consumers get bids from two or three companies and look at value more than price. What appears to be a bargain may warrant a second look.

If you hire a pest control firm to do the job, ask the company to use the least toxic chemical method available that will do the job. Ask to see the label or Material Safety Data Sheet, which will show precautionary warnings.

Hiring a company to take care of your pest problem does not mean your job is over. You must evaluate the results. If you believe something has gone wrong with the pesticide application, contact the company and/or your state pesticide agency. Be a responsible, wise consumer and keep asking questions until your pests are under control.

Reference Section

Calculating the Correct Amount of Pesticide To Use for Your Target Area

To determine the size of your target area outdoors (usually a square or rectangular part of your lawn or garden), measure each side and multiply the length times the width. For example, if you want to apply a pesticide in an area that is 15 feet long and 15 feet wide, multiply 15×15 to get a total of 225 square feet.

When you read the label for pesticides commonly applied outdoors, you will see measurements in square feet or in square yards. A section of lawn that is 1 yard long \times 1 yard wide has an area of 1 square yard. Because 1 yard = 3 feet, another way to calculate the same area is this: 3 feet long \times 3 feet wide = 9 square feet = 1 square yard.

To know the size of your target area indoors, you may need to determine the volume of a room. You must calculate the volume of a room, for instance, before using a bug bomb (aerosol release) to control cockroaches or fleas. In a case like this, measure and multiply the room's length times width times height. For example, if the kitchen in your apartment is 6 feet long, 5 feet wide, and 8 feet high, its volume is 240 cubic feet ($6 \times 5 = 30 \times 8 = 240$).

Tables 1 to 3 (on pages 40–41) give examples for changing measurements you find on the pesticide label to match your specific target area and pest problem.



For most pesticide uses in and around the home, you need to know some common ways to measure volume and some common abbreviations:

1 gallon (gal.)	= 16 cups
	= 8 pints (pt.)
	= 4 quarts (qt.)
	= 128 fluid ounces (fl. oz.)
1 quart (qt.)	= 4 cups
	= 2 pt.
	= 32 fl. oz.
1 pint (pt.)	= 2 cups
	= 16 fl. oz.
1 cup	= 8 fl. oz.
1 tablespoon	= 3 teaspoons
	= ½ fl. oz.
1 teaspoon	= ⅓ fl. oz.
1 sq. yard	= 9 square feet = 3 ft. long \times 3 ft. wide



Not all amounts are included in the tables. For amounts not included, use the following notes as a guide:

- ◆ To figure the amount of a ready-to-use pesticide (**not** to be diluted with water), you must change the quantity of pesticide in the same way that you change the area/volume/number of items treated to keep the correct proportion.

For example—

$$\begin{array}{l} \frac{1}{2} \text{ lb. of pesticide} \\ \text{per 1,000 sq.ft.} \end{array} = \begin{array}{l} \frac{1}{4} \text{ lb. of pesticide} \\ \text{per 500 sq.ft.} \end{array}$$

- ◆ To figure the amount of a pesticide that **is to be** diluted with water, you must change the quantity of pesticide and the quantity of water in the same way that you change the area/volume/number of items treated to keep the correct proportion.

For example—

$$\begin{array}{l} 1 \text{ lb. of pesticide} \\ \text{in 2 gals. of water} \\ \text{per 2,000 sq.ft.} \end{array} = \begin{array}{l} \frac{1}{2} \text{ lb. of pesticide} \\ \text{in 1 gal. of water} \\ \text{per 1,000 sq.ft.} \end{array}$$

TABLE I — Diluting Pesticides with Water

Unit stands for any measure of pesticide quantity. Read across.

Pesticide Label Says:

Mix "x" Units of

Pesticide . . .

You mix . . .

8 units per 1 gal water	2 units per 1 qt water or	1 unit per 1 pt water
16 units per 1 gal water	4 units per 1 qt water or	2 units per 1 pt water
32 units per 1 gal water	8 units per 1 qt water or	4 units per 1 pt water
128 units per 1 gal water	32 units per 1 qt water or	16 units per 1 pt water

TABLE 2 — Measuring Pesticides for a Surface Application

Unit stands for any measure of pesticide quantity. Read across.

Pesticide Label Says: Apply "x" Units of Pesticide . . .	<i>Apply:</i>	<i>Your surface measures . . .</i>		
		20,000 sq.ft.	10,000 sq.ft.	500 sq.ft.
1 unit <i>per</i> 1,000 sq.ft.		20 units	10 units	½ unit
2 units <i>per</i> 1,000 sq.ft.		40 units	20 units	1 unit
5 units <i>per</i> 1,000 sq.ft.		100 units	50 units	2½ units
10 units <i>per</i> 1,000 sq.ft.		200 units	100 units	5 units

TABLE 3 — Buying Pesticides for a Room Application

Read across.

Pesticide Label Says: Release One Aerosol Can . . .	<i>Use:</i>	<i>Your room measures . . .</i>		
		20,000 cu.ft.	10,000 cu.ft.	5,000 cu.ft.
1 <i>per</i> 10,000 cu.ft.		2 cans	1 can	don't use
1 <i>per</i> 5,000 cu.ft.		4 cans	2 cans	1 can
1 <i>per</i> 2,500 cu.ft.		8 cans	4 cans	2 cans

You may need to measure quantities of pesticides that are too small to be measured accurately with common measuring tools available at home. In this case, you should—

- ✓ Search for another pesticide product or a less concentrated form of the same pesticide.
- ✓ Find a more accurate measuring device, such as a graduated cylinder or a scale that measures small weights.

For More Information

For additional copies of this booklet, or for more information on subjects discussed in this booklet, contact—

EPA's Public Information Center (PIC), 401 M Street, SW, Washington, DC 20460 (Telephone: 202-260-2080); or the National Center for Environmental Publications and Information (NCEPI), P.O. Box 42419, Cincinnati, OH 45242-2419 (Telephone: 513-489-8190 or Fax: 513-489-8695).

PIC and NCEPI have the following free information available:

- ◆ *Healthy Lawn, Healthy Environment* (EPA 700-K-92-005).
- ◆ *Pesticides in Drinking Water Wells* (EPA 20T-1004).
- ◆ *Pest Control in the School Environment: Adopting Integrated Pest Management* (EPA 735-F-93-012).
- ◆ *Pesticides and Child Safety* fact sheet (English and Spanish) (EPA 735-F-93-050 and EPA 735-F-93-051).
- ◆ *Using Insect Repellents Safely* fact sheet (English and Spanish).
- ◆ *Safety Precautions for Total Release Foggers* fact sheet.
- ◆ NCEPI also has EPA's *National Publications Catalog 1995* (EPA 703-B-95-001) and the *Catalog of Office of Pesticide Programs (OPP) Publications and Other Information Media* (EPA 730-B-94-001).

Other sources for information about pesticides and pest control include—

- ◆ The National Pesticide Telecommunications Network (NPTN)—1-800-858-7378 (general public), 6:30 a.m.–4:30 p.m. Pacific time (9:30 a.m.–7:30 p.m. Eastern time) Monday–Friday. NPTN provides the following information:
 - ◆ Pesticide information.
 - ◆ Information on recognizing and managing pesticide poisonings.
 - ◆ Safety information.
 - ◆ Health and environmental effects.
 - ◆ Referrals for investigation of pesticide incidents and emergency treatment information.
 - ◆ Cleanup and disposal procedures, and much more.

- ◆ County Cooperative Extension Service offices are usually listed in the telephone directory under county or state government; these offices often have a range of resources on lawn care and landscape maintenance, including plant selection, pest control, and soil testing.
- ◆ State agriculture and environmental agencies may publish information on pests, pest management strategies, and state pesticide regulations. (See state contacts on pages 45–48.)
- ◆ Libraries, bookstores, and garden centers usually have a wide selection of books that identify various pests and discuss lawn care. Garden centers may also have telephone hotlines or experts available on the premises to answer gardening questions.
- ◆ The California Department of Pesticide Regulation's Environmental Monitoring and Pest Management Branch publishes a booklet on mail order sources of biological control organisms. Single free copies of *Suppliers of Beneficial Organisms in North America* are available by writing the Department at 1020 N Street, Room 161, Sacramento, CA 95814-5624. Telephone: 916-324-4100.
- ◆ Bio-Integral Resource Center (BIRC), a non-profit organization formed in 1978 through an EPA grant, has information on least toxic methods for pest management. Write to P.O. Box 7414, Berkeley, CA 94707.

EPA Addresses

Headquarters

U.S. Environmental Protection Agency
Office of Pesticide Programs (7506C)
401 M Street, SW
Washington, DC 20460
Telephone: (703) 305-5017
Fax: (703) 305-5558

EPA Regional Offices

U.S. EPA, Region 1
Air, Pesticides and Toxic Management
Division
State Assistance Office (ASO)
1 Congress Street
Boston, MA 02203
Telephone: (617) 565-3932
Fax: (617) 565-4939

U.S. EPA, Region 2
Building 10 (MS-105)
Pesticides and Toxics Branch
2890 Woodbridge Avenue
Edison, NJ 08837-3679
Telephone: (908) 321-6765
Fax: (908) 321-6788

U.S. EPA, Region 3
Toxics and Pesticides Branch (3AT-30)
841 Chestnut Building
Philadelphia, PA 19107
Telephone: (215) 597-8598
Fax: (215) 597-3156

U.S. EPA, Region 4
Pesticides and Toxics Branch
(4-APT-MD)
345 Courtland Street, NE
Atlanta, GA 30365
Telephone: (404) 347-5201
Fax: (404) 347-5056

U.S. EPA, Region 5
Pesticides and Toxics Branch (SP-14J)
77 West Jackson Boulevard
Chicago, IL 60604
Telephone: (312) 886-6006
Fax: (312) 353-4342

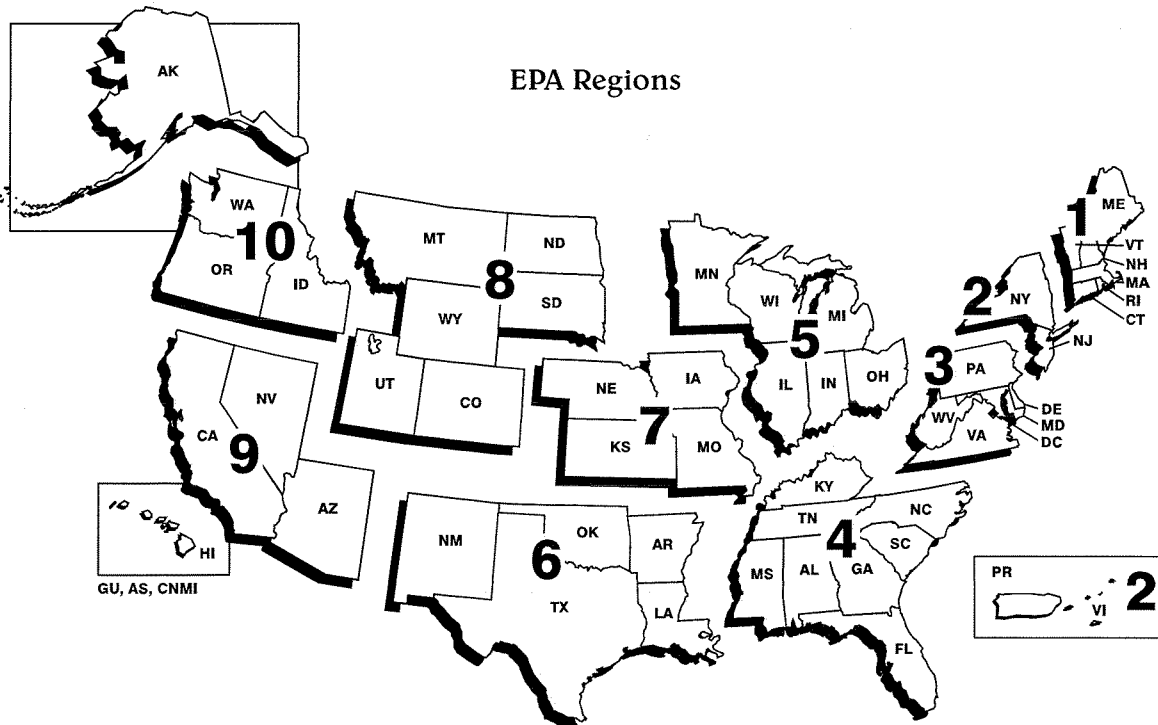
U.S. EPA, Region 6
Pesticides and Toxics Branch (6PD-P)
1445 Ross Avenue
Dallas, TX 75202-2733
Telephone: (214) 665-7240
Fax: (214) 665-7263

U.S. EPA, Region 7
Water, Wetlands and Pesticides Division
726 Minnesota Avenue
Kansas City, KS 66101
Telephone: (913) 551-7030
Fax: (913) 551-7065

U.S. EPA, Region 8
Air, Radiation and Toxics Division
(8ART)
One Denver Place, Suite 500
999 18th Street
Denver, CO 80202-2405
Telephone: (303) 293-1730
Fax: (303) 293-1229

U.S. EPA, Region 9
Pesticides and Toxics Branch (A-4)
75 Hawthorne Street
San Francisco, CA 94105
Telephone: (415) 744-1090
Fax: (415) 744-1073

U.S. EPA, Region 10
Pesticides and Toxics Branch (AT-083)
1200 Sixth Avenue
Seattle, WA 98101
Telephone: (206) 553-1091
Fax: (206) 553-8338



Addresses for State Pesticide Agencies

Region 1

Connecticut
 Director
 Pesticide Management Division
 Department of Environmental
 Protection
 79 Elm Street
 Hartford, CT 06106
 (203) 424-3369

Maine
 Director
 Board of Pesticide Control
 Maine Department of Agriculture
 State House Station #28
 Augusta, ME 04333
 (207) 287-2731

Massachusetts
 Chief
 Pesticides Bureau
 Massachusetts Department of Food
 and Agriculture
 100 Cambridge Street, 21st Floor
 Boston, MA 02202
 (617) 727-3000

New Hampshire
 Director
 Division of Pesticide Control
 New Hampshire Department of
 Agriculture, Markets and Food
 P.O. Box 2042
 Concord, NH 03302-2042
 (603) 271-3550

Rhode Island
 Chief
 Division of Agriculture
 Rhode Island Department of
 Environmental Management
 22 Hayes Street
 Providence, RI 02908
 (401) 277-2782

Vermont
 Director
 Plant Industry, Laboratory and
 Standards Division
 Vermont Department
 of Agriculture
 116 State Street
 Montpelier, VT 05602
 (802) 828-2431

Region 2

New Jersey
 Assistant Director
 Pesticide Control Program
 New Jersey Department of
 Environmental Protection
 CN 411
 Trenton, NJ 08625-0411
 (609) 530-4011

New York
 Chief
 Bureau of Pesticides and Radiation
 Division of Solid and Hazardous
 Materials Regulation
 New York Department of
 Environmental Conservation
 50 Wolf Road
 Albany, NY 12233-7254
 (518) 457-7482

Puerto Rico
 Director
 Analysis and Registration of
 Agricultural Materials
 Puerto Rico Department of Agriculture
 Agrological Laboratory
 P.O. Box 10163
 Santurce, PR 00908
 (809) 796-1735

Virgin Islands
 Pesticide Program Director
 8000 Nisky Center, Suite 231
 Estate Nisky, Charlotte Amalie
 St. Thomas, US VI 00802
 (809) 774-3320, ext. 135

Region 3

Delaware
 Deputy Secretary
 Delaware Department of Agriculture
 Division of Consumer Protection
 2320 South DuPont Highway
 Dover, DE 19901
 (302) 739-4811

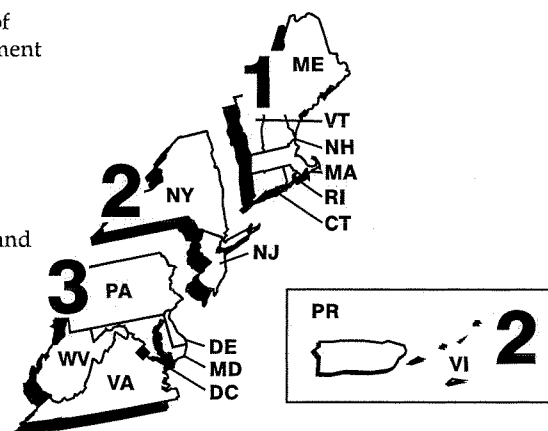
District of Columbia
 Program Manager
 Pesticide Hazardous Waste and
 Underground Storage Tank Division
 Environmental Regulation
 Administration
 Department of Consumer and
 Regulatory Affairs
 2100 Martin Luther King, Jr.
 Avenue, SE, Room 203
 Washington, DC 20020
 (202) 645-6080

Maryland
 Chief
 Pesticide Regulation Section
 Office of Plant Industries and
 Pest Management
 Maryland Department of Agriculture
 50 Harry S. Truman Parkway
 Annapolis, MD 21401-7080
 (410) 841-5710

Pennsylvania
 Chief
 Agronomic Services Division
 Bureau of Plant Industry
 Pennsylvania Department of
 Agriculture
 2301 North Cameron Street
 Harrisburg, PA 17110-9408
 (717) 787-4843

Virginia
 Program Manager
 Office of Pesticide Services
 Virginia Department of Agriculture
 and Consumer Service
 P.O. Box 1163
 Richmond, VA 23209
 (804) 371-6558

West Virginia
 Director
 Pesticide Division
 West Virginia Department of
 Agriculture
 1900 Kanawha Boulevard, East
 Charleston, WV 25305-0190
 (304) 558-2209



State Pesticide Agencies (cont'd)

Region 4

Alabama

Director
Division of Plant Protection and
Pesticide Management
Alabama Department of
Agriculture and Industries
P.O. Box 3336
Montgomery, AL 36109-0336
(334) 242-2656

Florida

Director
Division of Agricultural
Environmental Services
Department of Agriculture
and Consumer Services
3125 Conner Boulevard
Tallahassee, FL 32399-1650
(904) 488-3731

Georgia

Assistant Commissioner
Plant Industry Division
Georgia Department of Agriculture
19 Martin Luther King Drive, SW
Atlanta, GA 30334
(404) 656-4958

Kentucky

Director
Division of Pesticides
Kentucky Department
of Agriculture
100 Fair Oaks Lane
Frankfort, KY 40601
(502) 564-7274

Mississippi

Director
Bureau of Plant Industry
Mississippi Department of
Agriculture and Commerce
P.O. Box 5207
Mississippi State, MS 39762
(601) 325-3390

North Carolina

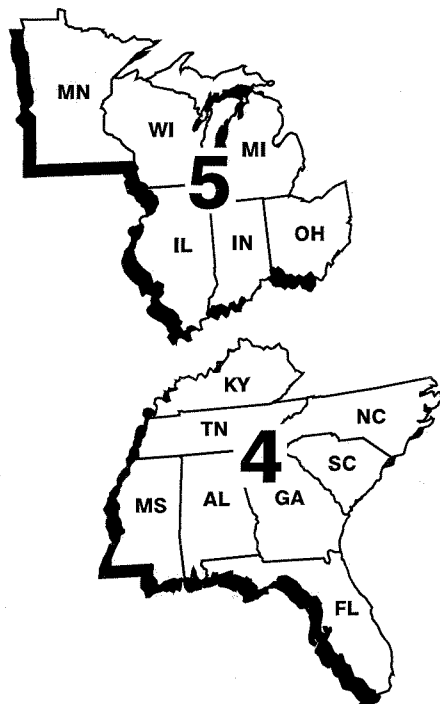
Assistant Pesticide Administrator
Food and Drug Protection Division
North Carolina Department of
Agriculture
P.O. Box 27647
Raleigh, NC 27611-0647
(919) 733-3556

South Carolina

Department Head
Department of Pesticide Regulation
257 Poole Agriculture Center
Clemson University
Clemson, SC 29634-0394
(803) 656-3171

Tennessee

Director
Plant Industries Division
Tennessee Department of Agriculture
P.O. Box 40627
Nashville, TN 37204
(615) 360-0130



Region 5

Illinois

Chief
Bureau of Environmental Programs
Illinois Department of Agriculture
P.O. Box 19281
Springfield, IL 62794-9281
(217) 785-2427

Indiana

Pesticide Administrator
Office of the Indiana State Chemist
1154 Biochemistry Building
Purdue University
West Lafayette, IN 47907-1154
(317) 494-1585

Michigan

Director
Pesticide and Plant
Management Division
Michigan Department of Agriculture
P.O. Box 30017
Lansing, MI 48909
(517) 373-1087

Minnesota

Director
Division of Agronomy Services
Minnesota Department of Agriculture
90 West Plato Boulevard
St. Paul, MN 55107
(612) 296-5639

Ohio

Specialist in Charge of
Pesticide Regulation
Division of Plant Industry
Ohio Department of Agriculture
8995 East Main Street
Reynoldsburg, OH 43068-3399
(614) 728-6987

Wisconsin

Administrator
Agricultural Resources
Management Division
Wisconsin Department of Agriculture
Trade and Consumer Protection
2811 Agriculture Drive
Madison, WI 53704
(608) 224-4546

State Pesticide Agencies (cont'd)

Region 6

Arkansas

Director

Division of Feeds, Fertilizer
and Pesticides

Arkansas State Plant Board
#1 Natural Resources Drive
Little Rock, AR 72205
(501) 225-1598

Louisiana

Director

Pesticide and Environmental Programs

Louisiana Department of
Agriculture and Forestry
P.O. Box 3596
Baton Rouge, LA 70821-3596
(504) 925-3763

New Mexico

Chief

Bureau of Pesticide Management

Division of Agricultural and
Environmental Services

New Mexico State Department
of Agriculture
P.O. Box 3005, Department 3AQ
New Mexico State University
Las Cruces, NM 88003-0005
(505) 646-2133

Oklahoma

Director

Department of Environmental Quality
Plant Industry and Consumer Services
Oklahoma Department of Agriculture
2800 North Lincoln Boulevard
Oklahoma City, OK 73105-4298
(405) 271-1400

Texas

Assistant Commissioner for
Pesticides

Texas Department of
Agriculture

P.O. Box 12847
Austin, TX 78711
(512) 463-7624

Region 7

Iowa

Chief

Pesticide Bureau

Iowa Department of Agriculture
Henry A. Wallace Building
East 9th Street and Grand Avenue
Des Moines, IA 50319
(515) 281-8591

Kansas

Director

Plant Health Division

Kansas Department of Agriculture
109 S.W. 9th Street
Topeka, KS 66612-1281
(913) 296-2263

Missouri

Director

Bureau of Pesticide Control

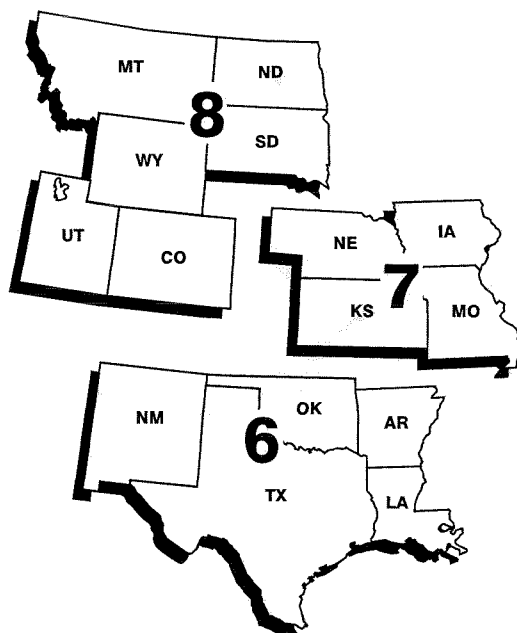
Missouri Department of Agriculture
P.O. Box 630
Jefferson City, MO 65102
(314) 751-2462

Nebraska

Director

Bureau of Plant Industry

Nebraska Department of Agriculture
301 Centennial Mall
P.O. Box 94756
Lincoln, NE 68509
(402) 471-2394



Region 8

Colorado

Director

Division of Plant Industry

Colorado Department of Agriculture
700 Kipling Street, Suite 4000
Lakewood, CO 80215-5894
(303) 239-4140

Montana

Administrator

Agricultural Sciences Division

Montana Department of Agriculture
P.O. Box 200201
Helena, MT 59620-0201
(406) 444-2944

North Dakota

Director

Pesticide Division

North Dakota Department

of Agriculture
State Capitol, 600 East Boulevard,
6th Floor
Bismarck, ND 58505-0020
(701) 328-4756

South Dakota

Administrator

Office of Agronomy Services

Agricultural Services

South Dakota Department of

Agriculture

Foss Building
523 E. Capitol
Pierre, SD 57501-3182
(605) 773-4432

Utah

Director

Division of Plant Industry

Utah Department of Agriculture

Box 146500
Salt Lake City, UT 84114-6500
(801) 538-7180

Wyoming

Director

Technical Services

Wyoming Department of Agriculture

2219 Carey Avenue
Cheyenne, WY 82002-0100
(307) 777-6590

State Pesticide Agencies (cont'd)

Region 9

Arizona
 Director
 Environmental Services Division
 Arizona Department of Agriculture
 1688 West Adams
 Phoenix, AZ 85007
 (602) 542-3578

California
 Director
 California Department of
 Pesticide Regulation
 1020 N Street, Room 100
 Sacramento, CA 95814-5624
 (916) 445-4300

Hawaii
 Administrator
 Pesticide Programs
 Hawaii Department of Agriculture
 P.O. Box 22159
 Honolulu, HI 96823-2159
 (808) 973-9401

Nevada
 Director
 Bureau of Plant Industry
 Nevada Division of
 Agriculture
 350 Capitol Hill Avenue
 Reno, NV 89520
 (702) 688-1180

Guam
 Pesticide Program Director
 Guam Environmental
 Protection Agency
 P.O. Box 22439-GMF
 Barrigada, GU 96921
 (671) 472-8863

American Samoa EPA
 Office of the Governor
 American Samoa Government
 P.O. Box 2609
 Pago Pago, American Samoa 97699
 (684) 633-2304

**Commonwealth of the Northern
 Mariana Islands**
 Department of Public Works
 Division of Environmental Quality
 Commonwealth of the Northern
 Mariana Islands (CNMI)
 P.O. Box 1304
 Saipan, Mariana Islands 96950
 (670) 234-6984

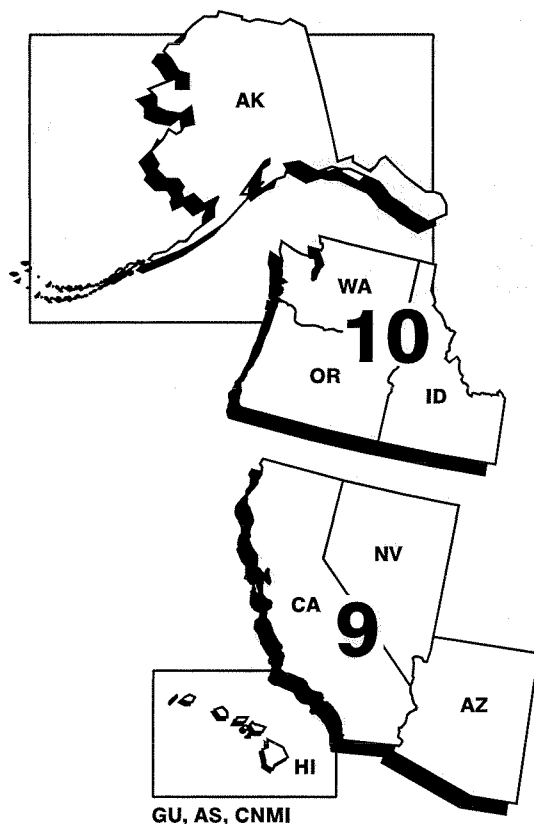
Region 10

Idaho
 Administrator
 Division of Agricultural Technology
 Idaho Department of Agriculture
 P.O. Box 790
 Boise, ID 83701-0790
 (208) 334-3550

Oregon
 Administrator
 Plant Division
 Oregon Department of Agriculture
 635 Capitol Street, NE
 Salem, OR 97310-0110
 (503) 986-4635

Washington
 Assistant Director
 Pesticide Management Division
 Washington State Department
 of Agriculture
 P.O. Box 42560
 Olympia, WA 98504-2560
 (360) 902-2010

Alaska
 Director
 Division of Environmental Health
 Alaska Department of
 Environmental Conservation
 410 Willoughby Avenue, Room 107
 Juneau, AK 99801-1795
 (907) 465-5280



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“Help! Someone’s Been Poisoned!” What To Do in a Pesticide Emergency



If the person is unconscious, having trouble breathing, or having convulsions . . .
ACT FAST! Speed is crucial.



Give needed first aid immediately.



Call 911 or your local emergency service.
If possible, have someone else call for emergency help while you give first aid.



If the person is awake or conscious, not having trouble breathing, and not having convulsions . . .



Read the label for first aid instructions.



Call a doctor, a poison control center, a local emergency service (911), or the National Pesticide Telecommunications Network (toll free at 1-800-858-7378).



Give first aid.

12. Integrated Waste Management Collection Centers

Integrated Waste Management

Greenwaste Diversion Facilities

Brea Green Recycling

1983 Valencia Avenue
Brea, CA 92823
(714) 529-0100

Tierra Verde Industries

7982 Irvine Boulevard
Irvine, CA 92618
(949) 551-0363

Tierra Verde Industries

(La Pata Greenwaste)
31748 La Pata Road
San Juan Capistrano, CA 92675
(949) 728-0401

CVT Recycling

1071 N Blue Gum Street
Anaheim, CA 92806
(714) 238-3301

Baker Canyon Green Recycling

27910 Baker Canyon Road Silverado Canyon, CA
92676 (714)649-9050 (714) 649-9210

Waste Management of Orange

2050 N Glassell Street
Orange, CA 92865
(714) 282-0200

CR Transfer

11232 Knott Avenue
Stanton, CA 90680
(714) 891-2776

Rainbow Transfer

17121 Nichols Street
Huntington Beach, CA 92647
(714) 847-3581 (949) 552-8784

Sunset Environmental, Inc.

16122 Construction Circle West
Irvine, CA 92606
(949) 552-8784

Hazardous Waste Collection Centers

Household Hazardous Waste Collection Centers (Anaheim)

Location

The Anaheim Regional HHWCC is a public-private partnership between Taormina Industries and the County of Orange and is located at the CVT Public Recycling Center at:
1071 N. Blue Gum Street
Anaheim, CA

Operating Hours

Tuesdays through Saturdays from 9 a.m. to 1 p.m.
(Closed on rainy days, Independence Day, Thanksgiving Day, and Christmas and New Years Days.)

Stop & Swap

When you visit the Anaheim HHWCC, check out the Stop & Swap. It's the place where you can get partially-used home, yard and automotive care products for FREE!

Directions

Between the 91 Freeway & 57 Freeways at the corner of La Palma Avenue and Blue Gum Street.

Household Hazardous Waste Collection Centers

(Huntington Beach)

Location

The Huntington Beach Regional HHWCC is a public-private partnership between Rainbow Disposal and the County of Orange and is located at the Rainbow Disposal facility at:
17121 Nichols Street
Huntington Beach, CA

Operating Hours

Tuesdays through Saturdays from 9 a.m. to 1 p.m.

(Closed on rainy days, Independence Day, Thanksgiving Day, and Christmas and New Years Days.)

Stop & Swap

When you visit the Huntington Beach HHWCC, check out the Stop & Swap. It's the place where you can get partially-used home, yard and automotive care products for FREE!

Directions

Between Beach Blvd. and Gothard off Warner. Next to Rainbow Recycling and Disposal. (Use Gate 6.)

**Household Hazardous Waste Collection Centers
(Irvine)**

Location

The Irvine Regional HHWCC is a result of a partnership between the City of Irvine and the County of Orange and is located next to the City of Irvine Corporate Yard and Animal Shelter and in front of the City of Irvine Dog Park.
6411 Oak Canyon
Irvine, CA

Operating Hours

Tuesdays through Saturdays from 9 a.m. to 1 p.m.
(Closed on rainy days, Independence Day, Thanksgiving Day, and Christmas and New Years Days.)

Stop & Swap

When you visit the Irvine HHWCC, check out the Stop & Swap. It's the place where you can get partially-used home, yard and automotive care products for FREE!

Directions

Off Sand Canyon between the 5 and 405 Freeways. Next to the City Corporate Yard and Animal Shelter.

**Household Hazardous Waste Collection Centers
(San Juan Capistrano)**

Location

The San Juan Capistrano Regional HHWCC is located on County property at the Prima Deshecha Landfill at:
32250 La Pata Avenue
San Juan Capistrano, CA

Operating Hours

Tuesdays through Saturdays from 9 a.m. to 1 p.m.
(Closed on rainy days, Independence Day, Thanksgiving Day, and Christmas and New Years Days.)

Directions

From the 5 Freeway, exit Ortega Highway, go east to La Pata, and turn right. Take La Pata to the landfill entrance.

OC Landfills

Hours of Operation:

Open: Monday through Saturday - Operating hours vary by landfill. Click on each landfill for specific operating hours.
Closed: Major Holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas

Landfills

- Frank R. Bowerman Landfill in Irvine (commercial landfill only; no public dumping)
- Olinda Alpha Landfill in Brea (commercial & public dumping)
- Prima Deshecha Landfill in San Juan Capistrano (commercial & public dumping)

Landfill Classification

All three active landfills are permitted as Class III landfills. Class III landfills accept only non-hazardous municipal solid waste for disposal; no hazardous or liquid waste can be accepted.

Frank R. Bowerman Landfill

OPERATING HOURS

Monday through Saturday, 7 a.m. to 4 p.m. for all commercial customers
Transfer Trucks ONLY from 4 p.m. to 5 p.m.

MANAGER

• Mike Giancola

LOCATION

11002 Bee Canyon Access Road, Irvine, CA 92602

COMMERCIAL ACCESS ONLY

Commercial access is available from the Santa Ana Freeway (I-5) or the San Diego Freeway (I-405). Exit at Sand Canyon Avenue. The major cross street is Portola Parkway. [Click here to see map.](#)

ACCEPTABLE WASTE

Only municipal solid waste from commercial haulers and vehicles operating under commercial status is accepted. Commercial status is verified by either showing a business license or current tax return to a fee booth attendant or participating in County's deferred payment account process.

UNACCEPTABLE WASTE

- Asbestos, batteries, brake linings, chemicals, fuel tanks
- Mufflers, paints, poisons, hazardous waste, animal parts
- Body parts, medical wastes, radioactive material
- Auto body shredder wastes, fuels, heavy metals, explosives
- Pesticides, contaminated soil
- Liquid waste (moisture content 50% or greater)
- Nuisance dust

LANDFILL PERMIT

Frank R. Bowerman Landfill is permitted to receive a daily maximum of no more than 8,500 tons per day. The landfill is required to comply with numerous landfill regulations from federal, state and local regulatory agencies. The landfill is subject to regular inspections from the California Integrated Waste Management Board and the Board's Local Enforcement Agency, the California Regional Water Quality Control Board and the South Coast Air Quality Management District to assure compliance with those regulations.

OPEN AND CLOSURE DATES

Frank R. Bowerman Landfill is approximately 725 acres with 326 acres permitted for refuse disposal. The landfill opened in 1990 and is scheduled to close in approximately 2022. The Integrated Waste Management Department is conducting a study that may extend the life and disposal capacity of the landfill. A public park is the planned end use of the site.

SPECIAL PROGRAMS

Biomitigation Program

Landfill capital projects sometimes affect the plant and wildlife species native to the site. The Integrated Waste Management Department strives to restore all impacted sites with plant and animal life indigenous to the area.

This is accomplished through a biological mitigation plan. The plan ensures establishment of a plant community capable of supporting wildlife species of the same diversity and density found in these communities under natural conditions.

Olinda Alpha Landfill

OPERATING HOURS

Monday through Saturday, 7 a.m. to 4 p.m. for all customers
Transfer Trucks ONLY from 6 a.m. to 7 a.m.

MANAGER

• Dave Lowry

LOCATION

1942 North Valencia Avenue, Brea, CA 92823

COMMERCIAL ACCESS

Commercial hauler access is available using the Orange/57 Freeway. Exit at Imperial Highway to Valencia Avenue. Click here to see map.

PUBLIC ACCESS

Orange County citizens only, others call 1-714-834-4000.
Public access is available using the Orange/57 Freeway. Exit at Lambert Road to Valencia Avenue. Click here to see map.

SPECIAL WASTE

Tires are accepted at Olinda Alpha for \$86.90 per ton.

ACCEPTABLE WASTE

Municipal solid waste from commercial haulers and the public.

UNACCEPTABLE WASTE

- Asbestos, batteries, brake linings, chemicals, fuel tanks
- Mufflers, paints, poisons, hazardous waste, animal parts
- Body parts, medical wastes, radioactive material
- Auto body shredder wastes, fuels, heavy metals
- Explosives pesticides, contaminated soil
- Liquid waste (moisture content 50% or greater)
- Nuisance dust

LANDFILL PERMIT

Olinda Alpha is permitted to receive a daily maximum of no more than 8,000 TPD. The landfill is required to comply with numerous landfill regulations from federal, state and local regulatory agencies. The landfill is subject to regular inspections from the California Integrated Waste Management Board and the Board's Local Enforcement Agency, the California Regional Water Quality Control Board and the South Coast Air Quality Management District to assure compliance with those regulations.

OPEN AND CLOSURE DATES

Olinda Alpha is approximately 562 acres with about 420 acres permitted for refuse disposal. The landfill opened in 1960. Currently the landfill is scheduled to close in December 2013. The Integrated Waste Management Department is conducting a study that may extend the life and disposal capacity of the landfill. The proposed end use after landfill closure is a county regional park.

Prima Deshecha Landfill

OPERATING HOURS

Monday through Saturday, 7 a.m. to 4 p.m. for all customers
Commercial Trucks and Dump Trucks ONLY from 4 p.m. to 5 p.m.

MANAGER

- Dick Harabedian

LOCATION

32250 La Pata Avenue, San Juan Capistrano, CA 92675

LANDFILL ACCESS

Public access is for Orange County citizens only, others call 1-714-834-4000.
Commercial and public access is available using the Santa Ana Freeway (I-5), exiting at Ortega Highway to La Pata Avenue.
Click here see map.

SPECIAL WASTE

Limited amount of dewatered sewage sludge is accepted.

ACCEPTABLE WASTE

Municipal solid waste from commercial haulers and the public.

UNACCEPTABLE WASTE

- Asbestos, batteries, brake linings, chemicals
- Fuel tanks, mufflers, paints, poisons
- Hazardous waste, animal parts, body parts
- Medical wastes, radioactive material

- Auto body shredder wastes, fuels, heavy metals
- Explosives, pesticides, contaminated soil
- Liquid waste (moisture content 50% or greater)
- Nuisance dust

LANDFILL PERMIT

Prima Landfill is permitted to accept up to 4,000 tons of waste per day (TPD).

The landfill is required to comply with numerous landfill regulations from federal, state and local regulatory agencies. The landfill is subject to regular inspections from the California Integrated Waste Management Board and the Board's Local Enforcement Agency, the California Regional Water Quality Control Board and the South Coast Air Quality Management District to assure compliance with those regulations.

OPEN AND CLOSURE DATES

Prima is approximately 1,530 acres with 1,000 acres permitted for refuse disposal. The landfill was opened in 1976 and is scheduled to close in approximately 2067. A General Development Plan is being prepared for Prima Deshecha Landfill which indicates end use as a regional park.

Integrated Waste Management

Recycling Programs

Please know that some cities have unincorporated "communities" within their boundaries. Unincorporated communities are listed below the incorporated cities.

CITY	INCORPORATED/ UNINCORPORATED AREA	RESIDENTIAL PROGRAM TYPE
Aliso Viejo	Unincorporated	2 cart system. Residents place recyclables and trash in separate carts. Manual yard waste collection.
Anaheim	Incorporated	3 cart system. Residents place mixed recyclables, trash & yard waste in separate carts.
Anaheim	Unincorporated	3 cart system. Residents place mixed recyclables, trash & yard waste in separate carts.
Brea	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Buena Park	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
Costa Mesa	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
Coto de Caza	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Cowan Heights	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Cowan Ranch	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Cypress	Incorporated	2 cart system. Residents place recyclables and trash in separate carts.
Dana Point	Incorporated	2 cart system. Residents place recyclables and trash in separate carts. Manual yard waste collection.
El Modena	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Emerald Bay	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Foothill Trabuco	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Fountain Valley	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
Fullerton	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility. Manual yard waste collection.
Fullerton	Unincorporated	Residents use own containers for regular trash. Hauler-provided

		cart for recyclables. Manual yard waste collection.
Garden Grove	Incorporated	It depends on resident location, Midway City Sanitation has 2 cart system and GG Disposal has 3 cart system.
Huntington Beach	Incorporated	Residents use own containers. Sorting is done at a Material Recover Facility.
Irvine	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Irvine Coast	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
La Habra	Incorporated	2 cart system. Residents place recyclables and trash in separate carts.
La Habra	Unincorporated	2 cart system. Residents place recyclables and trash in separate carts.
La Palma	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
Ladera	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Laguna Beach	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Laguna Hills	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Laguna Laurel	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Laguna Niguel	Incorporated	2 cart system. Residents place recyclables and trash in separate carts. Manual yard waste collection.
Laguna Woods	Incorporated	2 cart system. Residents place trash and newspaper in separate carts.
Lake Forest	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Las Flores	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Los Alamitos	Incorporated	2 cart system. Residents place recyclables and trash in separate carts.
Lemon Heights	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Midway City Sanitary District	Incorporated	2 cart system. Residents place recyclables and trash in separate carts.
Mission Viejo	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Modjeska Canyon	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Newport Beach	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
North Tustin	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Olive	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Orange	Incorporated	3 cart system. Residents place mixed recyclables, trash & yard waste in separate carts.
Orange	Unincorporated	3 cart system. Residents place mixed recyclables, trash & yard waste in separate carts.
Orange Park Acres	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Panorama Heights	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Placentia	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Placentia	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Rancho Santa Margarita	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.

Rossmoor	Unincorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
San Clemente	Incorporated	2 cart system. Residents place recyclables and trash in separate carts. Manual yard waste collection.
San Juan Capistrano	Incorporated	3 cart system. Residents place recyclables, yard waste, and trash in separate carts.
San Joaquin Hills	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Santa Ana	Incorporated	3 cart system. Residents place recyclables, yard waste, and trash in separate carts.
Santa Ana Heights	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Seal Beach	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Silverado Canyon	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Stanton	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
Stanton	Unincorporated	Residents use own containers for regular trash. Hauler-provided cart for recyclables.
Sunset Beach	Unincorporated	Multi-family bins only.
Trabuco Canyon	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Tustin	Incorporated	Residents use own containers. Sorting is done at a Material Recovery Facility.
Villa Park	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Westminster	Incorporated	2 cart system. Residents place recyclables and trash in separate carts.
Yorba Linda	Incorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.
Yorba Linda	Unincorporated	3 cart system. Residents place recyclables, trash, and yard waste in separate carts.

13. Waste Oil Collection Centers



Did you know that just one quart of oil can pollute 250,000 gallons of water?

A clean ocean and healthy creeks, rivers, bays and beaches are important to Orange County. However, not properly disposing of used oil can lead to water pollution. If you pour or drain oil onto driveways, sidewalks or streets, it can be washed into the storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering the ocean. Help prevent water pollution by taking your used oil to a used oil collection center.

Included in this brochure is a list of locations that will accept up to five gallons of used motor oil at no cost. Many also accept used oil filters. Please contact the facility before delivering your used oil. This listing of companies is for your reference and does not constitute a recommendation or endorsement of the company.

Please note that used oil filters may not be disposed of with regular household trash. They must be taken to a household hazardous waste collection or recycling center in Anaheim, Huntington Beach, Irvine or San Juan Capistrano. For information about these centers, visit www.oclandfills.com.

Please do not mix your oil with other substances!

For more information, please call the Orange County Stormwater Program at (714) 567-6363 or visit www.watersheds.com.

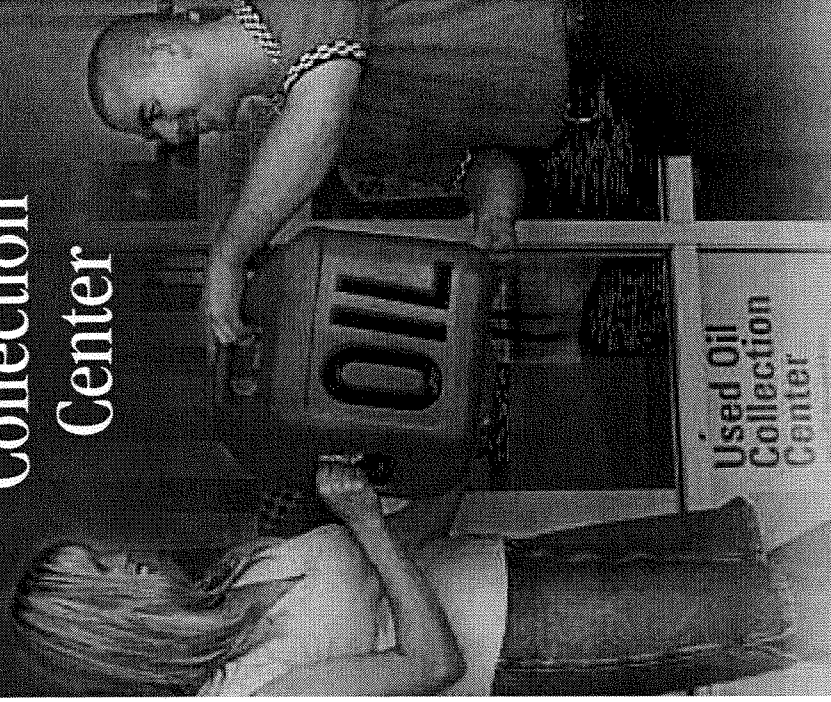
For information about the proper disposal of household hazardous waste, call the Household Waste Hotline at (714) 834-6752 or visit www.oclandfills.com.



For additional information about the nearest oil recycling center, call the Used Oil Program at 1-800-CLEANUP or visit www.cleanup.org.

Help Prevent Ocean Pollution:

Recycle at Your Local Used Oil Collection Center



The Ocean Begins at Your Front Door

PROJECT
Pollution
PREVENTION

SOUTH COUNTY

Used Oil Collection Centers

ALISO VIEJO

Big O Tires
27812 Aliso Creek Rd, Suite E-100
(949) 362-4225

Econo Lube N' Tune
22932 Glenwood Dr. (949) 643-9667

Jiffy Lube
27832 Aliso Creek Road (949) 362-0005

Pep Boys

26881 Aliso Creek Road (949) 362-9254

DANA POINT

Dana Point Fuel Dock
34661 Puerto Pl. (949) 496-6113

EZ Lube Inc.
34242 Doheny Park Rd. (949) 477-1223

LAGUNA BEACH

USA Express Tire & Service Inc.
350 Broadway (949) 494-7111

LAKE FOREST

Big O Tires
20742 Lake Forest Dr. (949) 443-4155

EZ Lube
26731 Rancho Parkway (949) 465-9912

Firestone Store
24421 Rockfield Blvd. (949) 581-2660

Jiffy Lube
20781 Lake Forest Dr. (949) 583-0470

Kragen Auto Parts
24601 Raymond Way (949) 829-8292

Pep Boys

22671 Lake Forest Dr. (949) 855-9593

Ryan's Foothill Ranch Transmission
20622 Pascal Way (949) 770-6888

USA Express Tire & Service

24561 Trabuco Rd (949) 454-8001

LAGUNA NIGUEL

Econo Lube N Tune
27912 Forbes Rd. (949) 364-5833

Laguna Niguel Auto Center

26042 Cape Dr. #12 (949) 582-2191

LAGUNA HILLS

David J Phillips Buick
24888 Alicia Pkwy. (949) 831-0434

EZ Lube

24281 Moulton Pkwy. (949) 830-9840

EZ Lube

26921 Moulton Pkwy (949) 751-3436

Kragen Auto Parts

26562 Moulton Ave. (949) 831-0434

Firestone Store

24196 Laguna Hills Mall
(949) 581-4700

MISSION VIEJO

AAA Complete Auto Care & Tire
27913 Center Street (949) 347-8200

Autobahn West

25800 Jeronimo Rd. Suite 401
(949) 770-2312

Auto Zone

22942 Los Alisos (949) 830-8181

Econo Lube & Tune

25902 El Paseo (949) 582-5483

Jiffy Lube

27240 La Paz Rd. (949) 455-0470

Kragen Auto Parts

24510 Alicia Pkwy. (949) 951-9175

Mission Viejo Chevron

27742 Crown Vly. Pkwy.
(949) 364-0137

Oilmax 10 Minute Lube

25800 Jeronimo Rd. #300
(949) 859-9271

Ramona Auto Service

27210 La Paz Rd. (949) 583-1233

RANCHO SANTA MARGARITA

Jiffy Lube
23401 Antonio Parkway
(949) 589-7447

SAN CLEMENTE

EZ Lube
525 Avenida Pico (949) 940-1850

Kragen Auto Parts

1113 S. El Camino Real
(949) 492-9850

Kragen Auto Parts

400 Camino de Estrella
(949) 240-9195

San Clemente Car Wash & Oil

1731 N. El Camino Real
(949) 847-4924

SAN JUAN CAPISTRANO

Satum of San Juan Capistrano
33033 Camino Capistrano
(949) 248-5411

Texaco Xpress Lube

27201 Ortega Hwy. (949) 489-8008

14. Using Pest Control Products

HOMEOWNER TIPS PROTECTING WATER

Before Buying Pest Control Products

- Identify the pest.
- Decide if pest control products are the best control measure or if there are alternatives available.
- Are integrated pest management guidelines available for this pest?
- Read the product label.
 - Is the pest listed on the label?
 - Is it the best product for the pest?

Before Mixing Your Sprayer

- Read the label carefully.
- Buy only enough pesticide to treat the area affected by the pest.
- Check the weather and don't apply if it's windy or about to rain.
- Measure the area you're treating.
- Calculate how much spray to mix.
- Wear long sleeve shirt, long pants, shoes and any other protective equipment listed on the label and follow all the label precautions.
- Be prepared for spills and know how to clean them up.

When You're Ready To Spray

- Mix and load spray in an area where any spilled pesticide will not be able to drain or be washed away into storm drains, ditches, streams, ponds or other bodies of water.
- Mix sprayer on grass, not the sidewalk or driveway.
- Mix only as much as needed.

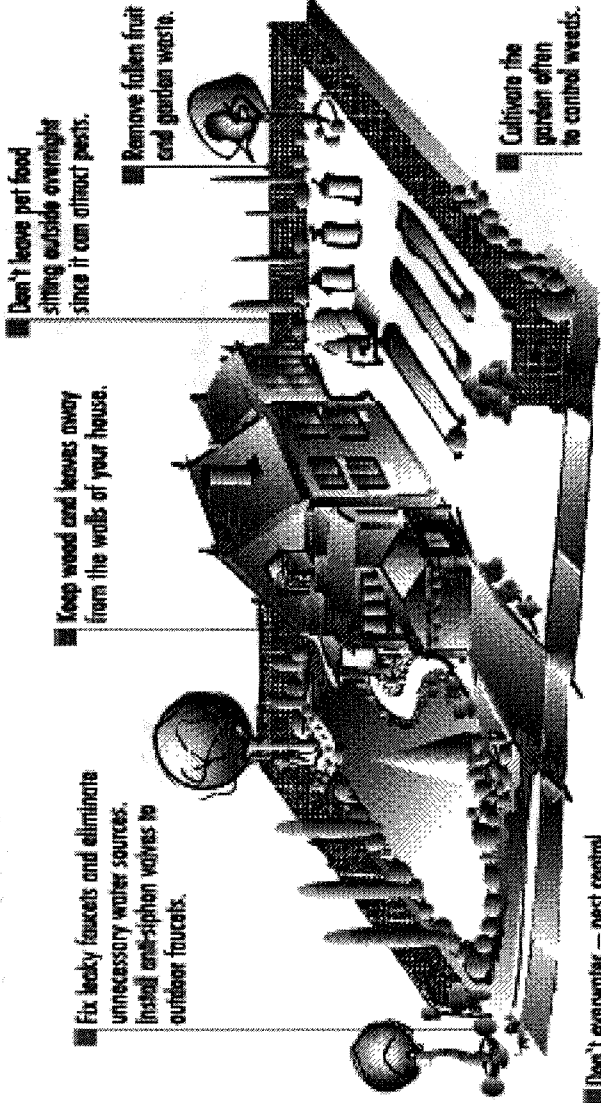
When You're Spraying

- AVOID spraying in or near storm drains, ditches, streams, and ponds!
- Leave an untreated strip around these areas to protect the water.

When You're done

- Never dump leftovers down any drain; Save for a future application.
- Triple-rinse sprayer and apply rinsewater to treated area.
- Take any old or unwanted pesticides to a Household Hazardous Waste Collection Center (714) 834-6752.

**Using Pest Control Products.
It's Your Responsibility To Do It Right!**



IPM... OUTSMARTING PESTS WHILE PROTECTING WATER

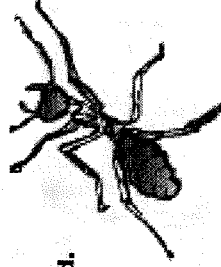
With Integrated Pest Management (IPM), homeowners use common sense and nature to make it difficult for pests to survive. IPM techniques include cultural practices (such as mulching to prevent weeds), encouraging natural enemies (good bugs), and judicious use of pest control products.

- First, identify your pest problem. To find the best solution, you need to pin down the problem. Consult gardening books, your county cooperative extension office or your local nursery.
- Decide how much pest control is necessary. If you can live with some pest damage, you can avoid intensive pest control product treatments.

- Choose an effective option. Try various types of controls first: washing bugs off plants, pruning diseased parts of plants. If you need to use pest control products, choose one that targets the problem and poses the least hazard.

- Finally, it's easier to prevent pests than to control them.

Think ahead.



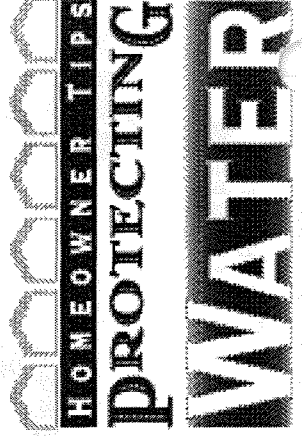
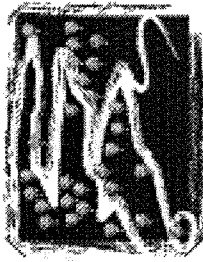
This brochure is being distributed in order to reduce the impacts of pesticides on water quality. It was produced with support from the Orange County Storm Water Program, the Coalition for Urban/Rural Environmental Stewardship (CURES) and a 319(h) grant from the State Water Resources Control Board.

Orange County Storm Water Program Participants:

- Anaheim Public Works/Engineering (714) 765-5176
- Brea Engineering (714) 990-7666
- Buena Park Public Works (714) 562-3655
- Costa Mesa Public Services (714) 754-5248
- Cypress Engineering (714) 229-6752
- Dana Point Public Works (949) 248-3562
- Fountain Valley Public Works (714) 593-4400 x347
- Fullerton Engineering Dept (714) 738-6853
- Garden Grove Development Services (714) 741-5554
- Huntington Beach Public Works (714) 536-5432
- Irvine Public Works (949)724-6515
- La Habra Public Services (562) 905-9792
- La Palma Public Works (714) 523-1140 x102
- Laguna Beach Municipal Services (949) 497-0711
- Laguna Hills Engineering (949) 362-4337
- Laguna Niguel Public Works (949) 461-3480
- Lake Forest Public Works (562) 431-3538 x301
- Los Alamitos Community Dev (949) 470-3095
- Mission Viejo Public Works (949) 644-3311
- Newport Beach Public works (714) 744-5551
- Orange Public Works (714) 993-8131
- Placentia Engineering (949) 361-6100
- San Clemente Engineering (949) 493-1171
- San Juan Capistrano Engineering (714) 647-3380
- Santa Ana Public Works (562) 431-2527 x318
- Seal Beach Engineering (714) 379-9222 x204
- Stanton Public Works (714) 573-3150
- Tustin Public Works Engineering (714) 998-1500
- Villa Park Engineering (714) 898-3311 x215
- Westminster Public Works Eng. (714) 961-7170 x174
- Yorba Linda Engineering (714) 567-6363
- O.C. Storm Water Program (714) 567-6363 or
24 Hour Water Pollution Hotline (714) 567-6363 or
ashbyk@pfrd.co.orange.ca.us

- Chemical and Hazardous Material Spill Emergencies 911
- Other Important Phone Numbers:
- For Additional Brochures (714) 567-6363
- UC Masters & Coop Extension (714) 708-1646
ucmastergardeners@yahoo.com
- O.C. Household Hazardous Waste Information (714) 834-6752
or www.oc.ca.gov/IWMD
- Information on agriculture chemicals, pesticides and possible alternatives, O.C. Agriculture Commissioner (714) 447-7115

Original graphics developed with support from:
Coalition For Urban/Rural Environmental Stewardship (CURES)
Western Crop Protection Association (WCPA)
Responsible Industry for a Sound Environment (RISE)



**15. County of Orange Management Guidelines for the Use of
Fertilizers and Pesticides**

COUNTY OF ORANGE
PUBLIC FACILITIES & RESOURCES DEPARTMENT

**MANAGEMENT GUIDELINES
FOR THE USE OF FERTILIZERS AND PESTICIDES**

September 2000
(Revision to March 1993)

VICKI L. WILSON
Director

ORANGE COUNTY BOARD OF SUPERVISORS

CHARLES V. SMITH
First District

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Third District

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Fourth District

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Fifth District

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REFERENCES

GLOSSARY

California Code of Regulations, Title 3, Division 6 (3 CCR)

The State of California Code regulating pesticides and pest control operations.

California Fertilizer Association (CFA)

An organization promoting progress in the fertilizer industry in the interest of an efficient and profitable agricultural community. Activities of CFA include developing and disseminating new information to its members and others; supporting production-oriented research programs to identify maximum yield systems for farmers; promoting ergonomic topics at our schools, colleges and universities; and maintaining open communications among the industry, universities and other state and federal agencies.

Chemical Labels

As required by federal law, manufacturers of pesticides must provide chemical labels on the containers of all pesticides distributed. These labels include all necessary information on the chemical constituents of the pesticide, including recommendations and instructions for use, toxicity classification and the appropriate warning statements and emergency procedures in case of acute exposures. As required by state law, labels must be kept in good, readable condition and be attached to all pesticide containers at all times.

Drainage Area Management Plan (DAMP)

A document required under the municipal NPDES stormwater permits issued to the co-permittees by Santa Ana and San Diego Regional Water Quality Control Boards.

Equivalent Training

A term referring to public agency employees dealing with the application of pesticides who have not received a qualified applicator's license (QAL) from the State of California, but who has completed a training course in pesticide application offered by the County of Orange.

Eutrophication

A decrease in dissolved oxygen in a body of water to such an extreme extent that plant life is favored over animal life. For example, a lake that is overgrown in algae on the surface is likely in a state of eutrophication.

Integrated Pest Management

The trend in vegetation management that supports moving away from reliance on pesticides and toward an integrated approach of limited pesticide use with more environmentally friendly pest control techniques.

Maximum Extent Practicable (MEP)

MEP means taking into account equitable considerations of competing factors, including, but not limited to, the gravity of the problem, fiscal feasibility, public health risks, societal concern and social benefit.

GLOSSARY (cont'd)

Materials Data Safety Sheet (MSDS)

Similar to chemical labels and also required by federal law, these sheets should contain all information necessary for the safe handling of pesticides. They include chemical identifications, hazardous ingredients, physical data, fire and explosion data, health hazards, reactivity data, spill or leak cleanup procedures, special protection and special precautions.

National Pollutant Discharge Elimination System (NPDES)

The national program under the Clean Water Act for controlling discharges from point sources directly into Waters of the United States.

Permittee

A permittee to an NPDES permit that is responsible for permit conditions relating to the discharge for which it is its operator. As used in the Stormwater Permit Implementation Agreement, permittees are the County of Orange, the 33 cities of Orange County and the Orange County Flood Control District.

Pest Control Advisor (PCA)

Certification obtained from the State of California after demonstrating adequate knowledge of pests, pesticides and the implications of pesticide use. A recommendation for pesticide use must be obtained from a PCA before public agencies may approve any pesticide applications.

Qualified Applicator's License (QAL)

A license obtained from the State of California after demonstrating adequate knowledge of the proper techniques for handling, storing, transporting and applying pesticides. Workers must obtain a QAL before being permitted to apply or supervise application of Category 1 pesticides.

Qualified Fertilizer Specialist

A person designated by the governing public agency who is knowledgeable of the proper techniques for handling, storing, transporting and applying fertilizers as defined in the Management Guidelines for Use of Fertilizers and Pesticides. This person shall be able to sample, inspect, test and make analyses of fertilizers that are in use or being considered for use in the agency's jurisdiction to such an extent to adequately determine their compliance with the management guidelines.

Restricted Materials Permit

A permit that must be acquired by any public agency before application of the pesticides listed as restricted by the State of California in the Code of Regulations ("CCR"), Title 3, Division 6. In Orange County, this permit must be obtained from the County Agricultural Commissioner.

GLOSSARY (cont'd)

State Code

In this report, referring to CCR, Title 3, Division 6, and noted as "3 CCR."

Storm Drain

Pipe or channel structure designed to convey only stormwater runoff for purposes of flood protection. Federal regulations use the term "storm sewer." Use of the word "sewer" for a stormwater conveyance structure should be discouraged, since the word "sewer" also includes sanitary sewers and combined sewers which carry human waste.

Toxicity Classification

The California Department of Food and Agriculture groups pesticides into three categories according to their toxicity or potential to cause injury to people. Category 1 pesticides are the most hazardous and their use is normally restricted, while Category 3 pesticides are the least toxic to people and are generally less hazardous.

EXECUTIVE SUMMARY

This document was prepared to establish guidelines for the management of fertilizers and pesticides. The main objective of these guidelines is to safeguard to "the maximum extent practicable"* against unnecessary discharges of fertilizers and pesticides into surface and groundwater systems and to establish safe and reasonable standards for handling those materials. The guidelines are based on state and federal laws, environmental policies and "best management practices" established by various public and private agencies. Through this document, it is envisaged that these practices will establish a set of uniform standards and procedures.

1.0 INTRODUCTION

1.1 Status of Fertilizer and Pesticide Use

Fertilizers and pesticides are a primary tool of vegetation management. Used properly, fertilizers provide important nutrient supplies for vegetation and agriculture, and pesticides help to protect those resources from potential harm.

Used improperly, fertilizers and pesticides can become an impairment to surface and groundwater supplies. Careless application, mixing, transportation, storage and disposal allow chemicals to enter surface and groundwater through runoff and infiltration; the same handling problems endanger human health through exposure to toxic chemicals; soil degradation often results from overuse and misuse of pesticides and fertilizers. Even under ideal conditions, there is still a high level of risk, and consequently, there is a need for considerable professional planning and management.

1.2 Management Options

Because of the risk involved in using fertilizers and pesticides, the development of management guidelines for use of fertilizers and pesticides is an essential element of the DAMP. These guidelines are designed not only to comply with the NPDES Stormwater Program, but also to minimize any threat to human health and environmental resources from improper use of fertilizers and pesticides. It is envisaged that consideration of these guidelines by the permittees will cause public agencies to re-evaluate their approach to using fertilizers and pesticides and move toward reducing dependence on them.

The guidelines that follow are intended for the use of the Permittees, although they may ultimately be used on a broader scale. They are based on the laws, management guidelines and "best management practices" established by other federal, state and local agencies. They recognize that the safe management of fertilizers and pesticides is a shared responsibility between the field worker and management. These guidelines address the concern for fertilizer and pesticide use at a basic level, and if followed, they should reasonably prevent environmental damage to the highest degree possible.

1.3 Definitions

For the purpose of these guidelines, fertilizers may be referred to as "nutrients" or "soil nutrients," and the term "pesticides" will encompass all herbicides, insecticides, fungicides and rodenticides. The California Food and Agricultural Code and the California Code of Regulations, Title 3 (3 CCR)*, constitute the laws and regulations referenced in this plan. They are referenced often and usually referred to as the "State Code."* Also, Permittees will be referred to as "public agencies," and employees working for these public agencies who handle fertilizers & pesticides will be referred to as "workers" or "public employees."

2.0 FERTILIZER MANAGEMENT

2.1 Definition and Scope of Guidelines

Fertilizers are nutrients applied to soil to provide a better growing environment for plants. The fertilizers most commonly in use in Southern California today are nitrogen- and phosphorus-based. Both leach into soils easily in the presence of water and have become a water quality concern, causing algal blooms and eutrophication* and, in some cases, causing levels to exceed federal drinking water standards.

However, fertilizers also play the important role of promoting vegetation growth that protects soil from erosion and enhances landscape aesthetics. Because there is a necessity for soil nutrients and because there is a potential for adverse effects on local waterways due to the loss of these nutrients through runoff and infiltration, management guidelines are necessary as a means of reducing the loss of fertilizers into water supplies.

2.2 General Considerations

2.2.1 State and Federal Law

Because most fertilizers are not as toxic as pesticides, state and federal lawmakers have not developed regulations for their use. Fertilizers are not usually considered an immediate danger to public health or safety. However, the California Fertilizer Association (CFA)*, a Sacramento-based organization, has developed complete management guidelines for fertilizer use and the State Department of Food and Agriculture has recommendations for use of nitrate-based fertilizers, both of which are available for consultation.

2.2.2 General Recommendations

1. Public agencies should periodically have soils tested before applying fertilizers to be certain that application is appropriate for and compatible with soil conditions. The samples should be analyzed by a qualified specialist for fertilizer applications*, and workers should follow the recommendations.
2. Public agencies should choose to use organic fertilizers such as compost, peat and mulch wherever possible to increase soil porosity and water retention.
3. Workers should apply only the minimum amount of fertilizer needed and incorporate it directly into the soil around the plant, where possible, to minimize potential surface runoff.
4. Workers should not apply fertilizers in the rain or on the same day that rain is expected.
5. Workers should immediately cleanup any spill of fertilizers.

6. Storage facilities should be covered and have impermeable foundations so that potential spills don't have the opportunity to runoff into surface water or leach into groundwater systems.
7. Fertilizers that may be carried by the wind should be stored in areas away from open loading spaces and entrances of storage warehouses.
8. Fertilizers should be securely covered in the vehicle before being taken to application sites so that none can spill or fly out during transport.
9. Use slow release fertilizers -- such as water soluble nitrogen fertilizers, coated fertilizers and fertilizers of limited solubility -- whenever possible to minimize the possibility of leaching.

2.3 Planning for Use of Fertilizers

2.3.1 Soil Testing

Most fertilizers travel quickly through water. Therefore, fertilizers will leach through soil and potentially contaminate groundwater more quickly after excess watering or irrigation, after heavy rains and where the water table is high. For this reason, soil testing is an important management technique to determine the safest fertilizer application rate.

The California Landscape Contractors Association (CLCA) has a complete list of organizations in Southern California that offer soil testing and analyzing for fertilizer use. To get a copy of that list, CLCA can be contacted at (916) 448-2522. If a reliable soil analyst is not already known, it is advisable for public agencies to consult CLCA and research a specialist who can make recommendations for fertilizer use.

2.3.2 Application Rates

The amount of fertilizer needed for different applications depends on a number of factors. For specific recommendations, a qualified specialist should be consulted. The following are some factors to be considered:

- The vegetation's ability to use fertilizer;
- The amount of nutrients already in the soil, including fertilizer that may still be present from a previous application;
- The amount of soil nutrients that will or can be obtained from natural processes;
- The expected loss of nutrients from the soil; and
- The temperature at the time of application.

2.3.3 Timing

For vegetation with different growth patterns, fertilizers should be applied at different times and in different quantities. The vegetation being managed should be researched and fertilizers applied only according to the amounts and at the time intervals recommended by a qualified specialist for fertilizer applications. This should minimize the waste of fertilizer and reduce any risk of water contamination.

2.4 Application Methods of Fertilizers

This section details the most common methods for application of fertilizers. These are not the only acceptable methods of fertilizer application. Every application has its own circumstances and variables to consider. A qualified fertilizer specialist should be consulted to recommend the most appropriate application method.

2.4.1 Banding of Fertilizer

Probably the most common and safest application method, this involves physically working small amounts of fertilizer into the soil in a band beneath and around the sides of a seed. It allows new roots to efficiently use the nutrients and minimizes potential nutrient loss to surface runoff. However, given the labor involved, banding may not be practical for most public agency fertilizer applications.

2.4.2 Foliar Fertilization

This is fertilizer applied in solution form that is absorbed through leaves and stems. The method can reduce nutrient leaching into the soil when applied correctly and can be performed at the same time as pesticides application to avoid spraying twice. In this case, the guidelines for pesticide applications must also apply.

2.4.3 Broadcast Application

By this method, dry or liquid fertilizer is uniformly spread over the soil surface. This is often done mechanically, an example being the "drop spreader" which is usually an inverted triangle hopper. The simplest of mechanical applicators, the drop spreader is commonly mounted on wheels and pushed by hand or pulled by vehicle to drop fertilizer out of the bottom of the triangle.

Other types of broadcast applicators include spray booms for liquid fertilization or "spinning disks" mounted on a moving vehicle that throw dry fertilizer into the air. It should be noted that these latter methods do not offer much control over fertilizer drift in adverse weather conditions.

2.4.4 Fertigation

Although not likely to be used by public agencies for fertilizer applications, this method is common among Californian farmers who incorporate fertilizers into irrigation water. The potential for nutrient leaching using this method, though, appears to be high.

2.5 Storage and Handling of Fertilizers

2.5.1 General Description

When stored and handled properly, fertilizers present no hazard to the users' health. Public employees responsible for the storage and handling of fertilizers should be aware that some fertilizers have properties that can result in dangerous chemical reactions if mixed with other substances or under unusual circumstances. For example, ammonium nitrate may become explosive if it becomes mixed in diesel fuel; a dehumidifier may be necessary for storage areas where sensitive fertilizers are stored. Also, because most fertilizers tend to be corrosive, concrete structures are preferred for fertilizer storage facilities.

2.5.2 Dry Fertilizer

In most cases, dry fertilizers are safe to store, transport and handle. However, because some fertilizers have unique, potentially dangerous properties, it is advisable for public agencies to consult a qualified fertilizer specialist for the safest storage and handling procedures for specific fertilizers.

2.5.3 Liquid Fertilizer

Fertilizers in liquid form are potentially more hazardous than dry fertilizer. Public employees responsible for storage and handling need to be aware of the specific properties of each liquid fertilizer in use, including corrosivity and tolerable temperature and pressure ranges. Protective equipment may be necessary for workers handling fertilizers such as sulfuric or phosphoric acid. A qualified fertilizer specialist should be consulted for recommending the safest handling and storage procedures for specific liquid fertilizers.

3.0 PESTICIDE MANAGEMENT

3.1 Definition and Scope of Guidelines

Pesticides are designed to kill or restrict the growth of plants and organisms, and thus, are potentially dangerous chemicals. Increasing scientific concern for their safe use and heightened public awareness of health concerns has led to more and more regulations in the United States at both the state and federal level. Pesticide use by public agencies often involves applications to keep flood control channels and roadways clear or to minimize health and safety hazards of disease-bearing rodents and insects. Any of these applications can drain into stormwater basins if not controlled properly. Although safety concerns and the cost of complying with new regulations have encouraged some public agencies to cut back on the use of pesticides, use is still common, and their management is therefore essential.

3.2 General Considerations

3.2.1 State and Federal Law

The California Department of Food and Agriculture and the federal Toxic Substances Control Act (TSCA) have set forth extensive rules and regulations that must be met by all public agencies. At an absolute minimum, public agencies must comply with these laws or be subject to the penalties described in the statutes.

3.2.2 Chemical Labels and Materials Safety Data Sheets (MSDS)

1. Without exception, chemical labels* provided by the manufacturer of each pesticide are the first source of recommendations and instructions for chemical use. Whenever a chemical is to be used by a worker or a contractor of a public agency, the user needs to be intimately familiar with the label instructions and requirements.

As described in the State Code (Ch. 2, Subch. 1, Art. 10), the label must appear on the immediate container of the chemical and include, in prominent, bold type, the appropriate warning or caution statement according to its toxicity classification*. If a chemical is transferred to another container, a copy of the label should be transferred with it.

Workers should never handle a container that doesn't have a warning label attached, and the supervisor in charge should be immediately advised of the situation. If a label is badly damaged, the supervisor should replace it.

2. Workers using pesticides should have readily available the Materials Safety Data Sheets (MSDS)* for each chemical they are using. Although the MSDS is a form that may vary in appearance for different chemicals, the information is the same, as required by law. Similar to the chemical labels, these sheets contain information necessary to handle each chemical safely, and all workers should be familiar with the information.

MSDS sheets include chemical identifications, hazardous ingredients, physical data, fire and explosion data, health hazards, reactivity data, spill or leak cleanup procedures, special protection and special precautions.

3.2.3 General Recommendations

1. Public agencies should maintain a complete list of all chemicals and their uses.
2. Public agencies should thoroughly investigate and consider all alternatives to pesticide use.
3. Workers should use pesticides only according to label instructions.
4. Work crews should bring to the work site only the amount of chemical to be used during the application and use only the minimum amount the chemical necessary.
5. Workers should consider weather conditions that could affect application (for example, they shouldn't spray when winds are exceeding 5 mph, when raining or when rain is likely).
6. Workers should consider area drainage patterns (for example, they shouldn't apply near wetlands, streams and lakes or ponds unless it is for an approved maintenance activity).
7. Workers should consider soil conditions before applying pesticides (for example, they shouldn't apply to bare or eroded ground).
8. Workers should triple-rinse empty pesticide containers before disposal and use the leftover wash as spray.
9. Workers should never clean or rinse pesticide equipment and containers in the vicinity of storm drains*.
10. Pesticides should only be stored in areas with cement floors and in areas insulated from temperature extremes.
11. Workers should secure chemicals and equipment during transportation to prevent tipping or excess jarring in apart of the vehicle completely isolated from people, food and clothing.

12. Workers or their supervisors should inspect pesticide equipment, storage containers and transportation vehicles daily.
13. Public agencies should adopt a plan for dealing with potential accidents before they happen.
14. Workers should immediately clean up any chemical spill according to label instructions and notify the appropriate supervisors and agencies.

3.3 Planning for Use of Pesticides

3.3.1 Selection of Appropriate Pesticides

1. Pesticides are to be used only after recommendation from a state-licensed or certified pest control advisor.
2. Public agencies should also seek advice for appropriate pesticide use from the Orange County Agricultural Commission, from other professional pesticide handlers and/or through professional publications. The County Agricultural Commission can be contacted at (714) 447-7100.
3. A special effort should be made to limit use of restricted pesticides and all other Category One pesticides.

3.3.2 Certification, Licensing and Permitting

1. Pesticides are only to be applied by or under the direct supervision of an individual with a qualified applicators license (QAL)* for pesticide applications or by workers with equivalent training*.
2. Chemicals listed as "restricted" in the State of California may be used only under a restricted materials permit* (StateCode Ch. 2, Subch. 4) to be issued by the Orange County Agricultural Commission. The permit must be renewed annually for continued use. For more information, contact the Commission at (714) 447-7100.
3. All other guidelines concerning permits, licensing and certification requirements to be followed before pesticide application are detailed in the State Code, Chapter 3, Subchapter 1.

3.3.3 Employee Training

1. Public agency employees must know the information on the chemical label and its MSDS before using pesticides in any capacity. In addition, they should (a) know the immediate and long-term health hazards posed by chemicals to be used, the common symptoms of chemical poisoning and the ways poisoning could occur, and (b) know the safe work practices to be followed, including the appropriate protective clothing, equipment, mixing, transportation, storage, disposal and spill cleanup procedures that apply to the specific chemicals being used.
2. In addition to the training and annual continuing education required for licensing and certification (3 CCR, Ch. 3, Subch.3, Art. 2), public employees are encouraged to participate in continuing pesticide education programs whenever the programs are available.

3.3.4 Accident Mitigation

Public agencies using pesticides should have plans for dealing with potential accidents before they happen. These plans should consider:

1. Labels and MSDS Sheets -- All workers handling pesticides must be familiar with these instructions. The steps for accident mitigation are spelled out on chemical labels and MSDS sheets.
2. Spill Cleanup Kits -- Any time pesticides are being handled, there should be a cleanup kit on hand in case of an accident. This means there should always be a cleanup kit located in pesticide storage areas, on vehicles used to transport pesticides and on location where the chemicals are being applied. Although these kits may vary in what they contain depending on the chemical type and the situation, at a minimum they should include:
 - spill-control procedures
 - a five gallon drum with sealable lid
 - a dust pan and broom
 - a squeegee
 - a shovel
 - protective goggles, gloves, boots, coveralls
 - a tarp (for covering dry spills)
 - detergent and water (check label or MSDS for proper use)
 - barricade tape, florescent traffic safety cones or string to cordon off an area
 - large sponges, containment booms or some other absorbent material

3. Cleanup Procedures -- Spilled pesticides must be prevented from entering the local surface and/or groundwater supplies. Specific recommendations for spill cleanup should be available on each chemical label or MSDS. Specific recommendations for the sequence of procedures may also vary depending on the situation. However, generally, in case of a spill, the responsible worker(s) should:

EVALUATE the accident and quickly determine the most immediate concerns (medical and/or environmental).

CONTAIN OR CONTROL the spill.

NOTIFY the supervisor in charge who should, in turn, notify the proper authorities. If contact cannot be made, dial 911.

ISOLATE the area with fluorescent traffic safety cones, ropes or some other cordoning device to be sure that no one walks, wanders or drives through the spill area.

CLEAN UP the spill as best as possible following label instructions and using the appropriate spill cleanup kit.

EVALUATE any damage that may have occurred resulting from the spill (property damage, health damage, equipment damage, etc.) and make notes on all relevant details and circumstances before leaving the scene.

PREPARE A COMPLETE REPORT detailing the incident immediately after leaving the scene upon returning to the work place and submit it to the immediate supervisor.

3.3.5 Emergency Medical Care

Accident situations requiring emergency medical care are likely to involve acute exposure to potentially toxic chemicals. Instructions for handling these exposures appear on the chemical label. Workers should:

1. Be aware of the symptoms of acute exposures for each chemical being used.
2. Have a predetermined strategy for dealing with exposure scenarios, including knowing (a) the label recommendations for dealing with acute exposures and (b) the nearest medical facility where emergency care is available.

3.3.6 Equipment and Equipment Maintenance

All equipment for the handling of pesticides should be inspected and cleaned by workers before each use to ensure that there are no problems that could lead to chemical leaks, spills or accidents during the day's work (State Code Ch. 3, Subch. 3, Art. 2).

3.3.7 Groundwater and Surface Water Protection

Similar to the discussion of leaching in fertilizer management, the main factors determining the rate at which pesticides enter groundwater and surface water systems are chemical mobility, solubility and persistence and the soil type. For example, potentially dangerous chemicals are likely to have a high solubility and an extremely long half-life, and they are not likely to be easily absorbed into the soil. Therefore, chemicals that decompose rapidly may be preferred. However, note that to choose a chemical that may need to be applied two or three times as often may not make sense from a transportation and application risk standpoint.

Because of these factors, regardless of the category of chemicals being used, pesticide advisors should always test the soil for compatibility with specific chemicals before recommending pesticides for a specific area.

Furthermore, because the effect of these uses is not always immediately apparent, public agencies should periodically test areas that could be particularly vulnerable to contamination or deterioration. The results of these tests should be kept on public record.

3.4 Application of Pesticides

3.4.1 Supervision

1. In cases where supervision of pesticide applications is required by the State Code, supervision must be handled by a state-licensed or certified pesticide applicator. For all other pesticide applications, supervision may be handled by workers with equivalent training.
2. Public agencies that contract pesticide applications should periodically inspect contracted work crews to be certain that contractors are following proper management guidelines. Public agencies handling their own applications should likewise inspect their work crews on a regular basis to ensure that safety standards are being met.

3.4.2 Proper Techniques

1. Read the label carefully and follow application instructions exactly. Be absolutely certain that the right chemical is being used for the right job before applying.
2. To prevent potentially harmful runoff, only the absolute minimum amount of pesticides should be used to ensure vegetation safety.
3. Recommendations for best weather conditions to prevent pesticide spray drift are outlined in State Code Chapter 2, Subchapter 4, Article 2.

3.4.3 User Safety and Protection

1. Public agencies should have on hand equipment for application of pesticides should include eye protection, gloves, respiratory gear and impervious full-body, chemical resistant clothing when called for by the chemical label.
2. Even when wearing respiratory gear or masks, when dealing with spray applications of pesticides, workers should avoid directly inhaling in the spray mist.
3. Workers should avoid working alone, especially at night.
4. Workers should clean equipment, clothing and self thoroughly after each application.
5. State laws regarding re-entry into fields that have recently been treated with pesticides should be followed (State Code Chapter 3, Subchapter 3, Article 3).
6. Public agencies are responsible for knowing and informing workers about the specific pesticides being used including how they are properly handled, the dangers involved and the proper training and safety procedures.
7. Public agencies are responsible for keeping updated records and a complete list of the pesticides being used in their jurisdiction. This should include the chemicals, amount in storage, amount of applications, dates and location of applications and pests controlled with each application.
8. Public agencies should keep all relevant label and MSDS information for each chemical updated and readily available at all times to workers handling the materials.

3.5 Storage, Disposal and Transportation

3.5.1 Proper Storage

1. Storage areas should be away from living areas and in a covered area that is well-insulated from temperature extremes; they should have a cement floor and good ventilation. Also, storage areas should be clearly marked according to state standards and be securely locked at all times when not in use.
2. Public agencies should ensure that chemical labels on pesticides being stored or used are kept in good condition and attached to all containers holding pesticides (State Code Ch. 3, Subch. 2, Art. 4).
3. Workers should ensure that storage equipment and containers are inspected daily for leaks or defects before being taken on the job. Containers should also be inspected and before storing at the end of the day.

3.5.2 Proper Disposal

1. Workers should make certain that chemical containers are triple-rinsed before disposal (State Code Ch. 3, Subch. 2)
2. It is recommended that cleaned containers be sent back to the manufacturer for recycling whenever possible. However, once triple-rinsed, most haulers will take them to most landfills.
3. Workers should use left over rinse water as spray.
4. Public agencies should ensure that surplus or out-of-date chemicals are given to a licensed hazardous waste hauler for disposal.

3.5.3 Safe Transportation Methods

1. Workers should ensure that all pesticides containers are tightly sealed and secured from tipping or excess jarring (State Code Ch. 3, Subch. 2, Art. 4).
2. Transportation compartments on vehicles should be isolated from the compartment carrying people, food and clothing and should be securely locked (State Code Ch. 3, Subch. 2, Art. 4).
3. Workers should transport only the amount of pesticide needed for the day to the site.
4. Workers should be certain that the appropriate chemical labels and MSDS sheets, a spill cleanup kit, the location of emergency medical care and a first aid kit are always brought along when transporting pesticides.

5. Public agencies should encourage all vehicles used for pesticide transportation to include radio communications for contacting help in case of a spill or some other emergency.

4.0 INTEGRATED PEST MANAGEMENT*

4.1 Background on Pesticide Use

For most of the last 50 years, the trend in vegetation management has been toward a greater reliance on pesticides. The result has been not only a tremendous increase in the use of many dangerous chemicals, but also an enormous increase in the number of pests that are resistant to the pesticides being produced. In essence, as more pesticides have been produced, more resistant strains of pests have evolved. Worse, recent studies have shown that the end result of this global trend has been no net gain in vegetation survival rates.

With these realizations becoming well known, vegetation managers are now moving away from their reliance on pesticides and toward an integrated approach that combines limited pesticides use with more environmentally-friendly pest control techniques.

4.2 Scope of Guidelines

For public agencies in Orange County, IPM practices should be preferred to the sole use of pesticides as the primary means of vegetation management. These techniques are designed to prevent overuse and to reduce reliance on them. IPM should be considered by all public agencies or their contractors before intensive use of pesticides.

The goal of IPM is not to eliminate all pests, but to keep their populations at a manageable number. Pesticides are part of IPM techniques, but they are used in small quantities and only after all other alternatives have been reviewed.

4.3 Alternatives to Pesticides

Some of the alternatives to pesticides that may be considered as part of an IPM program include:

1. Introduction of natural predators such as ladybugs, lacewings, garter snakes and toads. Also, some bacteria, viruses and insect parasites may be preferable to pesticides.
2. Selected removal or rotation of vegetation habitat to eliminate the breeding places of specific pests.
3. Weeding, hoeing and trapping manually. Pruning and thinning of trees is also an effective means of preventing epidemic tree insects and diseases.

Also, at certain times of the year and under certain environmental conditions, certain pests can be expected. Therefore, timely planting or well-timed use of small quantities of pesticides may avoid the need for some chemical use.

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16. County of Orange Water Quality Ordinance

COUNTY OF ORANGE WATER QUALITY ORDINANCE

ARTICLE 1. GENERAL PROVISIONS

Sec. 9-1-10. Adoption of the Water Quality Ordinance.

Pursuant to the Orange County Flood Control Act, section 36-2, subdivision (b), paragraphs (17) and (18), and section 36-2.5 of West's Annotated California Water Code Appendix, which, among other things, authorize the District to "regulate, prohibit, or control the discharge of pollutants, waste, or any other material into the district's facilities..." and "[to] establish compliance with any federal, state, or local law, order, regulation, or rule..." there is hereby adopted a Water Quality Ordinance.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-20. Purpose.

The purpose of the Water Quality Ordinance is to prescribe regulations as mandated by the Clean Water Act [33 USC Sec. 1251 et seq., as amended] to effectively prohibit non-stormwater discharges into the storm sewers and to reduce the discharge of pollutants. Human activities, such as agriculture, construction and the operation and maintenance of an urban infrastructure may result in undesirable discharges of pollutants and certain sediments, which may accumulate in local drainage channels and waterways and eventually may be deposited in the waters of the United States. This Ordinance will improve water quality by controlling the pollutants which enter the network of storm drains throughout Orange County.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-30. Definitions.

(a) *Authorized Inspector* shall mean the person designated by the Director of Public Facilities and Resources Department and persons designated by and under his/her instruction and supervision, who are assigned to investigate compliance and detect violations of this Ordinance.

(b) *Co-permittee* shall mean the County of Orange, the Orange County Flood Control District, and all the municipalities within Orange County which are responsible for compliance with the terms of the NPDES Permit.

(c) *County* shall mean the County of Orange, California.

(d) *DAMP* shall mean the Orange County Drainage Area Management Plan, as the same may be amended from time to time.

(e) *Development project guidance* shall mean DAMP Chapter VII and the Appendix thereto, entitled Best Management Practices for New Development Including Non-Residential Construction Projects, and all subsequent amendments thereto.

(f) *Discharge* shall mean any release, spill, leak, pump, flow, escape, leaching (including subsurface migration or deposition to groundwater), dumping or disposal of any liquid, semi-solid or solid substance.

(g) *Discharge exception* shall mean the group of activities not restricted or prohibited by this Ordinance, including only:

Discharges composed entirely of stormwater; discharges subject to regulation under current EPA or Regional Water Quality Control Board issued NPDES permits, State General Permits, or other waivers, permits or approvals granted by an appropriate government agency; discharges from property for which best management practices set forth in the development project guidance are being implemented and followed; discharges to the stormwater drainage system from potable water line flushing, fire fighting activities, landscape irrigation systems, diverted stream flows, rising groundwater, and de minimis groundwater infiltration to the stormwater drainage system (from leaks in joints or connections or cracks in water drainage pipes or

conveyance systems); discharges from potable water sources, passive foundation drains, air conditioning condensation and other building roof runoff, agricultural irrigation water runoff, water from crawl space pumps, passive footing drains, lawn watering, noncommercial vehicle washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges; discharges of reclaimed water generated by a lawfully permitted water treatment facility; street wash waters when related to cleaning and maintenance by, or on behalf of, the District; discharges authorized pursuant to a permit issued under Article 6 hereof; discharges allowable under the domestic sewage exception; discharges for which the discharger has reduced to the extent feasible the amount of pollutants in such discharge; and, discharges authorized pursuant to federal or state laws or regulations.

In any action taken to enforce this division, the burden shall be on the person who is the subject of such action to establish that a discharge was within the scope of this discharge exception.

(h) *District* shall mean the Orange County Flood Control District.

(i) *Domestic sewage exception* shall mean discharges which are exceptions to this division and excluded from the definition of prohibited discharge, as defined herein, including only:

Discharges composed entirely of accidental spills of untreated sanitary wastes (commonly called domestic sewage) and other wastes, but limited solely to wastes that are controlled by and are within publicly owned wastewater treatment system collection facilities, immediately prior to the accidental spill.

(j) *Enforcing Attorney* shall mean the District Attorney acting as counsel to the District or his/her designee, which counsel is authorized to take enforcement action as described herein. For purposes of criminal prosecution, only the District Attorney or his/her designee shall act as the Enforcing Attorney.

(k) *EPA* shall mean the Environmental Protection Agency of the United States of America.

(l) *Hearing Officer* shall mean the person designated by the Director of the Public Facilities and Resources Department who shall preside at the administrative hearings authorized by this division and issue final decisions on matters raised therein.

(m) *Illicit connection* shall mean any man-made conveyance or drainage system, pipeline, conduit, inlet or outlet, through which the discharge of any pollutant to the stormwater drainage system occurs or may occur. The term "illicit connection" shall not include legal nonconforming connections or connections to the stormwater drainage system that are hereinafter authorized by the agency with jurisdiction over the system at the location at which the connection is made.

(n) *Invoice for Costs* shall mean the actual costs and expenses of the District, including but not limited to administrative overhead, salaries and other expenses recoverable under State law, incurred during any inspection conducted pursuant to Article 2 of this division, or where a notice of noncompliance, administrative compliance order or other enforcement option under Article 5 of this division is utilized to obtain compliance with this division.

(o) *Legal nonconforming connection* shall mean connections to the stormwater drainage system existing as of the adoption of this division that were in compliance with all federal, state and local rules, regulations, statutes and administrative requirements in effect at the time the connection was established, including but not limited to any discharge permitted pursuant to the terms and conditions of an individual discharge permit issued pursuant to the Industrial Waste Ordinance, County Ordinance No. 703.

(p) *New Development* shall mean all public and private residential (whether single family, multi-unit or planned unit development), industrial, commercial, retail, and other nonresidential construction projects, or grading for future construction, for which either a discretionary land use approval, grading permit, building permit or nonresidential plumbing permit is required.

(q) *Nonresidential plumbing permit* shall mean a plumbing permit authorizing the construction and/or installation of facilities for the conveyance of liquids other than stormwater, potable water, reclaimed water or domestic sewage.

(r) *NPDES permit* shall mean the currently applicable municipal discharge permit(s) issued by the Regional Water Quality Control Board, Santa Ana and San Diego Regions, which establish waste discharge requirements applicable to storm runoff within the District.

(s) *Person* shall mean any natural person as well as any corporation, partnership, government entity or subdivision, trust, estate, cooperative association, joint venture, business entity, or other similar entity, or the agent, employee or representative of any of the above.

(t) *Pollutant* shall mean any liquid, solid or semi-solid substances, or combination thereof, including and not limited to:

(1) Artificial materials (such as floatable plastics, wood products or metal shavings).

(2) Household waste (such as trash, paper, plastics, cleaning chemicals, yard wastes, animal fecal materials, used oil and fluids from vehicles, lawn mowers and other common household equipment).

(3) Metals and nonmetals, including compounds of metals and nonmetals (such as cadmium, lead, zinc, copper, silver, nickel, chromium, cyanide, phosphorus and arsenic) with characteristics which cause an adverse effect on living organisms.

(4) Petroleum and related hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants and grease).

(5) Animal wastes (such as discharge from confinement facilities, kennels, pens, and recreational facilities, including, stables, show facilities, and polo fields).

(6) Substances having a pH less than 6.5 or greater than 8.6, or unusual coloration, turbidity or odor.

(7) Waste materials and wastewater generated on construction sites and by construction activities (such as painting and staining; use of sealants and glues; use of lime; use of wood preservatives and solvents; disturbance of asbestos fibers, paint flakes or stucco fragments; application of oils, lubricants, hydraulic, radiator or battery fluids; construction equipment washing, concrete pouring and cleanup; use of concrete detergents; steam cleaning or sand blasting; use of chemical degreasing or diluting agents; and use of super chlorinated water for potable water line flushing).

(8) Materials causing an increase in biochemical oxygen demand, chemical oxygen demand or total organic carbon.

(9) Materials which contain base/neutral or acid extractable organic compounds.

(10) Those pollutants defined in section 1362(6) of the Federal Clean Water Act; and

(11) Any other constituent or material, including but not limited to pesticides, herbicides, fertilizers, fecal coliform, fecal streptococcus or enterococcus, or eroded soils, sediment and particulate materials, in quantities that will interfere with or adversely affect the beneficial uses of the receiving waters, flora or fauna of the State.

(u) *Prohibited discharge* shall mean any discharge, which contains any pollutant, from public or private property to (i) the stormwater drainage system; (ii) any upstream flow, which is tributary to the stormwater drainage system; (iii) any groundwater, river, stream, creek, wash or dry weather arroyo, wetlands area, marsh, coastal slough, or (iv) any coastal harbor, bay, or the Pacific Ocean. The term "prohibited discharge" shall not include discharges allowable under the discharge exception.

(v) *Significant redevelopment* shall mean the rehabilitation or reconstruction of public or private residential (whether single family, multi-unit or planned unit development), industrial, commercial, retail, or other nonresidential structures, for which either a discretionary land use approval, grading permit, building permit or nonresidential plumbing permit is required.

(w) *State general permit* shall mean either the State general industrial stormwater permit or the State general construction permit or any other State general permit that has been or will be adopted and the terms and requirements of any such permit of either or both. In the event the U.S. Environmental Protection Agency revokes the in-lieu permitting authority of the State Water

Resources Control Board, then the term State general permit shall also refer to any EPA administered stormwater control program for industrial and construction activities.

(x) *Stormwater drainage system* shall mean street gutter, channel, storm drain, constructed drain, lined diversion structure, wash area, inlet, outlet or other facility, which is a part of a tributary to the county-wide stormwater runoff system and owned, operated, maintained or controlled by the County of Orange, the Orange County Flood Control District or any co-permittee city, and used for the purpose of collecting, storing, transporting, or disposing of stormwater.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 2. ILLICIT CONNECTIONS AND PROHIBITED DISCHARGES

Sec. 9-1-40. Prohibition on illicit connections and prohibited discharges.

(a) No person shall:

(1) Construct, maintain, operate and/or utilize any illicit connection.

(2) Cause, allow or facilitate any prohibited discharge.

(3) Act, cause, permit or suffer any agent, employee, or independent contractor, to construct, maintain, operate or utilize any illicit connection, or cause, allow or facilitate any prohibited discharge.

(b) The prohibition against illicit connections shall apply irrespective of whether the illicit connection was established prior to the date of enactment of this division; however, legal nonconforming connections shall not become illicit connections until the earlier of the following:

(1) For all structural improvements to property installed for the purpose of discharge to the stormwater drainage system, the expiration of five (5) years from the adoption of this division.

(2) For all nonstructural improvements to property existing for the purpose of discharge to the stormwater drainage system, the expiration of six (6) months following delivery of a notice to the owner or occupant of the property, which states a legal nonconforming connection has been identified. The notice of a legal nonconforming connection shall state the date of expiration of use under this division.

A reasonable extension of use may be authorized by the Director of the Public Facilities and Resources Department or the authorized inspector upon consideration of the following factors:

(1) The potential adverse effects of the continued use of the connection upon the beneficial uses of receiving waters;

(2) The economic investment of the discharger in the legal nonconforming connection; and

(3) The financial effect upon the discharger of a termination of the legal nonconforming connection.

(c) A civil or administrative violation of section 9-1-40(a) shall occur irrespective of the negligence or intent of the violator to construct, maintain, operate or utilize an illicit connection or to cause, allow or facilitate any prohibited discharge.

(d) If an Authorized Inspector reasonably determines that a discharge, which is otherwise within the discharge exception, may adversely affect the beneficial uses of receiving waters, then the Authorized Inspector may give written notice to the owner of the property or facility that the discharge exception shall not apply to the subject discharge following expiration of the thirty-day period commencing upon delivery of the notice. Upon expiration of the thirty-day period any such discharge shall constitute a violation of section 9-1-40(a).

(e) If a request for an extension of use is denied, the owner or occupant of property on which a legal nonconforming connection exists may request an administrative hearing, pursuant to the procedures set forth in Article 5, subsections 9-1-70(f) through (j), for an extension of the period allowed for continued use of the connection.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 3. CONTROLS FOR WATER QUALITY MANAGEMENT

Sec. 9-1-50. New development and significant redevelopment.

(a) All new development and significant redevelopment within the unincorporated and incorporated areas of the county shall be undertaken in accordance with the DAMP, including but not limited to the development project guidance.

(b) Prior to the issuance by the District of a grading permit, building permit or nonresidential plumbing permit for any new development or significant redevelopment, the public facilities and resources department and/or planning and development services department shall review the project plans and impose terms, conditions and requirements on the project in accordance with section 9-1-50(a). If the new development or significant redevelopment will be approved without application for a grading permit, building permit or nonresidential plumbing permit, the public facilities and resources department and/or planning and development services department shall review the project plans and impose terms, conditions and requirement on the project in, accordance with section 9-1-50(a) prior to the issuance of a discretionary land use approval or, at the District's discretion, prior to recordation of a subdivision map.

(c) Notwithstanding the foregoing sections 9-1-50(a) and (b), compliance with the development project guidance shall not be required for construction of (1) a (one) single family detached residence or (2) improvements, for which a building permit is required, to a (one) single-family detached residence unless the public facilities and resources department and/or planning and development services department determines that the construction may result in the discharge of significant levels of a pollutant into a tributary to the stormwater drainage system.

(d) Compliance with the conditions and requirements of the DAMP shall not exempt any person from the requirement to independently comply with each provision of this division.

(e) If the public facilities and resources department and/or planning and development services department determines that the project will have a de minimis impact on the quality of stormwater runoff, then it may issue a written waiver of the requirement for compliance with the provisions of the development project guidance.

(f) The owner of a new development or significant redevelopment project, or upon transfer of the property, its successors and assigns, shall implement and adhere to the terms, conditions and requirements imposed pursuant to section 9-1-50(a) on a new development or significant redevelopment project.

(1) Each failure by the owner of the property, or its successors or assigns, to implement and adhere to the terms, conditions and requirements imposed pursuant to section 9-1-50(a) on a new development or significant redevelopment project shall constitute a violation of this division.

(g) The public facilities and resources department and/or planning and development services department may require that the terms, conditions and requirements imposed pursuant to section 9-1-50(a) be recorded with the County Recorder's office by the property owner. The signature of the owner of the property or any successive owner shall be sufficient for the recording of these terms, conditions and requirements and a signature on behalf of the District shall not be required for recordation.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-51. Cost recovery.

The District shall be reimbursed by the project applicant for all costs and expenses incurred by the public facilities and resources department and/or planning and development services department in the review of new development or significant redevelopment projects for

compliance with the DAMP. The public facilities and resources department and/or planning and development services department may elect to require a deposit of estimated costs and expenses, and the actual costs and expenses shall be deducted from the deposit, and the balance, if any, refunded to the project applicant.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-52. Litter control.

No person shall discard any waste material including but not limited to common household rubbish or garbage of any kind (whether generated or accumulated at a residence, business or other location), upon any public property, whether occupied, open or vacant, including but not limited to any street, sidewalk, alley, right-of-way, open area or point of entry to the stormwater drainage system.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 4. INSPECTIONS

Sec. 9-1-60. Scope of inspections.

(a) *Right to inspect.* Prior to commencing any inspection as hereinbelow authorized, the Authorized Inspector shall obtain either the consent of the owner or occupant of the property or shall obtain an administrative inspection warrant or criminal search warrant.

(b) *Entry to inspect.* The Authorized Inspector may enter property to investigate the source of any discharge to any public street, inlet, gutter, storm drain or the stormwater drainage system located within the jurisdiction of the District.

(c) *Compliance assessments.* The Authorized Inspector may inspect property for the purpose of verifying compliance with this division, including but not limited to (i) identifying products produced, processes conducted, chemicals used and materials stored on or contained within the property, (ii) identifying point(s) of discharge of all wastewater, process water systems and pollutants, (iii) investigating the natural slope at tee location, including drainage patterns and man-made conveyance systems, (iv) establishing the location of all points of discharge from the property, whether by surface runoff or through a storm drain system, (v) locating any illicit connection or the source of prohibited discharge, (vi) evaluating compliance with any permit issued pursuant to Article 6 hereof, and (vii) investigating the condition of any Legal Nonconforming Connection.

(d) *Portable equipment.* For purposes of verifying compliance with this division, the Authorized Inspector may inspect any vehicle, truck, trailer, tank truck or other mobile equipment.

(e) *Records review.* The Authorized Inspector may inspect all records of the owner or occupant of property relating to chemicals or processes presently or previously occurring on-site, including material and/or chemical inventories, facilities maps or schematics and diagrams, material safety data sheets, hazardous waste manifests, business plans, pollution prevention plans, State general permits, stormwater pollution prevention plans, monitoring program plans and any other record(s) relating to illicit connections, prohibited discharges, a legal nonconforming connection or any other source of contribution or potential contribution of pollutants to the stormwater drainage system.

(f) *Sample and test.* The Authorized Inspector may inspect, sample and test any area runoff, soils area (including groundwater testing), process discharge, materials within any waste storage area (including any container contents), and/or treatment system Discharge for the purpose of determining the potential for contribution of pollutants to the Stormwater Drainage System. The Authorized Inspector may investigate the - integrity of all storm drain and sanitary

sewer systems, any Legal Nonconforming Connection or other pipelines on the property using appropriate tests, including but not limited to smoke and dye tests or video surveys. The Authorized Inspector may take photographs or video tape, make measurements or drawings, and create any other record reasonably necessary to document conditions on the property.

(g) *Monitoring.* The Authorized Inspector may erect and maintain monitoring devices for the purpose of measuring any discharge or potential source of discharge to the stormwater drainage system.

(h) *Test results.* The owner or occupant of property subject to inspection shall, on submission of a written request to the Authorized Inspector receive copies of all monitoring and test results conducted at the property.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 5. ENFORCEMENT

Sec. 9-1-70. Administrative remedies.

(a) *Notice of noncompliance.* The Authorized Inspector may deliver to the owner or occupant of any property, or to any Person responsible for an Illicit Connection or Prohibited Discharge a Notice of Noncompliance. The Notice of Noncompliance shall be delivered in accordance with section 9-1-70(e) of this division.

(1) The notice of noncompliance shall identify the provision(s) of this division, or the applicable permit which has been violated. The notice of noncompliance shall state that continued noncompliance may result in additional enforcement actions against the owner, occupant and/or person.

(2) The notice of noncompliance shall state a compliance date that must be met by the owner, occupant and/or person; provided, however, that the compliance date may not exceed ninety (90) days unless the Authorized Inspector extends the compliance deadline an additional period not exceeding ninety (90) days where good cause exists for the extension.

(b) *Administrative compliance orders.*

(1) The Authorized Inspector may issue an Administrative Compliance Order. The Administrative Compliance Order shall be delivered in accordance with section 9-1-70(e) of this division. The Administrative Compliance Order may be issued to:

a. The owner or occupant of any property requiring abatement of conditions on the property that cause or may cause a prohibited discharge or an illicit connection in violation of this division;

b. The owner of property subject to terms, conditions or requirements imposed on a project in accordance with section 9-1-50(a) to ensure adherence to those terms, conditions and requirements.

c. A permittee subject to the requirements of any permit issued pursuant to Article 6 hereof to ensure with terms, and requirements of the permit.

d. Any person responsible for an illicit connection or prohibited discharge.

(2) The administrative compliance order may include the following terms and requirements:

a. Specific steps and time schedules for compliance as reasonably necessary to eliminate an existing prohibited discharge or to prevent the imminent threat of a prohibited discharge, including but not limited to a prohibited discharge from any pond, pit, well, surface impoundment, holding or storage area;

b. Specific steps and time schedules for compliance as reasonably necessary to discontinue any illicit connection;

c. Specific requirements for containment, cleanup, removal, storage, installation of overhead covering, or proper disposal of any pollutant having the potential to contact stormwater runoff;

d. Any other terms or requirements reasonably calculated to prevent imminent threat of or continuing violations of this division, including, but not limited to requirements for compliance with best management practices guidance documents promulgated by any federal, State of California or regional agency;

e. Any other terms or requirements reasonably calculated to achieve full compliance with the terms, conditions and requirements of any permit issued pursuant hereto.

(c) *Cease and desist orders.*

(1) The Authorized Inspector may issue a cease and desist order. A cease and desist order shall be delivered in accordance with section 9-1-70(e) of this division. A cease and desist order may direct the owner or occupant of any property and/or other person responsible for a violation of this division to:

a. Immediately discontinue any illicit connection, or prohibited discharge to the stormwater drainage system;

b. Immediately container divert any flow of water off occurring in violation of any provision of this division;

c. Immediately discontinue any other violation of this division.

d. Clean up the area affected by the violation.

(2) The Authorized Inspector may direct by cease and desist order that: (1) the owner of any property, or his successor-in-interest, which property is subject to any conditions or requirements issued pursuant to section 9-1-50(a); or, (2) any permittee under any permit issued pursuant to Article 6 hereof:

a. Immediately cease any activity not in compliance with the conditions or requirements issued pursuant to section 9-1-50(a) or the terms, conditions and requirements of the applicable permit.

(d) *Recovery of costs.* The Authorized Inspector may deliver to the owner or occupant of any property, any permittee or any other person who becomes subject to a notice of noncompliance or administrative order, an invoice for costs. An invoice for costs shall be delivered in accordance with section 9-1-70(e) of this division. An invoice for costs shall be immediately due and payable to the District for the actual costs incurred by the District in issuing and enforcing any notice or order.

(1) If any owner or occupant, permittee or any other person subject to an invoice for costs fails to either pay the invoice for costs or appeal successfully the invoice for costs in accordance with section 9-1-70(f), then the enforcing attorney may institute collection proceedings.

(e) *Delivery of notice.* Any notice of noncompliance, administrative compliance order, cease and desist order or invoice of costs to be delivered pursuant to the requirements of this division shall be subject to the following:

(1) The notice shall state that the recipient has a right to appeal the matter as set forth in subsections 9-1-70(f) through (j) of this division.

(2) Delivery shall be deemed complete upon (a) personal service to the recipient; (b) deposit in the U.S. mail, postage pre-paid for first class delivery; or (c) facsimile service with confirmation of receipt.

(3) Where the recipient of notice is the owner of the property, the address for notice shall be the address from the most recently issued equalized assessment roll for the property or as otherwise appears in the current records of the County.

(4) Where the owner or occupant of any property cannot be located after the reasonable efforts of the Authorized Inspector, a Notice of Noncompliance or Cease and Desist Order shall be deemed delivered after posting on the property for a period of ten (10) business days.

(f) *Administrative hearing for notices of noncompliance, administrative compliance orders, invoices for costs and adverse determinations.* Except as set forth in section 9-1-70(h), any person receiving a notice of noncompliance, administrative compliance order, a notice of legal nonconforming connection, an invoice for costs, or any person who is subject to any adverse

determination made pursuant to this division, may appeal the matter by requesting an administrative hearing. Notwithstanding the foregoing, these administrative appeal procedures shall not apply to criminal proceedings initiated to enforce this division.

(g) *Request for administrative hearing.* Any person appealing a notice of noncompliance, an administrative compliance order, a notice of legal nonconforming connection, an invoice for costs or an adverse determination shall, within thirty (30) days of receipt thereof, file a written request for an administrative hearing, accompanied by an administrative hearing fee as established by separate resolution, with the Office of the Clerk of the Orange County Board of Supervisors, with a copy of the request for administrative hearing mailed on the date of filing to the Director, Public Facilities and Resources Department. Thereafter, a hearing on the matter shall be held before the Hearing Officer within sixty (60) days of the date of filing of the written request unless, in the reasonable discretion of the Hearing Officer and pursuant to a written request by the appealing party, a continuance of the hearing is granted.

(h) *Administrative hearing for cease and desist orders and emergency abatement actions.* An administrative hearing on the issuance of a cease and desist order or following an emergency abatement action shall be held within five (5) business days following the issuance of the order or the action of abatement, unless the hearing (or the time requirement for the hearing) is waived in writing by the party subject to the cease and desist order or the emergency abatement. A request for an administrative hearing shall not be required from the person subject to the cease and desist order or the emergency abatement action.

(i) *Rearing proceedings.* The Authorized Inspector shall appear in support of the notice, order, determination, invoice for costs or emergency abatement action, and the appealing party shall appear in support of withdrawal of the notice, order, determination, invoice for costs, or in opposition to the emergency abatement action. Except as set forth in section 9-1-30(g) (definition of discharge exception), the District shall have the burden of supporting any enforcement or other action by a preponderance of the evidence. Each party shall have the right to present testimony and other documentary evidence as necessary for explanation of the case.

(j) *Final decision and appeal.* The final decision of the Hearing Officer shall issue within ten (10) business days of the conclusion of the hearing and shall be delivered by first-class mail, postage prepaid, to the appealing party. The final decision shall include notice that any legal challenge to the final decision shall be made pursuant to the provisions of Code of Civil Procedure sections 1094.5 and 1094.6 and shall be commenced within ninety (90) days following the final decision. The administrative hearing fee paid by a prevailing party in an appeal shall be refunded.

(1) Notwithstanding this section 9-1-70(j), the final decision of the Hearing Officer in any proceeding determining the validity of a cease and desist order or following an emergency abatement action shall be mailed within five (5) business days following the conclusion of the hearing.

(k) *District abatement.* In the event the owner of property, the operator of a facility, a permittee, or any other person fails to comply with any provision of a compliance schedule issued to such owner, operator, permittee or person pursuant to this division, the Authorized Inspector may request the Enforcing Attorney to obtain an abatement warrant or other appropriate judicial authorization to enter the property, abate the condition and restore the area. Any costs incurred by the District in obtaining and carrying out an abatement warrant or other judicial authorization may be recovered pursuant to section 9-1-71(d).

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-71. Nuisance.

Any condition in violation of the prohibitions of this division, including but not limited to the maintenance or use of any illicit connection or the occurrence of any prohibited discharge,

shall constitute a threat to the public health, safety and welfare, and is declared and deemed a nuisance pursuant to Government Code section 38771.

(a) *Court order to enjoin or abate.* At the request of the Director, Public Facilities and Resources Department or his/her designee, the Enforcing Attorney may seek a court order to enjoin and/or abate the nuisance.

(b) *Notice to owner and occupant.* Prior to seeking any court order to enjoin or abate a nuisance or threatened nuisance, the Director, Public Facilities and Resources Department or his/her designee, shall provide notice of the proposed injunction or abatement to the owner and occupant, if any, of the property where the nuisance or threatened nuisance is occurring.

(c) *Emergency Abatement.* In the event the nuisance, constitutes an imminent danger to public safety or the environment, the Authorized Inspector may enter the property from which the nuisance emanates, abate the nuisance and restore any property affected by the nuisance. To the extent reasonably practicable, informal notice shall be provided to the owner and occupant prior to abatement. If necessary to protect the public safety or the environment, abatement may proceed without prior notice to or consent from the owner or occupant thereof and without judicial warrant.

(1) An imminent danger shall include, but is not limited to, exigent circumstances created by the dispersal of pollutants, where the same presents a significant and immediate threat to the public safety or the environment.

(2) Notwithstanding the authority of the District to conduct an emergency abatement action, an administrative hearing pursuant to section 9-1-70(h) hereinabove shall follow the abatement action.

(d) *Reimbursement of costs.* All costs incurred by the District in responding to any nuisance, all administrative expenses and all other expenses, recoverable under State law, shall be recoverable from the person(s) creating, causing, committing, allowing or maintaining the nuisance.

(e) *Nuisance lien.* All costs shall become a lien against the property from which the nuisance emanated and a personal obligation against the owner thereof in accordance with Government Code sections 38773.1 and 38773.5. The owner of record of the property subject to any lien shall be given notice of the lien prior to recording as required by Government Code section 38773.1.

(1) At the direction of the Director, Public Facilities and Resources Department or his/her designee, the Enforcing Attorney is Authorized to collect nuisance abatement costs or enforce a nuisance lien in an action brought for a money judgement or by delivery to the County Assessor of a special assessment against the property in accord with the conditions and requirements of Government Code section 38773.5.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-72. Criminal sanctions.

(a) *Prosecutor.* The Enforcing Attorney may act on the request of the Director, Public Facilities and Resources Department or his/her designee, to pursue enforcement actions in accordance with the provisions of this division.

(b) *Infractions.* Any person who may otherwise be charged with a misdemeanor under this division may be charged, at the discretion of the Enforcing Attorney, with an infraction punishable by a fine of not more than \$100.00 for first violation, \$200.00 for a second violation, and a fine not exceeding \$500.00 for each additional violation occurring within one (1) year.

(c) *Misdemeanors.* Any person who negligently or knowingly violates any provision of this division, undertakes to conceal any violation of this division, continues any violation of this division after notice thereof, or violates the terms, conditions and requirements of any permit, shall be guilty of a misdemeanor punishable by a fine of not more than \$1,000.00 or by imprisonment for a period of not more than six (6) months, or both.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-73. Consecutive violations.

Each day in which a violation occurs and each separate failure to comply with either a separate provision of this division, an administrative compliance order, a cease and desist order, or a permit issued pursuant to this division, shall constitute a separate violation of this division punishable by fines or sentences issued in accordance herewith.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-74. Non-exclusive remedies.

Each and every remedy available for the enforcement of this division shall be non-exclusive and it is within the discretion of the Authorized Inspector or Enforcing Attorney to seek cumulative remedies, except that multiple monetary fines or penalties shall not be available for any single violation of this division.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-75. Citations.

Pursuant to Penal Code section 836.5, the Authorized Inspector shall have the authority to cause the arrest of any person, committing a violation of this division. The person shall be released and issued a citation to appear before a magistrate in accordance with Penal Code sections 853.5, 853.6, and 853.9, unless the person demands to be taken before a magistrate. Following issuance of any citation the Authorized Inspector shall refer the matter to the Enforcing Attorney.

Each citation to appear shall state the name and address of the violator, the provisions of this division violated, and the time and place of appearance before the court, which shall be at least ten (10) business days after the date of violation. The person cited shall sign the citation giving his or her written promise to appear as stated therein. If the person cited fails to appear, the Enforcing Attorney may request issuance of a warrant for the arrest of the person cited.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-76. Violations of other laws.

Any person acting in violation of this division also may be acting in violation of the Federal Clean Water Act or the State Porter-Cologne Act and other laws and also may be subject to sanctions including civil liability. Accordingly, the Enforcing Attorney is authorized to file a citizen suit pursuant to Federal Clean Water Act section 505(a), seeking penalties, damages, and orders compelling compliance, and other appropriate relief. The Enforcing Attorney may notify EPA Region IX, the Santa Ana or San Diego Regional Water Quality Control Boards, or any other appropriate state or local agency, of any alleged violation of this division.

(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-77. Injunctions.

At the request of the Director, Public Facilities and Resources Department or his/her designee, the Enforcing Attorney may cause the filing in a court of competent jurisdiction, of a civil action seeking an injunction against any threatened or continuing noncompliance with the provisions of this division.

(a) *Order for reimbursement.* Any temporary, preliminary or permanent injunction issued pursuant hereto may include an order for reimbursement to the District of all costs incurred in enforcing this division, including costs of inspection, investigation and monitoring, the costs of

abatement undertaken at the expense of the District, costs relating to restoration of the environment and all other expenses as authorized by law.
(Ord. No. 3988, § 1, 7-22-97)

Sec. 9-1-78. Other civil remedies.

(a) The Director, Public Facilities and Resources Department or his/her designee may cause the Enforcing Attorney to file an action for civil damages in a court of competent jurisdiction seeking recovery of (i) all costs incurred in enforcement of this division, including but not limited to costs relating to investigation, sampling, monitoring, inspection, administrative expenses, all other expenses as authorized by law, and consequential damages, (ii) all costs incurred in mitigating harm to the environment or reducing the threat to human health, and (iii) damages for irreparable harm to the environment.

(b) The Enforcing Attorney is authorized to file actions for civil damages resulting from any trespass or nuisance occurring on public land or to the stormwater drainage system from any violation of this division where the same has caused damage, contamination or harm to the environment, public property or the stormwater drainage system.

(c) The remedies available to the District pursuant to the provisions of this division shall not limit the right of the District to seek any other remedy that may be available by law.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 6. PERMITS

Sec. 9-1-80. Procedure.

(a) *Discharge permit procedure.*

(1) *Permit.* On application of the owner of property or the operator of any facility, which property or facility is not otherwise subject to the requirements of a State General Permit or a National Pollution Discharge Elimination System Permit regulating storm water discharges, the Director, Public Facilities and Resources Department or his/her designee, or the Authorized Inspector, may issue a permit authorizing the release of nonstormwater discharges to the stormwater drainage system if:

a. The discharge of material or constituents is reasonably necessary for the conduct of otherwise legal activities on the property, and

b. The discharge will not cause a nuisance, impair the beneficial uses of receiving waters, or cause any reduction in established water quality standards.

(2) *Application.* The applicant shall provide all information requested by the Director, Public Facilities and Resources Department or his/her designee, for review and consideration of the application, including but not limited to specific detail as to the activities to be conducted on the property, plans and specifications for facilities located on the property, identification of equipment or processes to be used on-site and other information as may be requested in order to determine the constituents, and quantities thereof, which may be discharged if permission is granted.

(3) *Permit issuance.* The permit shall be granted or denied by the Director, Public Facilities and Resources Department or his/her designee, no later than sixty (60) days following the completion and acceptance of the application as determined by the Director, Public Facilities and Resources Department or his/her designee.

a. The applicant shall be notified in person or by first-class mail, postage prepaid, of the action taken.

(4) *Permit conditions.* The permit may include terms, conditions and requirements to ensure compliance with the objectives of this division and as necessary to protect the receiving waters, including but not limited to:

- a. Identification of the Discharge location on the property and the location at which the Discharge will enter the Stormwater Drainage System;
- b. Identification of the constituents and quantities thereof to be discharged into the Stormwater Drainage System;
- c. Specification of pollution prevention techniques and structural or nonstructural control requirements as reasonably necessary to prevent the occurrence of potential discharges in violation of this division;
- d. Requirements for self-monitoring of any discharge;
- e. Requirements for submission of documents or data, such as technical reports, production data, discharge reports, self-monitoring reports and waste manifests; and
- f. Other terms and conditions appropriate to ensure compliance with the provisions of this division and the protection of receiving waters.

(5) *General permit.* In the discretion of the Director, Public Facilities and Resources Department or his/her designee, the permit may, in accordance with the conditions identified in section 9-1-80(a)(4) hereinabove, be prepared as a general permit applicable to a specific category of activities. If a general permit is issued, any person intending to discharge within the scope of the authorization provided by the general permit may do so by filing an application to discharge with the Director, Public Facilities and Resources Department or his/her designee. No discharge within the scope of the general permit shall occur until such application is so filed.

a. Notwithstanding the foregoing in this section and section 9-1-80(a)(5), the Director, Public Facilities Resources Department or his/her designee, in his discretion, may eliminate the requirement that an application for a general permit be filed for any specific activity for which a general permit has been issued.

(6) *Permit fees.* The permission to discharge shall be conditioned upon the applicant's payment of the District's costs, in accordance with a fee schedule adopted by separate resolution, as follows:

a. For individually issued permits, the costs of reviewing the permit application, preparing and issuing the permit, and the costs reasonably related to administrating this permit program.

b. For general permits, the costs of reviewing the permit application, that portion of the costs of preparing the general permit which is reasonably attributable to the permittee's application for the general permit, and the costs reasonably related to administering the general permit program. Notwithstanding the foregoing, no fee shall be charged for a general permit issued pursuant to section 9-1-80(a)(5)a.

(b) *Permit suspension, revocation or modification.*

(1) The Director, Public Facilities and Resources Department or his/her designee may suspend or revoke any permit when it is determined that:

a. The permittee has violated any term, condition or requirement of the permit or any applicable provision of this division; or

b. The permittee's discharge or the circumstances under which the discharge occurs have changed so that it is no longer appropriate to except the discharge from the prohibitions on prohibited discharge contained within this division; or

c. The permittee fails to comply with any schedule for compliance issued pursuant to this division; or

d. Any regulatory agency, including EPA or a Regional Water Quality Control Board having jurisdiction over the discharge, notifies the District that the discharge should be terminated.

(2) The Director, Public Facilities and Resources Department or his/her designee, may modify any permit when it is determined that:

a. Federal or state law requirements have changed in a manner that necessitates a change in the permit; or

b. The permittee's discharge or the circumstances under which the discharge occurs have changed so that it is appropriate to modify the permit's terms, conditions or requirements; or

c. A change to the permit is necessary to ensure compliance with the objectives of this division or to protect the quality of receiving waters.

The permittee, or in the case of a general permit, each person who has filed an application pursuant to section 9-1-80(a)(5), shall be informed of any change in the permit terms and conditions at least sixty (60) days prior to the effective date of the modified permit. In the case of a general permit issued pursuant to section 9-1-80(a)(5)a., any change in the permit terms and conditions shall be published in a newspaper of general circulation within the County at least sixty (60) days prior to the effective date of the modified permit.

(3) The determination that a permit shall be denied, suspended, revoked or modified may be appealed by a permittee pursuant to the same procedures applicable to appeal of an administrative compliance order hereunder. In the absence of a judicial order to the contrary, the permittee may continue to discharge pending issuance of the final administrative decision by the hearing officer.

(c) *Permit enforcement.*

(1) *Penalties.* Any violation of the terms, conditions and requirements of any permit issued by the Director, Public Facilities and Resources Department or his/her designee, shall constitute a violation of this division and subject the violator to the administrative, civil and criminal remedies available under this division.

(d) *Compliance.* Compliance with the terms, conditions and requirements of a permit issued pursuant to this division shall not relieve the permittee from compliance with all federal, state and local laws, regulations and permit requirements, applicable to the activity for which the permit is issued.

(1) *Limited permittee rights.* Permits issued under this division are for the person identified therein as the "permittee" only, and authorize the specific operation at the specific location identified in the permit. The issuance of a permit does not vest the permittee with a continuing right to discharge.

(2) *Transfer of permits.* No permit issued to any person may be transferred to allow:

a. A discharge to the stormwater drainage system at a location other than the location stated in the original permit; or

b. A discharge by a person other than the person named in the permit, provided however, that the District may approve a transfer if written approval is obtained, in advance, from the Director, Public Facilities and Resources Department or his/her designee.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 7. INTERAGENCY COOPERATION

Sec. 9-1-90. Federal Clean Water Act.

(a) The District intends to cooperate with other agencies with jurisdiction over stormwater discharges to ensure that the regulatory purposes underlying stormwater regulations promulgated pursuant to the Clean Water Act (33 U.S.C. s 1251 et seq.) are met.

(b) The District may, to the extent authorized by law, elect to contract for the services of any public agency or private enterprise to carry out the planning approvals, inspections, permits and enforcement authorized by this division.

(c) The District may, upon designation by any city within the county, and at no cost to District, be named as an Authorized Inspector for that city.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 8. MISCELLANEOUS

Sec. 9-1-100. General provisions.

(a) *Compliance disclaimer.* Full compliance by any person or entity with the provisions of this division shall not preclude the need to comply with other local, state or federal statutory or regulatory requirements, which may be required for the control of the discharge of pollutants into stormwater and/or protection of stormwater quality.

(b) *Severability.* If any provision of this division or the application of the division to any circumstance is held invalid, the remainder of the division or the application of the division to other persons or circumstances shall not be affected.

(c) *Headings.* Headings of the sections of this division are inserted for convenience only and shall have no effect in the application of this division.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 9. JUDICIAL REVIEW

Sec. 9-1-110. Procedure.

The provisions of sections 1094.5 and 1094.6 of the Code of Civil Procedure set forth the procedure for judicial review of any act taken pursuant to this division. Parties seeking judicial review of any action taken pursuant to this division shall file such action within ninety (90) days of the occurrence of the event for which review is sought.

(Ord. No. 3988, § 1, 7-22-97)

ARTICLE 10. FATS, OILS AND GREASE DISPOSAL

Sec. 9-1-120. Intent and purpose.

It is the intent of this section to establish regulations for the disposal of FO&G and other insoluble waste discharges from Food Facilities within the unincorporated areas of Orange County. The purpose is to facilitate the maximum beneficial public use of the sanitary sewer systems while at the same time attempting to prevent blockages of those sanitary sewer systems as a result of the discharge of FO&G, and to specify appropriate FO&G disposal requirements for Food Facilities to protect the public health and safety.

(Ord. No. 03-002, § 2, 1-7-03)

Sec. 9-1-121. Definitions.

A. *Food Facility* as defined in California Uniform Retail Food Facilities Law (CURFFL) section 113785, shall mean any commercial entity within the unincorporated areas of the County, operating in a permanently constructed structure such as a room, building, or place, or portion thereof, maintained, used, or operated for the purpose of storing, preparing, serving, or manufacturing, packaging, or otherwise handling food for sale to other entities, or for consumption by the public, its members or employees, and which has any process or equipment that uses or produces FO&G, or grease vapors, steam, fumes, smoke or odors that are required to be removed by a Type I or Type II hood, as defined in CURFFL section 113785.

B. *Limited food preparation establishments* shall mean establishments engaged only in reheating, hot holding or assembly of ready to eat food products. It does not include any operation that changes the form, flavor, or consistency of food. For purposes of this Ordinance, a limited food preparation establishment is not considered to be a Food Facility.

C. *Change in operations* shall mean any change in the ownership, food types, or operational procedures that have the potential to increase by fifty (50) percent the amount of fats, oils, or grease used or generated by food preparation.

D. *Food grinder* shall mean any device installed in the plumbing or sewage system for the purpose of grinding food waste or food preparation by-products for the purpose of disposing it in the sanitary sewer system.

E. *Fat, Oil and Grease (FO&G)* shall mean any substance such as a vegetable or animal product that is used in, or is a by-product of, the cooking or food preparation process, and that turns or may turn viscous or solidifies with a change in temperature or other conditions.

F. *Grease Control Device* shall mean any grease interceptor, grease trap or other mechanism or equipment, which attaches to wastewater plumbing fixtures and lines, the purpose of which is to trap/collect FO&G prior to it being discharged into the sanitary sewer system.

A Grease Interceptor is a two (2) or three (3) compartment device that is generally required to be located, according to the Uniform Plumbing Code, underground between a Food Facility and the connection to the sanitary sewer system. These devices can be large (in excess of seven hundred fifty (750) gallons) and primarily use gravity to separate FO&G from the wastewater as it moves from one compartment to the next. These devices must be cleaned, maintained, and have the FO&G removed and disposed of in a proper manner on a regular interval to be effective.

Interceptors shall be structurally intact, including acceptable internal plumbing, manhole inspection covers, baffles between chambers, and a structure not compromised by intruding tree roots, etc.

A Grease Trap is a device much smaller than a Grease Interceptor and services up to a maximum of four (4) individual fixtures. Grease Traps need to be emptied more often than Grease Interceptors to be effective due to their small size. Grease Traps have limited effect and should only be used in those cases where the use of a Grease Interceptor is determined to be impossible or impracticable.

G. *Remodeling* shall mean a physical change exceeding a cost of fifty thousand dollars (\$50,000.00) to a Food Facility that requires a building permit, and involves any one (1) or combination of the following:

- (1) Under-slab plumbing in the food processing area;
- (2) A thirty (30) percent increase in the net public seating area;
- (3) A thirty (30) percent increase in the size of the kitchen area; or
- (4) Any change in the size or type of food preparation equipment.

H. *Grease Disposal Mitigation Fee* shall mean a fee charged to an Owner/Operator of a Food Facility when there are physical limitations to the property that make the installation of the usual and customary Grease Interceptor for the Food Facility under consideration, impossible or impracticable.

I. *Sewer Lateral* shall mean a building sewer (sanitary) as defined in the Uniform Plumbing Code.

J. *Director* shall mean the Director, Planning and Development Services Department, or his or her designee.

K. *County* shall mean the County of Orange.

(Ord. No. 03-002, § 2, 1-7-03)

Sec. 9-1-122. Grease control device required.

A. All fixtures, equipment and drain lines located in the food preparation and clean up areas of Food Facilities that are sources of FO&G discharge shall be connected to an approved grease control device unless otherwise determined in accordance with the provisions of this section. Dishwashers or other fixtures discharging emulsifying agents (e.g., detergents) shall be connected to the sanitary sewer system such that their potential to adversely impact the operation of the grease control device operation is minimized.

B. Unless it is impossible or impracticable, grease interceptors shall be used in all new Food Facilities where it is necessary to install a grease control device, and shall have a minimum capacity of seven hundred fifty (750) gallons. New Food Facilities shall follow sizing criteria for larger devices as specified by Resolution of the Board of Supervisors.

C. All existing Food Facilities undergoing remodeling or a change in operations shall be required to install grease control devices with each chamber readily and easily capable of cleaning and inspection of each chamber from the surface and shall include a downstream sample box in accordance with the Uniform Plumbing Code as determined by the Director.

D. Property owners of commercial properties shall be required to install and maintain approved grease control devices serving multiple Food Facilities that are located on a single parcel, in accordance with subsection "C" above and the Uniform Plumbing Code.

E. No Certificate of Use and Occupancy shall be issued for a Food Facility that is required to have an approved grease control device, until such device has been installed, inspected and approved by the Director.

F. The Director may establish additional guidelines to supplement this Ordinance regarding, but not limited to:

1. Design, construction and inspection standards of grease control devices;
2. The management, operation and maintenance standards for grease control devices;
3. Kitchen best management practice to prevent FO&G from entering the devices;
4. Grease control device cleaning, reporting, inspection and enforcement standards; and
5. standards for the collection and disposal of FO&G by appropriate entities.

G. Upon the effective date of this Ordinance, the installation of food grinders in the plumbing system of new Food Facilities shall be prohibited. Furthermore, all Food Grinders shall be removed from all existing Food Facilities by June 30, 2003.

H. Upon the effective date of this Ordinance, the introduction of any additives into a Food Facility's wastewater system for the purposes of emulsifying FO&G, is prohibited without the specific written authorization from the sanitary sewer agency that has jurisdiction over the sanitary sewer system that services the Food Facility.

(Ord. No. 03-002, § 2, 1-7-03)

Sec. 9-1-123. Maintenance requirements.

Within six (6) months of the effective date of this Ordinance, all existing and newly installed grease control devices shall be maintained in a manner consistent with a maintenance plan approved by the Director.

A. No FO&G that has accumulated in a grease control device shall be allowed to pass into any sewer lateral, sanitary sewer system, storm drain, or public right-of-way during maintenance activities.

B. Each new and existing Food Facility with a grease control device shall have an approved maintenance plan which specify the minimum maintenance frequency for removal of all accumulated FO&G from the grease control device, which shall be determined as follows:

1. For new Food Facilities, the minimum maintenance frequency for interceptors shall be as follows:

TABLE INSET:

Type of Establishment	Minimum Maintenance Frequency
Take out only	Every 45 days
With wok stoves, deep fryers or more than one griddle	Every 20 days
Take out & seating	Every 60 days

With wok stoves, deep fryers or more than one griddle	Every 30 days
Seating only	Every 90 days
With wok stoves, deep fryers or more than one griddle	Every 60 days

2. For existing Food Facilities with a Grease Interceptor, the maintenance plan shall be determined in one of the following methods:

- i. In the same manner as for new Food Facilities under paragraph 1 above; or
- ii. The owner/operator of a Food Facility in existence on the effective date of this Ordinance, may submit an application to the Director requesting that a maintenance plan other than that identified in subsection 1 above, be imposed on that Food Facility, due to the fact that the Food Facility has been following a regular maintenance cycle in the past, and based on the particular Food Facility operation, the current regular maintenance plan is adequate to guard against FO&G passing into the sanitary sewer system. Upon a determination by the Director that an acceptable Grease Control Device maintenance plan is being followed that meets the minimum requirements set forth in the Uniform Plumbing Code, then it may be used as the approved maintenance plan for that particular Food Facility.
- iii. In the event it is determined that a Food Facility, as a result of a change in operations, is using a Grease Interceptor that is smaller in capacity than would be required for that Food Facility under this Ordinance, the Director may allow said Food Facility to continue to operate with the smaller Grease Interceptor, provided the Food Facility prepares a maintenance plan acceptable to the Director that requires more frequent servicing than would otherwise be required if the proper sized Grease Interceptor was installed.

C. Notwithstanding "B." above, if any Grease Interceptor at any time contains floating oil/grease in the final chamber, or sludge in any chamber that is within two (2) inches of the discharge elbow, the owner and/or operator of the Food Facility shall have the Grease Interceptor serviced such that all fats, oils, grease, sludge, and other materials are completely removed from the Grease Interceptor after which the Interceptor shall be refilled with cold water.

D. Notwithstanding "B." and "C." above, all existing Food Facilities with a Grease Interceptor shall be serviced not less than every one hundred eighty (180) days. Grease Traps shall be cleaned of all material on a daily basis.

E. The owner and/or operator of a Food Facility with an approved Grease Control Device, shall be required to keep all manifests, receipts and invoices of all cleaning, maintenance, grease removal off/from the grease control device, disposal carrier and disposal site location for no less than two years. The owner and operator of a Food Facility shall, upon request, make the manifests, receipts and invoices available to any County Health Care or Code Enforcement representative, or his or her designee, representative of a local sanitation agency that has jurisdiction of the sanitary sewer system that services the Food Facility, or any authorized inspector that has jurisdiction under the Water Quality Ordinance.

F. The owner and/or operator of a Food Facility with a Grease Control Device shall allow any County Health Care or Code Enforcement representative or a representative of the local sanitation agency that has jurisdiction of the sanitary sewer system that services the Food Facility, or any authorized inspector that has jurisdiction under the Water Quality Ordinance, access to the Food Facility premises, during normal business hours, for purposes of inspecting the Food Facility's Grease Control Devices, reviewing the manifests, receipts and invoices relating to the cleaning, maintenance and inspection of the Grease Control Devices.

(Ord. No. 03-002, § 2, 1-7-03)

Sec. 9-1-124. Exceptions--Grease disposal mitigation fee.

Commencing on July 1, 2003, new Food Facilities that are permitted to operate without an installed Grease Interceptor shall be required to pay an annual Grease Disposal Mitigation Fee.

A. A Grease Disposal Mitigation Fee shall only be allowed after all other Grease Control Devices have been considered for installation. This mitigation fee shall be established by and paid to the local sanitary sewer agency, and shall be based on the estimated annual increased cost of maintaining the private sewer lateral pipelines for removal of FO&G attributable to the Food Facility as a result of no Grease Control Device being installed.

The Food Facility owner or operator shall pay the Grease Disposal Mitigation Fee annually, no later than July 30 of each year.

B. The Grease Disposal Mitigation Fee may be waived or reduced on a no less than annual basis when the Food Facility owner or operator demonstrates to the satisfaction of the local sanitary sewer agency that they had used BMP on a regular basis to reduce the introduction of grease into the SSS.

C. The Grease Disposal Mitigation Fee may not be waived or reduced when the Food Facility's private sewer lateral pipeline has failed and resulted in a wastewater backup within or surrounding the Food Facility during the twelve (12) months prior to the waiver request.

(Ord. No. 03-002, § 2, 1-7-03)

Sec. 9-1-125. Appeals.

Any decision of the Director, other than a decision pursuant to section 9-1-126 of this division, may be appealed by any owner or operator of a Food Facility affected by said decision, to the Planning Commission.

(Ord. No. 03-002, § 2, 1-7-03)

Sec. 9-1-126. Violations.

A. The owner and operator of a Food Facility shall be in violation of this Ordinance if he or she:

1. Fails to install an approved Grease Control Device as required by this Ordinance;
2. Makes any false statement, representation, record, report, plan or other document that is filed with the County;
3. Tamper with or knowingly renders inoperable any Grease Control Device required under this Ordinance;
4. Fails to clean, maintain or remove grease from a Grease Control Device within the required time for such cleaning, maintenance or grease removal;
5. Fails to keep up-to-date and accurate records of all cleaning, maintenance, and grease removal for the Food Facility's Grease Control Device and upon request to make those records available to any County Health Care or Code Enforcement representative, or his or her designee, any representative of a local sanitation agency that has jurisdiction over the sanitary sewer system that services the Food Facility, or any authorized inspector that has jurisdiction under the Water Quality Ordinance;
6. Refuses a County Health Care or Code Enforcement representative, or his or her designee, a representative of a local sanitary sewer agency that has jurisdiction over the sanitary sewer system that services the Food Facility, or any authorized inspector that has jurisdiction under the Water Quality Ordinance, reasonable access to the Food Facility for the purposes of inspecting, monitoring, or reviewing the Grease Control Device manifests, receipts and invoices of all cleaning, maintenance, grease removal of/from the Grease Control Device, and/or to inspect the Grease Control Device;

7. Disposes of, or knowingly allows or directs FO&G to be disposed of, in an unlawful manner;

8. Fails to remove all food grinders located in the Food Facility by June 30, 2003;

9. Introduces additives into a wastewater system for the purposes of emulsifying fats, oils and grease without the written, specific authorization from the sanitary sewer agency that has jurisdiction of the sanitary sewer system that services the Food Facility; or

10. Fails to pay the Grease Disposal Mitigation Fee as specified in section 9-1-124, above when due.

B. Violations under this section shall be subject to the procedures, penalties and remedies set out in sections 1-1-34 et. Seq. and 9-1-10 et. Seq. of the Codified Ordinances of the County of Orange, California, as amended from time to time. All costs for the investigations, enforcement actions, and ultimate corrections of violations under this section, incurred by the County of Orange, shall be reimbursed by the owner/operator of the Food Facility.

(Ord. No. 03-002, § 2, 1-7-03)

Sec. 9-1-127. Invalidity of provisions.

If any section, subsection, sentence, clause or phrase of this Ordinance is, for any reason, held to be invalid or unenforceable, such decision shall not affect the validity or enforceability of the remaining portions of this Ordinance. The Board of Supervisors hereby declares that it would have passed this Ordinance, and each section, subsection, sentence, clause or phrase hereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases may be declared invalid or unenforceable.

(Ord. No. 03-002, § 2, 1-7-03)

17. City of Lake Forest Municipal Code
Chapter 15.14 Stormwater Quality Management Ordinance

CITY OF LAKE FOREST
Chapter 15.14 STORMWATER QUALITY MANAGEMENT

Section 15.14.010 Purpose and intent.

This chapter implements the Federal Water Pollution Control Act (the "Clean Water Act" or "CWA"), 33 U.S.C. Sections 1251-1387, and the California Water Code by prohibiting the discharge of any pollutant to navigable waters of the United States from a point source unless the discharge is authorized by a permit issued pursuant to the National Pollutant Discharge Elimination System ("NPDES") required by CWA Section 402, 33 U.S.C. Sections 1342, and prohibits nonstormwater discharges into the municipal separate storm sewer system ("MS4"). (Ord. 76 § 2 (part), 1997)

Section 15.14.020 Definitions.

For the purposes of this chapter, the following words and phrases shall have the meanings respectively ascribed to them by this chapter. Words and phrases not ascribed a meaning by this chapter shall have the meanings ascribed by the regulations implementing the National Pollutant Discharge Elimination System, Clean Water Act Section 402, and Division 7 of the California Water Code, as they may be amended from time to time, if defined therein, and if not, to the definitions in an applicable permit issued by the California Regional Water Quality Control Board -- Santa Ana or San Diego, as appropriate, as such permits may be amended from time to time.

"Best Management Practices (BMPs)" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollutants in discharges. BMPs include, but are not limited to, public education and outreach, proper planning of development projects, proper clean-out of catch basins, and proper waste handling and disposal.

"Chapter" means Chapter 15.14 of Title 15 of the Lake Forest Municipal Code.

"City" means the City of Lake Forest.

"DAMP" means the Orange County Drainage Area Management Plan, as the same may be amended from time to time.

"Development project guidance" means DAMP Chapter VII and the Appendix thereto, entitled Best Management Practices for New Development Including Non-Residential Construction Projects, as the same may be amended from time to time.

"Development" means any construction, rehabilitation, redevelopment, or reconstruction for which either discretionary land use approval or a permit is required, for any public or private residential (whether single-family, multi-unit or planned unit development); industrial; commercial; retail; and other nonresidential projects, including public agency projects; or mass grading for future construction.

"Director" means the Director of Public Works of the City and persons designated by and under the Director's instruction and supervision.

"Discharge," when used without qualification, means the discharge of a pollutant.

"Discharge of a pollutant" means any addition of any pollutant to waters of the United States, to the City's MS4, or any addition of any pollutant to waters of the contiguous zone from any point source other than a vessel or other floating craft which is being used as a means of transportation.

"EPA" or "US EPA" means the Environmental Protection Agency of the United States of America.

"Hazardous substances" means those substances designated as hazardous substances under Section 311(b)(2)(A) of the Federal Water Pollution Control Act, which are listed in the table at 40 C.F.R. Section 116.4, and other applicable law.

"Hearing Officer" means the Director or the Director's designee, who shall preside at the administrative hearings authorized by this chapter and issue final decisions on matters raised therein.

"Illicit connection" means any device or artifice, excluding roof drains and other similar connections, into the municipal separate storm sewer system, without a permit, through or by which an illicit discharge may be discharged.

"Illicit discharge" means any discharge to the MS4 that is not composed entirely of stormwater except discharges pursuant to a NPDES permit and discharges which are exempt or conditionally exempt in accordance with any applicable order of the RWQCB-LA. The term illicit discharge shall not include the following types of nonstormwater discharges, unless the California Regional Water Quality Control Board, Santa Ana and San Diego Regions determine that these discharges cause specific receiving water limit violations:

1. Discharges composed entirely of stormwater;
2. Discharges covered by NPDES permits or written clearances issued by a regional board or the State Water Quality Control Board;
3. Discharges from potable water line flushing and other potable water sources;
4. Fire hydrant flushing and testing flows;
5. Air conditioning condensation;
6. Landscape irrigation, lawn and garden watering, and other irrigation waters;
7. Passive foundation and footing drains;
8. Water from crawl space pumps;
9. Dechlorinated swimming pool discharges;
10. Noncommercial vehicle washing;
11. Diverted stream flows;
12. Rising ground waters and natural springs;
13. Ground water infiltration (as defined at 40 CFR 35.2005(20)) and uncontaminated pumped ground water;
14. Flows from riparian habitats and wetlands;
15. Street wash water and run-off from fire fighting activities;
16. Waters not otherwise containing wastes as defined in California Water Code Section 10350(d); and,
17. Other types of discharges approved by a regional board with jurisdiction.

"Invoice for costs" means the actual costs and expenses of the City, including, but not limited to administrative overhead, salaries, attorney fees, and other expenses recoverable under applicable law, incurred during any inspection, investigation or proceeding conducted pursuant to this chapter, where a notice of violation, administrative compliance order or other enforcement option under Sections 15.14.080 to 15.14.150 is used to obtain compliance with this chapter.

"Municipal separate storm sewer system" or "MS4" or "City's storm drain system" means a conveyance or system of conveyances, including municipal streets, gutters, conduits, natural or artificial drains, channels and watercourses, or other facilities owned, operated, maintained, or controlled by City and used for the purpose of collecting, storing, transporting, or disposing of stormwater into waters of the United States (as defined at 40 CFR Section 122.2).

"Permit" or "National Pollutant Discharge Elimination System (NPDES) Permit" means an authorization, license, or equivalent control document issued by the US EPA, the State Water Resources Control Board, or a Regional Water Quality Control Board, and includes a NPDES general permit and the permit issued by the Regional Water Quality Control Board -- Santa Ana or San Diego Region, applicable to stormwater runoff in the City.

"Person" means any individual, firm, association, partnership, corporation, partnership, consortium, local, State, or Federal government agency, political subdivision, trust, estate, cooperative association, joint venture, business entity, or other similar entity, or the agent, employee, or representative of any of the above.

"Pollutant" means a "pollutant" as defined in Section 502(6) of the Clean Water Act, 33 U.S.C. Section 1362(6) or Water Code Section 13373, or other applicable law, which is

discharged into water. "Pollutant" shall not mean uncontaminated stormwater, potable water, or reclaimed water generated by a lawfully permitted water treatment facility, or any substance, the discharge of which into the MS4, through best management practices, has been reduced to the maximum extent practicable, and shall not include those nonstormwater discharges set forth in the definition of "illicit discharge" above, unless the California Regional Water Quality Control Board determines that these discharges cause specific receiving water limit violations. "Pollutant" shall also include:

1. Artificial materials (such as floatable plastics, wood products, or metal shavings);
2. Household waste (such as trash, paper, and plastics; cleaning chemicals; yard wastes; animal fecal materials; used oil and fluids from vehicles, lawn mowers, and other common household equipment);
3. Metals and nonmetals, including compounds of metals and nonmetals, (such as cadmium, lead, zinc, copper, silver, nickel, chromium, cyanide, phosphorus, and arsenic), with characteristics which cause an adverse effect on living organisms;
4. Petroleum and related hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants, and grease);
5. Animal wastes (such as discharge from confinement facilities, kennels, pens, and recreational facilities, including stables, show facilities, or polo fields);
6. Substances having a pH less than 6.5 or greater than 8.6, or unusual coloration, turbidity, or odor;
7. Waste materials and wastewater generated on construction sites and by construction activities (such as painting and staining; use of sealants and glues; use of lime; use of wood preservatives and solvents; disturbance of asbestos fibers, paint flakes or stucco fragments; application of oils, lubricants, hydraulic, radiator, or battery fluids; construction equipment washing; concrete pouring and cleanup; use of concrete detergents; steam cleaning or sand blasting; use of chemical degreasing or diluting agents; and use of super chlorinated water for potable water line flushing);
8. Materials causing an increase in biochemical oxygen demand, chemical oxygen demand, or total organic carbon;
9. Materials which contain base/neutral or acid extractible organic compounds;
10. Any other constituent or material, including but not limited to pesticides, herbicides, fertilizers, fecal coliform, fecal streptococcus, or enterococcus, or eroded soils, sediment, and particulate materials, in quantities that will interfere with or adversely affect the beneficial uses of the receiving waters, flora, or fauna of the State.

"Private property" means any real property, irrespective of ownership, other than real property owned by a government agency.

"Responsible party" means the person(s) identified in and responsible for compliance with the provisions of a stormwater pollution prevention plan or stormwater pollution control plan, and includes the owner and operator of the property to which the plan relates.

"State general permit" means either the State general industrial stormwater permit or the State general construction permit and the terms and requirements of either or both. In the event the EPA revokes the in-lieu permitting authority of the State Water Resources Control Board, then the term State general permit shall also refer to any EPA-administered stormwater control program for industrial and construction activities.

"Stormwater" means runoff from rain or storm activity, snow melt runoff, and surface runoff and drainage.

"Stormwater pollution control plan" means the plan as required by the City.

"Stormwater pollution prevention plan" means the plan as required by State general permit.

"Watercourse" means any natural or artificial channel for passage of water. (Ord. 76 § 2 (part), 1997)

Section 15.14.030 Prohibition of illicit connections and illicit discharges.

A. The discharge of pollutants into MS4 is prohibited. All discharges of material other than stormwater must be in compliance with NPDES Permit No. CAS063339 or any other NPDES permit issued by the State of California.

B. No person shall:

1. Construct, use, maintain, operate, and/or continue to utilize an illicit connection;
2. Cause, allow, or facilitate an illicit discharge;
3. Act, cause, permit, or suffer any agent, employee, or independent contractor to construct, maintain, operate, or utilize an illicit connection, or cause, allow, or facilitate an illicit discharge;
4. Use MS4 or watercourses for the discharge/disposal of wastes (including, but not limited to yard trimmings, cut grass, or paint clean-up);
5. Throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, kept, or maintained, in or upon any public or private property, driveway, parking area, street, alley, sidewalk, or other component of the MS4, any refuse, rubbish, garbage, litter, or other discarded or abandoned objects, articles, and accumulations, so that the same may cause or contribute to pollution. Wastes deposited in streets immediately prior to and for the purposes of collection are exempt from this prohibition.

C. This prohibition expressly includes, without limitation, all illicit connections regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection. (Ord. 76 § 2 (part), 1997)

Section 15.14.040 Reduction of pollutants in stormwater.

A. Discharges of stormwater containing pollutants which have not been reduced to the maximum extent practicable are prohibited.

B. Any person engaged in activities which will or may result in pollutants entering the MS4 or watercourses shall undertake all practicable measures to reduce such pollutants.

C. With written concurrence of the Regional Board, the City may exempt in writing other nonstormwater discharges which are not a source of pollutants to the MS4 or watercourses. (Ord. 76 § 2 (part), 1997)

Section 15.14.050 Development.

A. On and after September 30, 1997, all development within the City shall be undertaken in accordance with:

1. Any conditions and requirements established by an applicable NPDES permit which are reasonably related to the reduction or elimination of pollutants in stormwater from the project site.
2. A stormwater pollution prevention plan, which shall be prepared in accordance with State general permit.
3. A stormwater pollution control plan, which shall be prepared in accordance with City requirements and approved by the Director of Public Works/City Engineer, or his designee. Any such decision by the Director may be appealed to the City Council in accordance with Sections 2.04.100 through 2.04.130 of this Code.
4. Any condition and/or requirements established by the City to protect specific watersheds or drainage basins.

B. Prior to the issuance by the City of any discretionary land use approval or permit for any development, the property owner shall submit to and obtain the approval of the Director for a stormwater pollution control plan.

C. Proof of compliance with any general NPDES permit shall be required in a form acceptable to the City.

D. Notwithstanding subsections (A) and (B) of this section, a stormwater pollution control plan shall not be required for a development of one (1) single-family detached residence unless the Director determines that such development construction may result in the discharge of significant levels of a pollutant into the MS4.

E. Compliance with the conditions and requirements of a stormwater pollution control plan shall not exempt any person from the requirement to comply independently with each provision of this chapter.

F. Each application for a stormwater pollution control plan shall name a responsible party for the project.

G. The owners of lots included in a development project, their successors and assigns and each named responsible party (collectively "owners") shall implement and adhere to the terms, conditions, and requirements of the approved stormwater pollution control plan. Each failure or violation by the owners to implement and adhere to the terms, conditions, and requirements of an approved stormwater pollution control plan shall constitute a separate violation of this chapter. The Director may require that the stormwater pollution control plan be recorded with the County Recorder's office by the property owner.

H. Prior to the issuance by the City of a grading permit, building permit, or nonresidential plumbing permit for any new development or significant redevelopment, the Director shall review the project plans and impose terms, conditions, and requirements on the project or permit in accordance with this chapter and the DAMP. If the new development or significant redevelopment will be approved without application for a grading permit, building permit, or nonresidential plumbing permit, the Director shall review the project plans and impose terms, conditions, and requirements on the project in accordance with the development project guidance of DAMP Chapter VII and the Appendix prior to the issuance of a discretionary land use approval or, at the City's discretion, prior to recordation of a subdivision map. Any decision by the Director to impose terms, conditions, and requirements pursuant to this section may be appealed to the City Council in accordance with Sections 2.04.100 through 2.04.130 of this Code.

I. The costs and expenses of the City incurred in the review, approval, or revision of any stormwater pollution control plan or other related requirements (or in the approval or revision of any such) shall be set by resolution of the City Council and shall be assessed to the owners and shall be due and payable to the City. The City may elect to require a deposit of estimated costs and expenses, and the actual costs and expenses shall be deducted from the deposit and the balance, if any, refunded to the depositor. (Ord. 78 §§ 1, 2, 1997; Ord. 76 § 2 (part), 1997)

Section 15.14.060 Best management practices and requirements.

A. Authorization to Adopt and Enforce Best Management Practices. The Director may adopt requirements establishing appropriate best management practices ("BMPs") for any activity, operation, or facility which may cause or contribute to pollution or contamination of the MS4. If relevant BMPs have been promulgated by the City or any Federal, State of California, and/or regional agency for any activity, operation, or facility which would otherwise cause the discharge of pollutants to the MS4 or watercourses, every person undertaking such activity or operation, or owning or operating such facility shall comply with such BMPs.

B. Responsibility to Implement Best Management Practices. Any person engaged in activities or operations or owning facilities or property which will or may result in pollutants entering the MS4, or watercourses, as determined by the Director, shall implement applicable BMPs to the extent they are technologically and economically achievable to prevent and/or reduce such pollutants. (Ord. 76 § 2 (part), 1997)

Section 15.14.070 Compliance with general permits.

Each industrial discharger associated with any construction activity, or any other discharger described in any NPDES or NPDES general permit as may be adopted by the EPA, the State Water Resources Control Board or the California Regional Water Quality Control Board, Santa Ana or San Diego Region, shall comply with and undertake all other activities required by any applicable NPDES general permit with regard to such discharges. (Ord. 76 § 2 (part), 1997)

Section 15.14.080 Elimination of illicit discharges.

A. Discharge. The Director shall require a person responsible for an illicit discharge to discontinue the illicit discharge immediately, or by a specified date, discontinue the discharge, and to require such person to take any necessary measures to eliminate the source of the illicit discharge.

B. Connection. The Director shall require a person responsible for an illicit connection to the MS4 to eliminate or secure approval for the illicit connection by a specified date.

C. Establishment of Discharge or Connection. Regardless of whether the illicit connection or illicit discharge was established or approved prior to the effective date of the ordinance codified in this chapter, it shall be subject to abatement pursuant to this chapter.

D. Required Remediation. Whenever the City finds that an illicit discharge is taking place or has occurred which may result in or has resulted in pollution of the MS4, the City shall require the responsible person to cease the illicit discharge and the pollution within a specified time. (Ord. 76 § 2 (part), 1997)

Section 15.14.090 Watercourse protection.

Every person owning property through which a watercourse passes, or the occupant of such property, shall keep and maintain the property reasonably free of trash, debris, vegetation, and other obstacles which would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, all existing structures within or adjacent to the watercourse shall be maintained so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse. The said owner or occupant shall not remove healthy bank vegetation beyond that actually necessary for said maintenance, nor remove said vegetation in such a manner as to increase the vulnerability of the watercourse to erosion. (Ord. 76 § 2 (part), 1997)

Section 15.14.100 Prohibited acts.

No person shall commit or cause to be committed any of the following acts, unless a permit has first been obtained:

- A. A discharge of a pollutant into any pipe or channel to a watercourse/MS4;
 - B. Modify the natural flow of water in MS4;
 - C. Deposit in, plant in, or remove any material from an MS4 including its banks, except as required for maintenance;
 - D. Construct, alter, enlarge, connect to, change, or remove any structure in an MS4;
- or,

E. Place any loose or unconsolidated material along the side of or within an MS4, or so close to the side as to cause a diversion of the flow, or to cause a probability of such material being transported by stormwaters passing through an MS4. (Ord. 76 § 2 (part), 1997)

Section 15.14.110 Scope of inspections.

A. Entry. The Director or his/her designee shall be authorized to enter public or private property to investigate the source or potential source of a suspected illicit discharge to an MS4 or watercourses located within the City at all reasonable times to inspect the same and to inspect and copy records related to stormwater compliance. The Director or his/her designee shall attempt to secure permission from the owner of the property before entering any private property pursuant to this section. If the property owner refuses consent or facts and circumstances reasonably justify the failure to seek such consent, the Director or his/her designee may request an inspection warrant to be issued by a judge of a court upon a finding of cause in accordance with California Code of Civil Procedure Section 1822.50 et seq. At the time of entry, the Director or designee shall furnish the owner of the property with a copy of this chapter of the Code.

B. Compliance Assessments. The Director may inspect public or private property for the purpose of verifying compliance with this chapter, including but not limited to:

1. Identifying products produced, processes conducted, chemicals used, and materials stored on or contained within the property;
2. Identifying point(s) of discharge of all wastewater, process water systems, and pollutants;
3. Investigating the natural slope at the location, the runoff coefficient, drainage patterns, and man-made conveyance systems (including roads with drainage systems, catch basin, curbs, gutters, man-made channels, and storm drains);
4. Establishing the location of all points of discharge from the property, whether by surface runoff or through an MS4;
5. Locating any illicit connection or the source of any illicit discharge;
6. Evaluating compliance with any stormwater pollution control plan; and,
7. Evaluating compliance with any permit issued pursuant to this chapter.

C. Records Review. The Director or his/her designee may examine and copy such records as may be necessary to determine compliance with the provisions of this chapter. The Director or his/her designee shall attempt to secure permission from the owner of the property before entering any private property pursuant to this section and before commencing with the inspection and copying of records. If the property owner refuses consent or facts and circumstances reasonably justify the failure to seek such consent, the Director or his/her designee may request an inspection warrant to be issued by a judge of a court upon a finding of cause in accordance with California Code of Civil Procedure Section 1822.20 et seq. At the time of entry, inspection, and copying, the Director or designee shall furnish the owner of the property with a copy of this chapter of the Code.

D. Sample and Test. The Director may inspect, sample, and test any area runoff, soils area (including groundwater testing), process discharge, materials within any waste storage area (including any container contents), and/or treatment system discharge for the purpose of determining the potential for contribution of pollutants to the MS4. The Director may investigate the integrity of all storm drain and sanitary sewer systems or other pipelines on the property using appropriate tests, including but not limited to smoke and dye tests or video surveys. The Director may take photographs or videotape, make measurements or drawings, and create any other record reasonably necessary to document conditions on the property.

E. Monitoring. The Director may undertake monitoring and analysis including both the construction and maintenance of devices at the owners' expense, or require the owner or person in charge of day-to-day operations of the property to undertake construction and

maintenance of devices, at the owners' expense, for the purpose of measuring any discharge or potential source of discharge to the MS4.

F. Test Results. The owner or occupant of property subject to inspection shall provide copies of test results to the City. On submission of a written request to the Director, such person shall be entitled to receive copies of test results conducted by the Director. (Ord. 78 §§ 3, 4, 1997; Ord. 76 § 2 (part), 1997)

Section 15.14.120 Remedies for violation.

A. Notice of Violation. The Director shall serve a notice of violation to the owner and/or occupant of any public or private property, as to which an illicit connection or illicit discharge exists. The notice of violation shall:

1. Identify the provision(s) of this chapter, the applicable stormwater pollution prevention plan, stormwater pollution control plan, or permit alleged to have been violated; and,
2. State that continued noncompliance may result in civil, criminal, or administrative enforcement actions against the owner and/or occupant; and,
3. State a compliance date that must be met by the owner and/or occupant; and,
4. Describe the manner of abatement required; and,
5. Order remediation work.

B. The notice of violation may include where deemed applicable by the Director, the following terms and requirements:

1. Specific steps and time schedules for compliance as reasonably necessary to prevent threatened or future unauthorized illicit discharges, including but not limited to, the threat of an illicit discharge from any pond, pit, well, surface impoundment, holding, or storage area; and,
2. Specific steps and time schedules for compliance as reasonably necessary to prevent further violations; and,
3. Specific steps and time schedules for compliance as reasonably necessary to discontinue any illicit connection; and,
4. Specific requirements for containment, cleanup, removal, storage, installation of overhead covering, or proper disposal of any pollutant having the potential to contact stormwater runoff; and,
5. Any other terms or requirements reasonably calculated to prevent continued or threatened violations of this chapter including, but not limited to, requirements for compliance with BMPs guidance documents promulgated by any Federal agency, the State of California, or the City; and,
6. Any other terms or requirements reasonably calculated to achieve full compliance with the terms, conditions, and requirements of the stormwater quality management plan, a stormwater pollution prevention plan, stormwater pollution control plan, or permit issued pursuant hereto, or this chapter.

C. Cease and Desist Orders.

1. The Director shall issue a cease and desist order where the public safety requires the same, directing the owner and/or occupant of any public or private property and/or any other person responsible for a violation of this chapter to:

- a. Immediately discontinue any illicit connection, or illicit discharge to the MS4;
- b. Immediately contain or divert any flow of nonstormwater off the property, where the flow is occurring in violation of any provision of this chapter;
- c. Immediately discontinue any other violation of this chapter;
- d. Clean up the area affected by the violation.

2. The Director may direct by cease and desist order that the owner or other person in charge of day-to-day operations or any permittee under any applicable permit, immediately cease any activity not in compliance with the terms, conditions, and requirements of the applicable plan, permit, or this chapter.

D. Recovery of Costs. The Director shall serve an invoice for costs upon the owner and/or occupant of any public or private property, or any other responsible person who is subject to a notice of violation or a cease and desist order. An invoice for costs shall be immediately due and payable to the City. If any owner or person in charge of day-to-day operations, permittee, or responsible party, or any other person fails to either pay the invoice for costs or appeal successfully the invoice for costs in accordance with this chapter, then the City may institute collection proceedings.

E. Service of Notices. Any notice of violation, administrative compliance order, cease and desist order, or invoice of costs (collectively, "order") shall be served pursuant to the requirements of this chapter shall be subject to the following:

1. Each order shall state that the recipient has a right to appeal the matter as set forth in this chapter.

2. The order shall include the address of the affected property and be addressed to the owner as shown on the most recently issued equalized assessment roll or as may otherwise appear in the current records of the City.

3. If the owner or occupant of affected property cannot be located after the reasonable efforts of the Director, the order shall be deemed served ten (10) business days after posting on the property. (Ord. 76 § 2 (part), 1997)

Section 15.14.130 Appeals.

Any person aggrieved by the issuance of an order may appeal from the issuance of such order to the City Manager in accordance with the following:

A. Any such appeal shall be filed within fifteen (15) days of the date of service of the order by the Director upon the appealing party;

B. No such appeal shall be valid for any purpose unless it is timely filed and unless a filing and processing fee is paid contemporaneously with the filing thereof in an amount as set by City Council resolution;

C. That upon the timely filing of such an appeal, the City Clerk shall set a time and place for a hearing on such appeal as expeditiously as is possible;

D. At the time of such hearing, the City Manager shall permit any interested person to present any relevant testimony bearing on the matters involved in the issuance of the order which is the subject of the appeal. The City Manager need not follow the strict provisions of the rules of evidence as utilized in a judicial proceeding but shall follow the substance of such rule to the end that the decision rendered is based upon reliable relevant evidentiary material. The City Manager's decision shall be final and conclusive and subject only to judicial review.

The provisions of Sections 1094.5 and 1094.6 of the Code of Civil Procedure set forth the procedure for judicial review of any act taken pursuant to this chapter. Parties seeking judicial review of any action taken pursuant to this chapter shall file such action within ninety (90) days of the occurrence of the event for which review is sought. (Ord. 76 § 2 (part), 1997)

Section 15.14.140 Penalties.

In addition to any administrative enforcement action, it shall be unlawful and a misdemeanor, subject to punishment in accordance with Sections 1.01.200 to 1.01.260 of this Code, for any person to violate any provision of this chapter or to violate any provision, condition, or restriction of a permit issued pursuant to this chapter. (Ord. 76 § 2 (part), 1997)

Section 15.14.150 Violations deemed a public nuisance.

Any violation of this chapter or any provision, condition, or restriction of a permit issued pursuant to this chapter constitutes a public nuisance subject to abatement by the City.
(Ord. 76 § 2 (part), 1997)

**18. City of Lake Forest Municipal Code
Section 8.30.149A Article XIII. Erosion Control**

Section 8.30.149A Article XIII. Erosion Control

Section 8.30.150 Erosion control system.

A. The faces of cut and fill slopes and project site shall be prepared and maintained to control against erosion in accordance with this subsection. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted upon approval by the Building Official.

B. Where necessary, temporary and/or permanent erosion control devices such as desilting basins, check dams, riprap, or other devices or methods, as approved by the Building Official, shall be employed to control erosion and provide safety during the rainy season from October 15th to April 15th.

C. No grading work in excess of two hundred (200) cubic yards will be allowed between October 15th and April 15th on any single grading site under permit unless an erosion control system has been approved or waived by the Building Official.

D. Paved streets, sidewalks, and other improvements shall be maintained in a neat and clean condition free of loose soil, construction debris, and trash. Street sweeping or other equally effective means shall be used on a regular basis to prevent storm flows from carrying sediment and debris outside the project boundaries. Watering shall not be used to clean streets except for fine material not otherwise removed by sweeping or other mechanical means.

E. Unless otherwise approved by the Building Official, the owner shall be required to retain a civil engineer who will be responsible for the design of all erosion control improvements and initial approval of the installation of permanent and semi-permanent erosion control devices during each rainy season until the work authorized by the grading permit is given final approval. The owner shall retain the civil engineer to periodically review the field condition and modify, as needed, the design of the permanent and semi-permanent erosion control devices during the rainy season. Installation and maintenance of all erosion control devices shall be the responsibility of the owner.

F. Desilting facilities shall be provided at drainage outlets from the graded site.

G. Desilting basins shall be designed to provide a minimum desilting capacity equal to the current city standards.

H. Desilting basins shall be constructed around the perimeter of projects whenever feasible when it provides improved maintenance access from paved roads during wet weather.

I. Desilting basins constructed of compacted earth shall be compacted to a relative compaction of ninety (90) percent of maximum density. A soil engineering report, prepared by the soil engineer, which includes the type of field testing performed, location, and results of testing shall be submitted to the Building Official for approval upon completion of the desilting basins.

J. Equipment and workers for emergency work shall be made available at all times during the rainy season. Necessary materials shall be available on-site and stockpiled at convenient locations to facilitate rapid construction of temporary devices when rain is imminent.

K. Erosion protection shall consist of effective planting of all slopes in excess of five (5) feet high unless otherwise approved by the Building Official. Slopes exceeding fifteen (15) feet high may require an adequate sprinkler system, as determined by the Building Official.

Protection for the slopes shall be installed as soon as practicable which may be prior to rough grade approval. Effective planting shall be installed, fully germinated and effectively cover the required slopes prior to final approval unless otherwise approved by the Building Official.

L. The erosion control provisions shall take into account drainage patterns during the current and future phases of grading throughout the rainy season.

M. All removable protective devices shown shall be in place at the end of each working day when the five (5) day rain probability forecast exceeds forty (40) percent.

N. Graded areas around the tract perimeter must drain away from the face of slopes at the conclusion of each working day.

O. In addition to the requirements specified above, the permittee shall perform all work in accordance with the water quality requirements.

P. Any violation of an applicable federal or state-issued stormwater permit, or failure to conform to the County's water quality requirements prepared pursuant to such a permit or pursuant to this chapter or to Chapter 15.14 of the Lake Forest Municipal Code; or failure to comply with stormwater related provisions of a County-issued grading permit or of a grading plan prepared to secure such a permit, is also a violation of this chapter. (Ord. 140 § 2(8), 2003; Ord. 107 § 1 (part), 1999)

Section 8.30.152 Erosion control plans.

Erosion control plans prepared in accordance with subarticle 13 of the grading manual shall be submitted to the Building Official for approval by September 15th each year for projects under grading permit. The erosion control plan may be waived for grading projects on single residential lot projects providing that an erosion control system, meeting the approval of the Building Official, has been installed, placed, planted, or constructed before October 15th. (Ord. 107 § 1 (part), 1999)

Section 8.30.154 Erosion and sediment control and water quality requirement system maintenance.

A. After each rainstorm, silt and debris shall be removed from check berms and desilting basins and the basins pumped dry.

B. After each rainstorm, the performance of the erosion control system shall be evaluated and revised and repaired as necessary.

C. Devices shall not be moved or modified without the approval of the Building Official.

D. The contractor shall be responsible and shall take necessary precautions to prevent public trespass onto areas where impounded water creates a hazardous condition.

E. The contractor and permittee or project owner shall be responsible for continual maintenance of the devices during the rainy season. In the event of failure or refusal by the contractor, permittee, or project owner to properly maintain the devices, the Building Official may cause emergency maintenance work to be done to protect adjacent private and public property. The cost shall be charged to the owner and shall include an initial mobilization cost plus the cost of doing the work as provided in this chapter.

F. In the event the Building Official must cause emergency maintenance work to be done, the Building Official may revoke the grading permit in writing. The grading permit shall not be renewed until an erosion control system and/or other systems necessary to comply with water quality requirements approved by the Building Official are installed and a fee of one-half the amount required for the original grading permit paid by the owner. The Building Official may waive installation of an erosion control system after April 15th.

G. If any grading subject to Section 8.30.030, Grading Permits, of this Grading Code has commenced on private property without a valid grading permit, the property owner may be required to prepare and implement an erosion control plan as well as other plans required under the water quality requirements which have been approved by the Building Official. In the event of failure by the property owner to install an approved erosion control system and/or other systems necessary to comply with water quality requirements, the Building Official may cause emergency work to be done to protect adjacent private and public property. The procedures of Section 8.30.044, Hazardous Conditions, of this

Grading Code need not apply for emergency erosion control work between October 1st and April 30th. The cost shall be charged to the owner in accordance with subsection E of this section. (Ord. 140 § 2(9), 2003; Ord. 107 § 1 (part), 1999)

19. City of Lake Forest Pollution Prevention

Sewers and Storm Drains

Two systems, Two purposes

Two separate water drainage systems exist at every residence and business in Lake Forest: storm drains and sanitary sewers. These systems have vastly different purposes — sewers protect the public health by transporting human sewage and wastewater for treatment, while storm drains collect and transport rainwater to the ocean.

The sewer system handles wastewater from inside your house. This water, from your bathroom and kitchen, is sent via pipes to one of two treatment plants that clean and disinfect the waste before being recycled or released offshore into the Pacific Ocean. These sewer pipes can have blockages, often due to grease, and overflows can enter the street and storm drain and may cause local beach closures.

The storm drain system is designed for rainwater that flows into street gutters and then to storm drains before entering Aliso or Serrano Creeks and the ocean. Every neighborhood and street is connected to the storm drain system to rapidly move rainwater out of the City to prevent flooding. Rainwater mixes with fertilizer, chemicals or bacteria to create stormwater pollution. The stormwater runoff is not treated and can pollute the ocean and the local lakes, which is why curbs at catch basins are painted with signs reading, "No Dumping, Drains to Ocean" or "No Dumping, Drains to Lake," and swimming in the ocean is often banned after storms.

It's important to know the difference between the two systems and keep all sources of pollution from entering the storm drain to threaten human health and aquatic life.



Aliso Creek stormwater runoff ends up in Laguna Beach — Stormwater runoff in Aliso Creek can pollute the ocean because any water entering the creek flows untreated to Laguna Beach and the ocean.



January 2003

Focus on the Future

A publication of the City of Lake Forest

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For further information,
please visit our Web site:
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Focus on the Future

Stormwater Pollution

An update on issues facing Lake Forest

January 2003

New Stormwater Permits

will affect all residents, businesses, homeowners associations

Though new stormwater rules will require all residents, businesses and homeowners associations in the City of Lake Forest to increase their efforts to keep polluted urban runoff water from entering local creeks, which flow to the Pacific Ocean.

The Santa Ana and San Diego Regional Water Quality Control Boards have adopted new five-year Stormwater Permits for the City of Lake Forest, other Orange County cities and the County of Orange. The permits impose many new regulations and restrictions that will require stronger pollution prevention practices by residents and businesses, and will reduce runoff into gutters and storm drains.

The New Stormwater Permits require the City of Lake Forest to:

- Take stronger water quality and watershed protection actions
- Prohibit the washing or hosing of driveways and sidewalks
- Impose pollution prevention and treatment requirements on new development projects
- Require existing businesses to prevent pollution
- Inspect construction sites, businesses and residential areas to ensure compliance with permit requirements
- Require homeowners associations to employ pollution prevention practices in the maintenance of private streets, street gutters, storm drains, parks and open space areas
- Expand public education programs about urban runoff and water quality
- Monitor storm drain discharges, and identify, measure and eliminate sources of water pollution

All residents and businesses will have to help prevent runoff pollution by carefully dealing with pollutants on their property, cleaning street gutters and not over-watering lawns. Failure to do so may subject the City, businesses, homeowners associations and residents to enforcement actions by the regional boards, including heavy fines.

The City is doing its part by sweeping streets on a weekly basis to reduce the amount of pollutants that could flow into the storm drains. To make sure the sweeping is efficient and effective, it is important that all residents move their cars off the street on their sweeping day, which occurs the day after trash collection. The better the City is able to sweep the street, the less time residents will need to spend cleaning their gutters and curbside.

We need your help to protect our creeks and ocean from pollution.



Lake Forest runoff — Serrano Creek is shown here with pools of dry weather runoff from upstream and adjacent properties. Serrano Creek empties into San Diego Creek, then into the Back Bay in Newport Beach and eventually the ocean.

Residents urged to reduce over-watering to prevent runoff

Over-watering lawns is the main cause of urban runoff. Ideally, if it's not raining, there should not be any water in the gutter or storm drain to transport pollutants to local creeks and the ocean. However, City studies have found that excessive yard watering can send up to **100 gallons of urban runoff per household per day** into the storm drain system. That's a tremendous waste of precious water and money, plus it can pollute our waterways with pesticides and fertilizer!

Improperly setting or adjusting your home watering system is one of the major causes of lawn over-watering. Did you know that most home irrigation system controllers are pre-set to run for 10 minutes per station? Professional gardeners recommend that lawns be watered once or twice per day for as few as one to two minutes. This is particularly true for Lake Forest with our heavier, clay soil conditions.

Please check your sprinkler system and watering prac-

tices. If the water flows from the lawn to your driveway or onto the sidewalk or street, the controller should be reset to reduce watering time. Here's a simple approach:

- ◆ **Time how long it takes before your lawn starts "shedding" water into the gutter.**
- ◆ **Set your timer to the last minute before the water started to run off the lawn.**
- ◆ **Check your controller on a regular basis. If water flows from your yard, the system is over-watering and your timer setting should be adjusted.**
- ◆ **Adjust sprinkler heads to water only landscape, not sidewalks or gutters.**

Remember: Our street gutters and storm drains are for rainwater, not lawn runoff!

Weekend project tips to stop pollution:

1. **Check your sprinklers to conserve water and prevent over-watering or runoff.**
2. **Do not over-apply fertilizer and pesticides.**
3. **Do not over-water your lawn.**
4. **Make sure construction materials do not enter the street gutter.**

Receive environmental updates via e-mail. Sign up for your free Lake Forest e-Newsletter!

The Lake Forest e-Newsletter is a free service that lets you receive a customized newsletter via e-mail each month, or as important information becomes available. There are several categories to subscribe to, ranging from City Employment to Youth Recreation & Sports, including:

- **Environment** — Receive updates on the Expand the Forest program, pollution prevention, and other programs important to protecting our environment.
- **City Newsletters** — Receive a link to an electronic copy of Lake Forest's three newsletters (The Leaflet, A View From the Arbor, and Focus on the Future) as soon as they are published.

- **City Council Meetings** — A recap of the decisions made by the Lake Forest City Council at its bimonthly meetings, along with a link to the official minutes and City Council Agendas.

To subscribe, visit the City's website at www.ci.lake-forest.ca.us, and click on **Lake Forest e-Newsletter**.



No Dumping, Drains to Ocean — Rainwater and urban runoff flow untreated from Lake Forest properties into local creeks before entering the Pacific Ocean in Newport Beach or Laguna Beach.

The problem with urban runoff

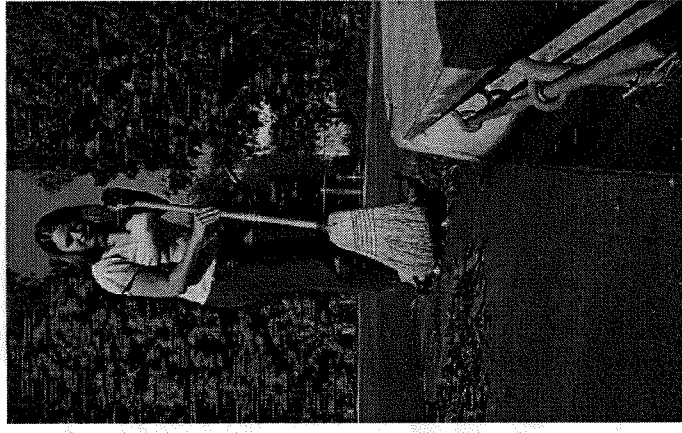
Urban runoff is a major source of pollution in our nation's rivers, lakes and oceans. Scientists have identified more than 160 chemicals as part of the urban pollution "toxic soup" that enters the storm drain systems. These pollutants and chemicals end up in creeks, beaches and the ocean, carrying potentially harmful viruses and bacteria along with litter, soap, cigarette butts, heavy metal particles, phosphorus, pesticides and other solids. Bacteria may come from many sources such as oil, fertilizer, trash, leaves, yard clippings, pesticides and pet waste. Natural sources such as birds, rabbits, and other species also contribute to the pollution that eventually ends up in the Pacific Ocean. Also, Creek has been declared an "impaired water body" by federal regulators due to high

bacteria levels. In addition, Serrano Creek is a tributary to the San Diego Creek and Newport Bay, which has high toxicity levels and a federal limit on the amount of sediments, toxics, nutrients, fertilizer and other materials entering the creek and bay. Bacteria levels are regularly monitored in these creeks and sometimes exceed federal and state water quality standards. When this happens, warning signs are posted at local beaches. Lake Forest neighborhoods generate a portion of the urban runoff that carries bacteria and other pollutants to the ocean.

The goal of all Lake Forest residents and businesses must be to stop urban runoff pollution dead in its tracks. Eliminating over-watering, hosing off of sidewalks or gutters and sweeping up gutter debris are critical but easy steps in stopping urban runoff.

Seven easy steps to stop stormwater pollution

1. **Shorten the cycles of sprinklers to avoid over-watering, which causes runoff into the street. Install a new controller, or if power goes out, reprogram sprinklers to minimize over-watering. Adjust or replace faulty sprinkler heads.**
2. **Don't wash down your sidewalk, driveway or paved surfaces. Clean these surfaces with a broom or shop vacuum instead. Keep your street gutter clean and free from muck, leaves, litter or dirt.**
3. **Pick up pet waste immediately and dispose of it in a toilet or trashcan.**
4. **Carefully follow directions on pesticides, herbicides and fertilizer. Do not over-use, and avoid washing chemical materials into the gutter. Avoid using when rain is predicted.**
5. **Maintain your cars to avoid leaks. Put a mat under cars to catch drippings. Use cat litter to absorb spills and dispose in the trash. Don't pour oil or automobile fluids into your yard or the gutter.**
6. **Clean paintbrushes, rollers and pans in your sink, tub or toilet. Do not dump paint down the storm drain or gutter.**
7. **Move your car off the street on street sweeping days.**



Sweeping your street gutters prevents pollution — This Lake Forest homeowner sweeps her street gutter to prevent yard clippings and leaves from entering the storm drain and contributing to urban runoff pollution.

Appendix B

Hydrology Report (Drainage Study)

HYDROLOGY STUDY

For

TENTATIVE TRACT 15594

City of Lake Forest
County of Orange



PREPARED UNDER THE SUPERVISION OF:

Jianhua Guan

07/27/2011

Jianhua "Gary" Guan, R.C.E. 64519, Exp. 06/30/13 Date:

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SECTION 1

INTRODUCTION



A. PROJECT LOCATION

The project is located in the City of Lake Forest, County of Orange County. The proposed site is at the intersection of Tamarisk and Peachwood. (See attached vicinity map).

B. STUDY PURPOSE

The purpose of this study is to provide flow rates produced from existing and proposed site. It also serves as the basis for analyzing and designing proposed and required storm drain system. The study also demonstrates the mitigation measures to reduce the increased flows below the existing levels due to the project development. Water quality measures will be implemented via Modular Wetland System.

C. METHODOLOGY

The rational method was used to calculate the design discharge for the local drainage areas since the watershed area to the proposed storm drain systems is less than one square mile.

Hydrologic calculations to determine the 10-year, 25-year and 100-year discharges at critical locations throughout the project site were performed using the Orange County Rational Method. A technical description of the rational method is provided in the Orange County Hydrology Manual dated October, 1986. The Rational Method is an empirical computation procedure for developing a peak runoff rate (discharge) for small watersheds for storms of a specified recurrence interval. The rational method equation is based on the assumption that the peak flow rate is directly proportional to the drainage area, rainfall intensity and a loss coefficient which describes the effects of land use and soil type. The design discharges were computed by generating a hydrologic "link-node" model which divides the area into subareas, each tributary to a concentration point or hydrologic "node" point determined by the proposed terrain or street layout.

The following assumptions/guidelines were applied for use of the Rational Method.

1. The rational Method Hydrology includes the effects of infiltration caused by soil surface characteristics. The soil map from Orange County Hydrology Manual indicates that the study area consists of soil types B, C and D. Hydrologic soils ratings are based on a scale

of A through D, where A is the most pervious, providing the least runoff.

2. The infiltration rate is also affected by the type of vegetation or ground cover and percentage of impervious surface. The runoff coefficients used for this study were based on the proposed land uses.
3. Standard intensity-duration curve data was taken from the Orange County Hydrology Manual, dated October, 1986.

The hydrologic calculations were prepared using the Advanced Engineering Software (A.E.S.) Rational Method computer program. The results of the hydrologic calculations were used to design the required storm drain facilities.

The unit hydrograph and basin routing analysis were prepared using the Advanced Engineering Software (A.E.S.) small area unit hydrograph and routing models.

D. DISCUSSION

There are two drainage systems within the studied area. Drainage Area "A" drains to the existing 30" RCP per improvement plans for Tract 12603. Drainage Area "B" drains to the existing 18" RCP per improvement plans for Tract 10931 and streets. The as-built storm drain plans can be found in Reference Section 5.

Existing Condition

In the existing condition Drainage Area "A" contains an approximate area of 23.6 acres of offsite and onsite and Drainage Area "B" contains 3 subareas with a combination area of 10.8 acres. The existing condition hydrology analysis can be found in Section 2 and the summary of the hydrology results can be found in Table 1.

Proposed Condition

In the proposed condition Drainage Area "A" contains an approximate area of 21.5 acres of offsite and onsite and Drainage Area "B" contains an approximate area of 12.3 acres. The hydrology summary with the comparison with existing conditions is illustrated in Table 1.

**Table 1 Hydrology Summary for TTM 15594
in City of Lake Forest**

Drainage Area	Proposed Condition						Existing Condition						Difference (proposed-existing)								
	Area (acre)	100-year flow		25-year flow		10-year flow		Area (acre)	100-yr flow		25-yr flow		10-yr flow		Area (acre)	100-year flow		25-year flow		10-year flow	
		Without Mitigation (cfs)	* With Mitigation (cfs)	Without Mitigation (cfs)	* With Mitigation (cfs)	Without Mitigation (cfs)	* With Mitigation (cfs)		Without Mitigation (cfs)	* With Mitigation (cfs)	Without Mitigation (cfs)	* With Mitigation (cfs)	Without Mitigation (cfs)	* With Mitigation (cfs)		Without Mitigation (cfs)	* With Mitigation (cfs)	Without Mitigation (cfs)	* With Mitigation (cfs)	Without Mitigation (cfs)	* With Mitigation (cfs)
A	21.5	59.0	59.0	45.2	45.2	37.0	37.0	23.6	60.6	46.2	37.4	-2.1	-1.6	-1.6	-1.0	-1.0	-0.4	-0.4	-0.4	-0.4	
B	12.3	37.6	30.1	20.9	20.9	17.1	17.1	10.8	30.3	23.4	19.2	1.6	-0.2	-0.2	5.7	-2.5	4.9	-2.1	-2.1	-2.1	
Total	33.8	96.6	89.1	66.1	66.1	54.1	54.1	34.35	90.9	69.6	56.6	-0.6	-1.8	-1.8	4.7	-3.5	4.5	-2.5	-2.5	-2.5	

Note: No mitigation is provided for Drainage Area "A"

*Mitigation provided by detention facility, see Table 3

Unit Hydrograph and Basin Routing Analysis

As shown from Table 1, the flow rates for proposed condition Drainage Area “A” are less than the existing ones and the flow rates for proposed condition Drainage Area “B” are more than the existing ones. The overall flow increase is 4.5 cfs for 10-year storm, 4.7 cfs for 25-year storm and 5.7 cfs for 100-year storm.

The proposed storm drain pipes between hydrology nodes 7 and 8 are upsized to act as the underground detention systems to mitigate the flow increases due to the project development. The preliminary basin routing analysis is performed to ensure the proposed upsized pipe can mitigate the flow increases. The pipe length is approximately 330 ft between node 7 and 8 and the pipe size is upsized to 72” pipe. There is a 12” orifice pipe at the downstream of 72” pipe to act as flow outlet pipe.

The stage-storage-outflow summary table can be found from Table 2 and detailed calculations can be found in Section 4.

Table 2 Stage-Storage-Outflow Summary for 72" pipe

72" RCP depth	AREA	Volum e	Volum e	Discharg e	Note
	(ft ²)	(ft ³)	(ac-ft)	(cfs)	
0	0	0		0	
0.5	1	330	0.0076	0.56	from normal depth calculations
1	3	990	0.0227	2.67	from orifice flow calculations
2	7	2310	0.0530	4.63	
3	12	3960	0.0909	5.98	
4	17	5610	0.1288	7.07	
5	19.6	6468	0.1485	8.02	
6	19.6	4294	0.0986	8.87	
7	19.6	4296	0.0986	9.64	
8	19.6	4296	0.0986	10.35	
9	19.6	4296	0.0986	11.02	
10	19.6	4296	0.0986	11.65	
10.5	19.6	4296	0.0986	25.27	orifice flow + street flow

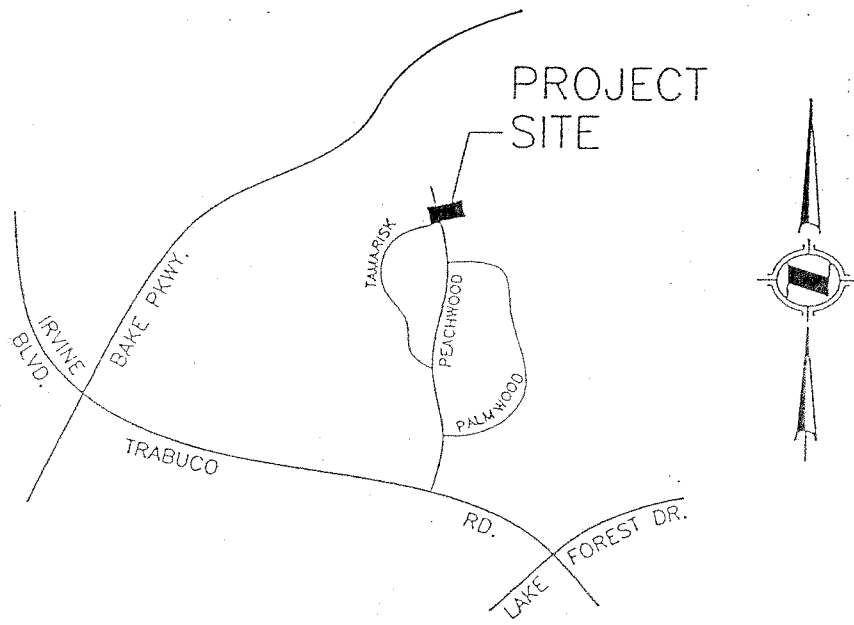
Note: the pipe length used is 330 ft

The basin routing summaries are illustrated in Table 3. As shown from Table 3, the proposed upsized pipe can reduce the flow increases due to the project development. Please note these are all for the preliminary analysis, the pipe sizes and stage-storage-outflow information may vary during the final design phase when detailed information is available.

**Table 3 Basin Routing Summary for TTM 15594
in City of Lake Forest**

Storm	Inflow	outflow	flow reduction	overall flow increase per Table 1	flow reduction more than flow increase
	(cfs)	(cfs)	(cfs)	(cfs)	
10-year	13.8	6.8	7	4.5	yes
25-year	16.7	8.5	8.2	4.7	yes
100-year	21.6	14.1	7.5	5.7	yes

E. VICINITY MAP



VICINITY MAP

NO SCALE



SECTION 2

**EXISTING CONDITION
HYDROLOGY CALCULATIONS AND MAP**



A. 10-YEAR STORM



```

*****
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*****

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Analysis prepared by:

HUNSAKER & ASSOCIATES
Irvine, Inc

Planning * Engineering * Surveying

Three Hughes * Irvine, California 92618 * (949) 583-1010

```

***** DESCRIPTION OF STUDY *****
* Hydrology Study for Serrano Highlands, Tract 15594
* Existing Condition, Drainage Area "A"
* 10-year Storm
*****

```

FILE NAME: E3.DAT

TIME/DATE OF STUDY: 08:16 07/21/2011

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

--*TIME-OF-CONCENTRATION MODEL*--

```

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
*DATA BANK RAINFALL USED*
*ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

```

```

*USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) (FT) / SIDE/ WAY (FT) (FT) (n)
=====
1 14.0 9.0 0.020/0.020/0.020 0.50 1.50 0.0313 0.125 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
   as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

```

```

*****
FLOW PROCESS FROM NODE 30.00 TO NODE 31.00 IS CODE = 21
*****

```

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<<

```

>>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH(FEET) = 300.00
ELEVATION DATA: UPSTREAM(FEET) = 695.00 DOWNSTREAM(FEET) = 640.00
=====

```

```

TC = K*((LENGTH** 3.00)/(ELEVATION CHANGE))**0.20
SUBAREA ANALYSIS USED MINIMUM TC(MIN.) = 12.853
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.363
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp (INCH/HR) (DECIMAL) CN (MIN.)
LAND USE
NATURAL GOOD COVER
"OPEN BRUSH" D 1.00 0.20 1.000 81 12.85
NATURAL GOOD COVER
"OPEN BRUSH" B 0.23 0.30 1.000 63 12.85
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 2.37
TOTAL AREA(ACRES) = 1.23 PEAK FLOW RATE(CFS) = 2.37

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*****
FLOW PROCESS FROM NODE 31.00 TO NODE 32.00 IS CODE = 52
*****

```

>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<

```

>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 640.00 DOWNSTREAM(FEET) = 574.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1122.00 CHANNEL SLOPE = 0.0588
CHANNEL FLOW THRU SUBAREA(CFS) = 2.37
FLOW VELOCITY(FEET/SEC) = 4.33 (PER LACFCD/RCF&WCD HYDROLOGY MANUAL)
TRAVEL TIME(MIN.) = 4.32 TC(MIN.) = 17.17
LONGEST FLOWPATH FROM NODE 30.00 TO NODE 32.00 = 1422.00 FEET.

```

```

*****
FLOW PROCESS FROM NODE 32.00 TO NODE 32.00 IS CODE = 81
*****

```

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

```

=====
MAINLINE Tc(MIN) = 17.17
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.002
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp (INCH/HR) (DECIMAL) CN
LAND USE
NATURAL GOOD COVER
"OPEN BRUSH" D 10.80 0.20 1.000 81
NATURAL GOOD COVER
"OPEN BRUSH" C 3.10 0.25 1.000 75
NATURAL GOOD COVER
"OPEN BRUSH" B 8.50 0.30 1.000 63
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 22.40 SUBAREA RUNOFF(CFS) = 35.42
EFFECTIVE AREA(ACRES) = 23.63 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 23.6 PEAK FLOW RATE(CFS) = 37.39
=====

```

END OF STUDY SUMMARY:

```

TOTAL AREA(ACRES) = 23.6 TC(MIN.) = 17.17
EFFECTIVE AREA(ACRES) = 23.63 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 1.000

```

PEAK FLOW RATE (CFS) = 37.39

END OF RATIONAL METHOD ANALYSIS

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Analysis prepared by:

HUNSAKER & ASSOCIATES

Irvine, Inc

Planning * Engineering * Surveying

Three Hughes * Irvine, California 92618 * (949)583-1010

***** DESCRIPTION OF STUDY *****
* Hydrology Study for Serrano Highlands, Tract 15594
* Existing Condition, Drainage Area "B"
* 10-year Storm

FILE NAME: E2.DAT

TIME/DATE OF STUDY: 08:15 07/21/2011

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

---*TIME-OF-CONCENTRATION MODEL*---

USER SPECIFIED STORM EVENT (YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE (INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
DATA BANK RAINFALL USED

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	(FT)	HEIGHT (FT)	WIDTH (FT)	HIKE FACTOR
1	14.0	9.0	0.020/0.020/0.020	0.50

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth) * (Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 1.00 TO NODE 2.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH (FEET) = 300.00
ELEVATION DATA: UPSTREAM (FEET) = 611.00 DOWNSTREAM (FEET) = 587.00

TC = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)] ** 0.20
SUBAREA ANALYSIS USED MINIMUM TC (MIN.) = 15.172
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.149
SUBAREA TC AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL GOOD COVER
"OPEN BRUSH"
D 1.26 0.20 1.000 81 15.17
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.20
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 2.21
TOTAL AREA (ACRES) = 1.26 PEAK FLOW RATE (CFS) = 2.21

FLOW PROCESS FROM NODE 2.00 TO NODE 3.00 IS CODE = 52

>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 587.00 DOWNSTREAM (FEET) = 579.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 230.00 CHANNEL SLOPE = 0.0348
CHANNEL FLOW THRU SUBAREA (CFS) = 2.21
FLOW VELOCITY (FEET/SEC) = 3.28 (PER LACFCD/RCFC&MCD HYDROLOGY MANUAL)
TRAVEL TIME (MIN.) = 1.17 Tc (MIN.) = 16.34
LONGEST FLOWPATH FROM NODE 1.00 TO NODE 3.00 = 530.00 FEET.

FLOW PROCESS FROM NODE 3.00 TO NODE 3.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN) = 16.34

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.060
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL GOOD COVER
"OPEN BRUSH"
D 1.09 0.20 1.000 81
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.20
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 1.09 SUBAREA RUNOFF (CFS) = 1.82
EFFECTIVE AREA (ACRES) = 2.35 AREA-AVERAGED Fm (INCH/HR) = 0.20
AREA-AVERAGED Fp (INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 2.3 PEAK FLOW RATE (CFS) = 3.93

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 2.3 TC (MIN.) = 16.34
EFFECTIVE AREA (ACRES) = 2.35 AREA-AVERAGED Fm (INCH/HR) = 0.20
AREA-AVERAGED Fp (INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE (CFS) = 3.93

END OF RATIONAL METHOD ANALYSIS

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Analysis prepared by:

HUNSAKER & ASSOCIATES
Irvine, Inc

Planning * Engineering * Surveying

Three Hughes * Irvine, California 92618 * (949)583-1010

***** DESCRIPTION OF STUDY *****
* Hydrology Study for Serrano Highlands, Tract 15594 *
* Existing Condition, Drainage Area "B" *
* 10-year Storm *****

FILE NAME: E1.DAT

TIME/DATE OF STUDY: 08:14 07/21/2011

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

---*TIME-OF-CONCENTRATION MODEL*---

USER SPECIFIED STORM EVENT (YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE (INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
DATA BANK RAINFALL USED
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1 14.0 9.0 0.020/0.020/0.020 0.50 1.50 0.0313 0.125 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 10.00 TO NODE 11.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<<

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH (FEET) = 266.00
ELEVATION DATA: UPSTREAM (FEET) = 650.00 DOWNSTREAM (FEET) = 610.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 12.745
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.375
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp (INCH/HR) (DECIMAL) CN (MIN.)
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL GOOD COVER D 0.71 0.20 1.000 81 12.74
"OPEN BRUSH"
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 1.39
TOTAL AREA (ACRES) = 0.71 PEAK FLOW RATE (CFS) = 1.39

FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 61

>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<<
>>>>(STANDARD CURB SECTION USED)<<<<<<

UPSTREAM ELEVATION (FEET) = 610.00 DOWNSTREAM ELEVATION (FEET) = 582.00
STREET LENGTH (FEET) = 489.00 CURB HEIGHT (INCHES) = 6.0
STREET HALFWIDTH (FEET) = 17.60

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 12.60
INSIDE STREET CROSSFALL (DECIMAL) = 0.017
OUTSIDE STREET CROSSFALL (DECIMAL) = 0.017

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
Manning's FRICTION FACTOR for Streetflow Section (curb-to-curb) = 0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200

**TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2.34
STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
STREET FLOW DEPTH (FEET) = 0.21

HALFSTREET FLOW WIDTH (FEET) = 4.73
AVERAGE FLOW VELOCITY (FEET/SEC.) = 3.76
PRODUCT OF DEPTH&VELOCITY (FT*FT/SEC.) = 0.79

STREET FLOW TRAVEL TIME (MIN.) = 2.17 Tc (MIN.) = 14.91
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.170
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp (INCH/HR) (DECIMAL) CN
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL GOOD COVER D 1.07 0.20 1.000 81

"OPEN BRUSH"
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 1.07 SUBAREA RUNOFF (CFS) = 1.90

EFFECTIVE AREA (ACRES) = 1.78 AREA-AVERAGED Fm (INCH/HR) = 0.20
AREA-AVERAGED Fp (INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 1.8 PEAK FLOW RATE (CFS) = 3.16

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH (FEET) = 0.23 HALFSTREET FLOOD WIDTH (FEET) = 5.74
FLOW VELOCITY (FEET/SEC.) = 3.93 DEPTH*VELOCITY (FT*FT/SEC.) = 0.90

LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 755.00 FEET.
=====
END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 1.8 TC(MIN.) = 14.91
EFFECTIVE AREA(ACRES) = 1.78 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS) = 3.16
=====
END OF RATIONAL METHOD ANALYSIS