INSECT EXTERMINATION

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1. GENERAL

1.01 This section describes procedures for exterminating insects found on telephone premises. It includes a description of insecticides, their properties and applications.

1.02 The section is generally revised and reissued to consolidate the following sections which have been canceled:

Section H51.129 — Insect Extermination, Roaches

Section H51.130 — Insect Extermination, Bedbugs

Section H51.131 — Insect Extermination in Switchboards.

1.03 Three insecticides are recommended. They are:

(a) Bell System Liquid Insecticide

(b) Aerosol Insecticide — Space Spray

(c) Aerosol Insecticide — Residual Spray

The Bell System Liquid Insecticide is available from the Western Electric Company. The Aerosol Insecticides should be purchased locally.

1.04 In some localities the insecticides mentioned in this section may be applied only by persons who have been licensed to do so in compliance with local ordinances.

1.05 The procedures described in this section are intended primarily for use by the building forces for the control of small or infrequent infestations. When extensive treatment is required, as in quarters where food is handled and stored, the services of a competent professional exterminator may be needed.

1.06 The most effective means for preventing insect infestations is to maintain thorough cleanliness, especially in dining service quarters, storerooms and areas where garbage is stored. Following are specific suggestions:

(a) Give special attention to maintaining a high degree of cleanliness in difficult to reach places.

(b) Remove promptly food particles and spillages from floors, counters, shelves and tables.

(c) Maintain a clean and orderly condition in supply rooms and in employees' lockers.

(d) Use screens when necessary to prevent entry of flying insects.

1.07 When it is necessary to apply insecticide in switchboards, do so with the concurrence of the equipment maintenance and Traffic forces. When applying insecticides in dining room quarters, secure the cooperation of the responsible personnel.

2. DESCRIPTIONS AND PROPERTIES OF INSECTICIDES

2.01 Insecticides intended for the control of insect pests in the home and in public buildings are known as household insecticides as distinguished from those intended for agricultural or industrial purposes. While there are hundreds of formulas, these are in general different combinations of the same basic ingredients. Those intended for household use require

the approval of the United States Department of Agriculture. A list of the active ingredients must appear on the label.

2.02 There are two types of insecticide sprays, residual and space. The residual type is a coarse particle spray which wets the surface treated with a coating of insecticide. Upon evaporation of the liquid solvent, a residual coating of the basic insecticide remains. This residual coating is lethal to insects upon contact for periods as long as several months. Space sprays are fine particle mists which are airborne and intended to kill flying insects on contact.

2.03 The Bell System Liquid Insecticide consists essentially of a 5% solution of DDT, .04% pyrethrins, and .32% piperonyl butoxide in a petroleum distillate, commonly known as deodorized kerosene. This is a widely used commercial formula. Although basically a residual spray, it may also be used as a space spray if carefully used.

2.04 The recommended Aerosol Insecticide — Space Spray is intended primarily for the extermination of insects in switchboards. Suitable formulas are based on pyrethrins, synthetic pyrethrins and various synergists, which are nontoxic. Aerosols containing up to 2% DDT may also be used. These sprays are nonflammable due to the high proportion of Freon propellant.

2.05 The recommended Aerosol Insecticide — Residual Spray is used for crawling insects. It is based on chlordane, malathion or dieldrin. The high percentage of petroleum distillates and the coarseness of the particle size insure a residual film. The ingredients are toxic and are not permissible in space sprays. The spray is combustible.

2.06 Following are descriptions of the ingredients in the Bell System Liquid Insecticide.

DDT — an abbreviation for the compound dichloro-diphenyl-trichloroethane, has been widely used in household insecticides since World War II. Its outstanding characteristic is residual toxicity. DDT sprayed on indoor surfaces will retain its killing power for months. When an insect contacts the treated surface, DDT is absorbed by the insect's tissues. Its lethal action is somewhat slow but sure. DDT is moderately toxic to humans. Care must be exercised not to breathe it or to let it come in contact with the skin.

Pyrethrins — are extracted from Pyrethrum flowers. They provide a fast knockdown and are added to DDT insecticides for this purpose. Sprays can be made from straight Pyrethrins, but if used alone high concentrations are needed and the cost is prohibitive. Pyrethrins are not toxic to humans.

Piperonyl Butoxide — when used with Pyrethrins has a synergistic effect. A synergist is an ingredient which when used in combination with another insecticide produces an effect that is considerably greater than the same percentage of either alone.

2.07 The following are brief descriptions of other commonly used insecticides. A number of them will be found in the formulas of the recommended aerosol space and residual sprays.

Allethrin — is a synthetic chemical that resembles Pyrethrins in its structure and its properties. It is frequently called synthetic Pyrethrum. It is of low toxicity to humans.

Chlordane — a chlorinated synthetic insecticide, is one of the most effective of all against a wide variety of insects. It is, however, more toxic to humans than DDT. It is not used as a space spray but only as a residual spray. The residual coating is a highly viscous liquid.

Dieldrin — is a chlorinated synthetic closely related to Chlordane. It is slightly more toxic to humans than DDT and should be used with caution. It is less toxic than Chlordane and for these reasons preferred to it. The residue is a dry coating.

Malathion — is an organic phosphate insecticide of relatively low toxicity to humans.

Methoxychlor — is a chlorinated synthetic related to DDT. It is less toxic to humans but also less effective against insect pests.

Lindane — is a purified form of Benzene Hexachloride. It is comparable to DDT in action and toxicity but is apt to have a disagreeable odor.

N-Octyl Bicycloheptene Dicarboximide — also known as MGK 264, is a nontoxic synergist used to boost the effect of piperonyl butoxide.

Sodium Fluoride — is particularly effective for roach control. It is extremely poisonous to humans if taken internally and is not recommended.

2.08 There are various electrical devices for spraying, fogging and vaporizing insecticides on the market. They are not required for the exterminating work done by employees. Some types present a health hazard. The simple hand-operated spray or aerosol can is adequate for telephone building requirements.

3. SAFETY PRECAUTIONS

3.01 The materials used for insect extermination are often combustible and to some degree poisonous. Accordingly, the following precautions should be observed in their use:

(a) Only approved insecticides and procedures should be used for exterminating activities in telephone buildings.

(b) The Bell System Liquid Insecticide contains DDT. Aerosol space sprays may also contain this chemical. DDT is moderately toxic but is not considered a health hazard when properly used. Inhaling the vapors should be avoided. The room should be well ventilated. Sprays should not be used in areas that are occupied by personnel or where foodstuffs could be contaminated.

(c) In operating an aerosol container be sure spray nozzle points outward. Keep protective cover on when not in use.

(d) The Liquid and Aerosol Insecticides are not to be used in the vicinity of open flame or while smoking.

(e) The insecticides should be stored in a metal container. Only relatively small quantities should be stored at one time, e.g., one or two gallons of liquid and not more than a dozen aerosol cans. Both types should be stored away from sources of heat.

(f) Do not puncture an aerosol insecticide container if it becomes inoperative.

(g) Do not throw an aerosol can into a fire or incinerator.

(h) Persons handling or applying any insecticides should wash their hands with soap and water following use.

4. ANTS

4.01 *Equipment and Materials*

Bell System Liquid Insecticide and hand sprayer or

Aerosol Insecticide — Residual Spray.

4.02 There are 20 or more kinds of common ants which may be found in telephone buildings. They differ as to size, from 1/8" to nearly 1/2" in length, and vary in color from light red to brown and black. All have similar breeding and feeding habits and are exterminated in the same manner. Ants are the chewer type insects which prefer the kinds of food usually eaten by humans and especially sweets.

4.03 The most effective preventive measure against ant infestations is to keep clean those areas where candies, foodstuffs and beverages are stored or dispensed. Usually, the occasional ants seen foraging for food will leave the premises if no food is found. The continued presence of a large number of ants is evidence of a source of food and this must be eliminated.

4.04 The first step in extermination is to observe the path the ants travel between the food supply and their nesting places to determine where they entered the building. Spray the points of entry with Bell System Liquid Insecticide or Residual Aerosol, thoroughly wetting the surface in order to leave a residual film. Pay particular attention to baseboards, door and window frames. Spray the accumulated colonies within the building with either the liquid or aerosol residual insecticide. Repeat as necessary. The areas of infestation are thoroughly cleaned to eliminate the source of food. If the infestation

persists, more effective measures may be necessary requiring professional attention.

5. BEDBUGS

5.01 ***Equipment and Materials***

Bell System Liquid Insecticide and hand sprayer.

Vacuum cleaner with upholstery tool.

5.02 Bedbugs are the sucker type of insect which obtains sustenance from blood, preferably from humans. For this reason they can not be exterminated by means of baits or poisons. Bedbugs breed from eggs deposited in crevices and cracks of furniture and building trim. The eggs are cream colored, oval in shape and slightly smaller than the head of a pin. If the exterminating procedure does not destroy all the eggs as well as the insects, reinfestation can occur even though no new insects are brought in.

5.03 Upholstered furniture and beds are thoroughly vacuum cleaned before applying the insecticide. Special attention is given to pleating, tufting and cushions in the upholstered furniture. Pillows, cushions and mattresses are removed to facilitate the vacuum cleaning and are themselves thoroughly vacuummed. Removing these articles facilitates application of the insecticide to the furniture and beds. Mattresses and upholstery are lightly sprayed.

5.04 The frames, springs, underneath sections, corners, and crevices of furniture and cots are sprayed to thoroughly wet the surface with the insecticide. The spraying should be done at such time as to permit adequate drying before the furniture is to be used in order to avoid the possibility of the insecticide getting on the person or clothing of those using it. From 5 to 10 hours or preferably overnight should be adequate.

5.05 The hand sprayer should be adjusted to discharge a coarse spray for crevices in building trim, e.g., baseboards, molding, window and door frames and other points affording the bugs a place to hide and breed.

5.06 A treatment is effective for a period of 2 to 6 months.

6. ROACHES

6.01 ***Equipment and Materials***

Bell System Liquid Insecticide and hand sprayer or

Aerosol Insecticide — Residual Spray.

6.02 There are several varieties of roaches which differ as to size (1/2″ to 1-1/2″) in length and in color ranging through brown, red and black. All are exterminated in the same manner. Roaches are chewer type insects and may be exterminated by powders as well as by contact with liquid insecticides. They are relatively slow in reproducing but their cleverness in hiding largely accounts for their prevalence. Roaches nest in obscure locations preferring warm, moist and dark places, such as underneath sinks, about water piping, kitchen equipment, beverage vending machines and in basement floor drains.

6.03 The nuisance of roach infestations can be reduced by keeping the premises free from sources of food such as spillages and open or uncovered food containers. Roaches will not remain where food is not available. They eat the same food as humans. Infestations in general offices may be due to the storage of foods and candies in desk drawers or in employees' lockers.

6.04 Two exterminating procedures can be followed. First, the Bell System Liquid Insecticide is used. This will chase the insects from hiding and possibly drive them from the premises. Roaches hit by the direct spray will be killed. If the foregoing treatment is not fully effective, it is supplemented by application of the Residual Spray Aerosol Insecticide. This will kill the remaining insects and discourage recurrent infestation. Spray thoroughly around piping, kitchen equipment, lockers, beverage vending machines and floor drains as well as any other suspected hiding places or paths of travel. Hold container about one foot from surface and spray until surface is uniformly wet.

7. FLIES AND MOSQUITOES

7.01 ***Equipment and Materials***

Aerosol Insecticide — Space Spray.

7.02 Careful screening of windows and doors and closing of other possible points of entry are the most important steps in fly and mosquito control. When numerous flies or mosquitoes gather in the rooms, inspection should be made of the condition and fit of window and door screens, as these insects do not normally breed indoors under the conditions prevailing in telephone buildings.

7.03 The action of the spray is that on initial contact the insects fall and usually death follows. However, in some cases this may not occur for several hours or some of the insects may recover. It is, therefore, advisable to sweep up those that have fallen and dispose of them following spraying.

7.04 Spraying should be done when the room is unoccupied. First, close the windows and doors while spraying to avoid air currents and the escape of the insects to other areas. Use the Aerosol Insecticide space spray which creates a very fine fog-like mist. Direct a spray at an angle towards the ceiling generally about the room.

8. TERMITES

8.01 There are two kinds of termites, the drywood and subterranean species. The subterranean termite is the most widely distributed and most destructive. Very little damage is done by drywood termites so only the former will be discussed. This species requires in all cases contact with moist soil through wood or earthlike runways. Masonry walls can conceal runways in cracks or interior pores without visible indication unless solid concrete or metal is encountered; in which case a mud tunnel may be built as a bypass around the obstacle to palatable wood. Termites feed on cellulose in food, paper, cloth and wood.

8.02 A termite may be distinguished from a flying ant under a magnifying glass. The termite has four large wings, the ant two large and two small wings. The termite has one restriction behind the head which forms the neck. The ant has a restriction behind the head and a second one forming a waste behind the legs.

8.03 Frame one-story buildings without basements are the easiest and most likely target for termites. The attraction may be dampness under the building with wooden forms or scrap wood as backfill around the foundation or under the building. Once this is eaten the termites start looking for other sources of cellulose. They will usually enter floor joists, flooring, stairs, windows, door frames and any other wooden materials easily reached from the ground.

8.04 Termites can be discouraged if wooden forms and scrap lumber are not left in or around the building foundation upon completion of the building construction. Further discouragement may be necessary in areas of known termite infestations in the form of metal shields around the foundation, pipes, or other facilities touching the ground.

8.05 Infestations may be in advanced stages before they are discovered. Indications of termites are flights when a new colony is being created, mud runways, and painted wood looking as though water is pushing off the paint. The mud runway is an effort to move to a new source of wood. Any of these indicators should be followed by a probing of the wood with a metal tool near the ground level or near the areas of blistered paint or mud runways. The interior of the wood may be eaten away leaving only a shell. These chambers follow the grain and there will be no sawdust. Sawdust contains cellulose and is eaten by the termites.

8.06 When termite damage is noted, a reliable exterminator should be consulted. Any pressure or surface treatment of infested wood with chemicals is best handled on a professional basis. After the termites have been exterminated in the wooden portions of the building it is advisable to treat the ground to prevent a reinfestation. Chlordane in a 2% water emulsion is recommended for this purpose. This chemical treatment, which will last about five years, is applied in a trench several inches deep dug about the width of a shovel along the foundation. The trench is then filled in and the fill similarly treated. A more lasting preventative program should include treatment of replaced wood with preservatives, the placing of shields on the foundation and pipes, providing ventilation or drain-

age to remove moisture, and the removal of all scrap wood or wood contacting the ground.

8.07 There are various chemicals for treating lumber such as creosote, arsenic, and pentachlorophenol. Arsenical preservatives should be used with caution. Some arsenic compounds used to treat lumber may be highly toxic to humans and may present a toxic fume hazard in case of fire. Also, termites and their burrows are universally infested by fungi, including many common molds, a number of which turn arsenic into a volatile form diffusing and contaminating the air.

8.08 When visible signs of termites are seen, an investigation should be made at once. In areas where termite infestations are common or have previously occurred, special attention should be given to the possibility of infestations during the course of routine building inspections.

9. INSECTS IN SWITCHBOARDS

9.01 ***Equipment and Materials***

Aerosol Insecticide — Space Spray.

9.02 When exterminating activities are required in switchboards, it is done with the concurrence and cooperation of the equipment maintenance forces and the Traffic people concerned. If commercial exterminators are employed in the vicinity of telephone equipment, they should be warned of the hazards and precautions to be observed.

9.03 Fleas, gnats and similar insects are the types which usually infest switchboards and annoy personnel. These insects do not ordinarily nest and breed in switchboards but rather seek temporary refuge near a source of food which for them is the blood of persons upon whom they alight. Ants, roaches or bedbugs may be occasionally encountered.

9.04 The Aerosol Insecticide, space type, will not damage telephone equipment or cause interference with telephone service.

9.05 First remove the panel from the rear of one portion of the switchboard and confine the spray to one area. The fine mist spray is directed towards the switchboard cables and to the dark corners near the floor. Three or four momentary depressions of the aerosol valve are adequate for each switchboard position. After spraying, replace the switchboard panel before opening the next one. Proceed in the same manner until the area inside each panel has been sprayed. If necessary, repeat the procedure the following day.

9.06 It is of the utmost importance that no portion of the telephone equipment or adjacent area be wet with the insecticide. For this reason the following precautions must be observed:

(a) The nozzle of the aerosol can is held no closer than two feet from the surface upon which the insecticide is applied.

(b) The aerosol valve is depressed only momentarily while the bomb is moved from side to side or up and down as appropriate while the mist is being dispersed.