MUSCAT
PEST CONTROL

Pest Control : Rodent Control : Anti-Termite

MPC

Highfield
awarding body for compliance

NATIONAL PEST MANAGEMENT ASSOCIATION inc. International

International Association for Food Protection

Chartered Institute of Environmental Health

Company Profile

Muscat Pest Control Co. (MPC) Is a company incorporated in Oman, Muscat since 2000 to provide pest control services at the domestic, commercial and industrial establishments. We have grown our business by providing quality service at a fair price. We believe in honest answers and solid advice. We will never try to service or product that is not necessary. Our skilled and knowledgeable, licensed applicators use only the best equipment and tools to provide exceptional service with guaranteed results.

Mission

Our mission is to be one of the respectable Pest Control service provider and to increase market share, customer loyalty, to achieve operation and system improvement and in turn, increase customer satisfaction and reduce complaints for long term growth.

Experience

We are a recognized company, together with our dynamic team of well trained, committed professional and certified personnel to provide a high quality service to meet the standard required by the pest control industry in Oman, Muscat. Muscat Pest Control takes pride in this industry as it leads toward protecting human health and its property.

Concept Pest Management is a maiden pest control company with top management having a cumulative experience of 14 years in the field of pest control at international level.

Training Methods

We have informative training methods which include videos, workbooks that help our staff to work more effectively. This training helps our personnel to identify specific pests and to develop strategies to control them.

We are committed to continuously upgrading and creating innovative ideas to increase staff competency so as to attain high efficiency in meeting customer's requirements and satisfying their needs.

More Services

We have the expertise in inspection, extermination and eradication of general pests

- Termites, cockroaches and ants
- Rodent, mosquitoes, bees / hornets
- Snakes, Spider, crawling / flying insects

We also provide

Termite Inspection Using:.

- TERMATRAC: A hand held electronic device that detects the movement of termites through solid objects is used. It uses microwave technology to detect termite activity hidden below the surface of the timber, brick, tile or masonry of building materials or the activity of the termites without any interference.

Termite Proofing

- Corrective treatment against subterranean termites
- Soil treatment against subterranean termites (with warranty)

Methyl Bromide Fumigation

(An AVA Accredited Fumigation Agency)

- Wooden Packaging Materials
- Personal Effects
- Commodities
- Containers, etc

Company Factsheet

Basic Information

Nature of Business	Service Provider
Key Customers	· Ministry of defense Russayl, Musanna Airbase,
	· Sultan Qaboos University, German Univercity
	· American British Academy, Al-Turki establishment
	· WJ-Towel, Socat and Damac Caterings all PDO Mess,
	· Ministry of Regional Municipalities & Water resources
	· MCC, QCC & Grand mall Restaurants and food court
	· AL Habib& Co. and AL Younisest All buildings
	· Subway, Chilis, Gulf restaurant,Woodlands G-Spoon ect
Industry	Pest control services
Registered Address	# Ghubra, Op-Mars hypermarket.
	Post Box No. 1283, Pc.130, Azaiba, Sultanate of Oman
Year of Establishment	2000
Legal Status of Firm	Partnership Firm
Proprietor Name	Mr. Bader Nasser Al Wahaibi&Basheer Abbas

Service Portfolio

Our offered services are available at cost competitive price and are delivered at the users' site within defined time frame. Due to the flexibility, reliability and timely service of our offered solutions we are well appreciated by the clients. Besides, our services of fumigation and spraying anti termite chemicals do not involve any health risk and adverse effect on human life.

Our offered services include:

Termite Control Services	
Post Construction Termite Control Services	
Post Construction Termite Control Services	
Disinfestation Services	
Wood Borer Control Services	
Carpet Treatment Services	
Smoke Fumigation Services	
Rodent Control Services	· Rodent Control Services
	· Rats Instrument and Transformers
	· Rats control Services
	· Glue Trap
Lawn Treatment Services	
Pigeon Control Services	
Bee Control Services	

Our services are characterized by the below mentioned distinct features:

- Flexibility
- Reliability
- Executed within the budgetary parameters
- Time adherence

Industries Catered To/ Application Area

With complete service, timely execution and reliability our proposed services have spread all over the nation. Our offered solutions provide effective preventive measures from the damages caused by pets and termites while incurring no health risk and adverse effects. Our reliable fumigation services, lawn treatment services, carpet treatment services are adopted by various clients all over the Asian countries including Indian subcontinent.

The major application areas covered by our services are:

- **Offices**
- **Corporate houses**
- **Cinemas**
- **Industries**
- **Schools**
- **Colleges**
- **Hotels**
- **Hospitals**
- **Museum**
- **Institutions**
- **Malls**

Our Strengths

We are blessed with an organized project management system and a sound infrastructure. We use premium quality chemicals and fumigants for our services which are which are approved from authorized govt bodies and tested in laboratory. Due to the reliable & timely execution of our services at reasonable price without incurring any loss or adverse effect on human health we are considered as well known service provider among the countrie.

Our strengths are:

- Organized project management system
- Skilled workforce
- Premium quality pesticides and chemicals used
- Reliable and timely execution of services
- Customer care network

Our Methodology

The use and implementation of advanced methodologies and comprehensive equipments have made it possible to generate quality services and cater them to the clients. our team of experts design a project management plan with well-defined functions which helps us in executing our offered services in a perfect hurdle free manner.

The meticulous efforts put in by our team revolve around the below mentioned concerns:

- Site surveying
- Brief clarification
- Scheduling
- Health and safety.

After gathering the requirements of our clients from our customer care unit the analysis begins. After perfect analysis, we start working on the project to meet the clients' requirements. By excellent designing and systematic execution of the services we are capable of meeting the client's needs.

Domain Expertise

Due to the excellence in the domain of fumigation services we have gained high level of expertise in this regard. Our well-established and streamlined project management system allows us to pay intensive care to the services at each phase to deliver flawless, reliable and smooth services and cater them to various clients.

Team

The entire credit of the success & expansion of our organization goes to our team of professionals whose dedicated workforce and committed attitude enable us to grow consistently. They prove to be the backbone of our organization who are solely responsible for the wide business network and huge clientele of our organization.

Our team is a good combination of trained personnel and experts who have in-depth knowledge in Agriculture and Biochemistry. Our tem comprises:

- **Quality controllers**
- **Sales and marketing professionals**
- **Skilled labor**

With the constant positive support we are capable to come under the limelight of success over the years.

PEST CONTROL PROCEDURE

1) General Pest Control

COMMERICAL PEST CONTROL

Paratex provides general pest control to a vast array of commercial and industrial customers from the most sophisticated food distribution facility to the smallest convenience store. We design programs that are cost-effective and appropriate for your specific needs. We will be pleased to provide free surveys and written proposals for your consideration.

RESIDENTIAL PEST CONTROL

Whether it's free advice or a recommendation for an appropriate treatment service just give us a call. You'll find us easy to work with. There is no requirement for long-term contracts and we will not send a commissioned sales person to your door. We are flexible and cost-effective in helping you find a pest control solution for your rodent, insect, or wood-destroying pest problem that is effective and safe for both you and the environment.

2) Cockroaches & Ants Gel Treatment

Based on fossil records, cockroaches have remained little changed for 200 million years. There are over 4000 different species of cockroaches worldwide – not all are regarded as pests. Those species, which are now classed as pests originated in tropical climates but have now become cosmopolitan in temperate zones, having been distributed by commercial activities.

Common Cockroach Species

The cockroach species commonly found in the UK are:

Oriental cockroach (Blatta orientalis) Males are approximately 25mm long, females approximately 32mm long; shiny and very dark brown, nearly black in appearance, nymphs (immatures) may be reddish brown; they are poor climbers on smooth surfaces, which may limit their distribution within a building; they appear to be cold tolerant in that they are often found outside buildings, in drains, gardens, sewers, external brickwork etc, a factor which should be remembered when controlling them.

German cockroach(Blattella germanica) Adult size 13-16mm; the adult is light brown in colour with two dark almost parallel longitudinal stripes on their pronotal shield; they are found throughout buildings but show a preference for warm humid areas; they are good climbers, being able to climb vertical glass or tiled surfaces; an infestation of these cockroaches can be quickly established once they have entered any premises. Brown-banded cockroach(Supella longipalpa) Adult size 11-15mm; this cockroach is small, light brown in colour and is often mistaken for the German cockroach; this cockroach needs hot conditions to survive, it prefers 27°C and over but it is becoming more common as a pest in the UK; it is typically found in light switches, electrical appliances, motor housings, etc. American cockroach (Periplaneta americana) Adult size 34-53mm; the adult is is reddish brown in colour and is fully winged. Male wings extend beyond the tip of the abdomen; female wings do not. There is a pale brown to yellowish band around the edges of the pronotum. This species is not well established in Britain.

It is not as cold tolerant as Blatta orientalis and Blattella germanica. Typical infestations in the United Kingdom are port areas, where it is introduced via ships. Sites infested include food premises, greenhouses, zoos, large centrally heated humid environments, etc. Australian cockroach (Periplaneta australasiae) Adult size 25-35 mm; Adults are reddish brown, fully winged with a yellow to pale brown band around the pronotum and a yellow streak on the outer edge of the base of the front wings. Late instar nymphs have pale yellow markings on the lateral margins of the thorax and abdomen. This species closely resembles Periplaneta americana. Not yet widely established in the United Kingdom, it requires hot, moist conditions to survive. It is found in greenhouses, therefore potted plants may be a source of infestation. Pet shops, particularly those with large numbers of heated fish tanks, can also be a source of infestation for this species.

Egg Case (Oothecae) Development In Cockroaches

Oriental cockroach (Blatta orientalis) The female Oriental cockroaches carry the oothecae for about 30 hours, after which time she deposits them, dropping or attaching them near to a food source. Each ootheca contains 16 eggs which hatch in approximately six weeks, but this period may be greatly extended in cool conditions. In this situation the egg case represents a biological time bomb waiting to hatch and continue an infestation. German cockroach(Blattella germanica) The ootheca, containing 35-40 eggs, is carried by the female until it is within one to two days of hatching. Small 1st instar nymphs emerge from the ootheca and easily infest tiny cracks and crevices in the immediate area. American cockroach (Periplaneta americana) The female deposits oothecae a few hours or up to 4 days before the 1st instars emerge. The ootheca, containing 10-15 eggs, is dropped or glued to a suitable surface, usually in a pocket of high humidity near a food source. Australian cockroach (Periplaneta australasiae) The female cockroach deposits the egg case containing around 16 eggs which hatch after a period of approximately 80 days

General Biology And Behaviour

Cockroaches are omnivorous. In addition to conventional foodstuffs, they will feed on a wide range of organic matter including other cockroaches. Their activity peaks during hours of darkness. They exhibit incomplete metamorphosis; the juvenile stages or nymphs resemble the adults. Each cockroach moults several times in its life cycle producing a larger nymph and eventually moulting to the adult stage. Some species are fully winged in the adults, others may have reduced wings or wing buds. When wings are present, they are leathery and veined. The females of those cockroaches classed as pests all produce egg cases or oothecae, which contain eggs, which hatch inside the case from which nymphal cockroaches emerge. During the daytime, cockroaches spend most of their time in harbourages grouped together. This behaviour is influenced by them finding the same suitable harbourage. They also produce an aggregation pheromone, which is a chemical messenger to other cockroaches of the same species, who respond by being attracted to the source of the pheromone. As this pheromone is present in cockroach faeces, cockroaches will also be attracted to areas previously contaminated by cockroaches. The development of cockroaches is affected by food quality, humidity, temperature, and day length.

Food Contamination Problem

Cockroaches foul their environment with faeces, regurgitated food and they taint materials with their characteristic smell. The air in infested premises may contain fragments of their exoskeletons and cockroach excrement. Cockroaches also contaminate food directly as they move from filth to food indiscriminately and are therefore implicated in the mechanical transmission of many pathogens, such as those causing food poisoning and wound infections. Because residual allergens can remain as active contaminants for

some time following a treatment, a thorough cleaning regime should be carried out afterwards.

3) Rodent Control

Rats

In Britain, there are two species of rat; the Norway or brown rat (Rattus norvegicus)and the ship or black rat (Rattus rattus). The Norway rat has largely replaced the ship rat over the past 100 years.
Norway rats eat on average one tenth of their body weight each day. They are considered omnivorous but if available, cereals are preferred. Rats must drink water daily unless the food source is extremely moist. Due to their water requirements, runs to a water source may be evident and give an indication of harbourages.
They explore locations quite freely but have a fear of new objects. This is known asneophobia and should be taken into account when baits are checked initially after treatment.

On farms, stored animal feed and crops, bedding, even animal waste will present an ideal environment to support rodent infestations. Rats living and feeding outside may enter buildings with the onset of the winter months.
Ship rats are very good climbers and are usually found indoors, often high up. Although they are rare in the UK, they are still found in some port areas.

Mice

The house mouse, Mus domesticus, is the common pest in urban environments, although field mice (wood mice and yellow-necked mice,Apodemusspp) can be a problem in autumn and winter. Where these enter premises, control is the same as for house mice.

Mice will drink water if available but can survive on food with a moisture content of15 percent. They are omnivorous; feeding from a number of different points during the course of a night's feed. Whole wheat, which has

been partly eaten by mice, has a kibbled appearance while whole grain, partly eaten by rats, has a cut or chopped appearance.

In domestic premises, locations favoured by mice are food storage and preparation areas such as kitchens and pantries. Airing cupboards,sub floor areas, enclosed pipes, baths and loft areas are also favoured locations.

Squirrels

In the UK the grey squirrel (Sciuruscarolinensis) is regarded as a pest species. Thered squirrel (Sciurus vulgaris) is fully protected.

The grey squirrel was introduced into the UKin the mid 19th century and has now become a major pest of forestry. In addition they may enter buildings in search of food and shelter resulting in damage to products and structures. Under the Destructive Imported Animals Act1932 and the Wildlife and Countryside Act1981 it is illegal to release the grey squirrel into the wild.

General Biology And Behaviour

Rodents have the ability to adapt themselves to almost any environment. Their great reproductive potential, natural cunning and survivability puts them among the most successful animals on earth. Rodents use the five senses of smell, touch, hearing, sight and taste in order to survive. The sense of touch is considered the most highly developed of the rodents' senses using the vibrissae or whiskers on the muzzle and guard hairs that are found among the fur. These organs help rodents orientate in the dark and help them judge shapes and sizes of objects. After a short learning period on the whereabouts of objects in the immediate environment, runs become well established. Smell will also play a part in the forming of the runs. When danger threatens, automatic use of this information will be vital.

Problems Associated With Rats And Mice

The main reasons for control are to reduce or eliminate:

- Spread of disease
- Contamination of products
- Damage to food stocks and property

Rodents can cause damage to food intended for humans, by consumption, contamination with faeces and urine, as well as other physical and microbiological contaminants.

Rodents have the capability to spread many human pathogens, such as Salmonellaspp, Listeriaspp, Escherichia coli, Cryptosporidiumparvum, Leptospira spp, Hantaviruses, Bubonic plague and Toxoplasmosis.

All rodents have a pair of incisor teeth in their upper and lower jaws. These teeth continue to grow throughout their life to make good the wear caused by gnawing. Almost every type of food commodity is subject to rodent attack. Damage is also caused to the fabric of buildings, to electric wiring and plumbing.

Problems Associated With Grey Squirrels

Grey squirrels are less cautious than rats and will readily enter buildings during daylight. They are physically larger and stronger andare capable of breaking through poorly fitted proofing materials.
As with rats and mice considerable damage can be caused by their powerful jaws andsharp incisor teeth.

ULTRASONIC PESTREPELLER®

ULTRASONIC RODENT AND INSECT ELIMINATOR

EQUIPPED WITH 360° ADJUSTABLE DETACHABLE BRACKET FOR MULTI-ANGLE SETTING TO ENHANCE THE EFFECTIVENESS OF PEST CONTROL.

ULTRASONIC PESTREPELLER effectively changes the living environment of rats, mice and other common pests. It is an effective, safe and risk-free way to get rid those pests from your living area. The sturdy detachable bracket of the device allows multi-angle setting of **ULTRASONIC PESTREPELLER** for obtaining the most effective result of pest control.

TAIWAN PAT. No. 073701
US PATENT No. Dec. 430259
Germany Patent No. 49901936.9

LS-968 CE

FEATURES:

- Safe: No more dangerous poison
- Risk-Free: Harmless to humans and general pets.
- Clean: No more toxic chemicals and messy traps.
- Effective range: 3,500 to 4,500 square feet (unobstructed).
- Economic: Power consumption only 1½ watts.
- Convenient: Just plug in electricity for indoor use at any time.
- Built-in LED indicator to confirm proper operation.
- Equipped with adjustable detachable bracket for multi-angle setting.
- Frequency range: 20,000 Hz to 27,000 Hz (continuously variable)
- Output sound pressure: 130dB appro.

ULTRASONIC PESTREPELLER

ULTRASONIC RODENT AND INSECT ELIMINATOR

This **ULTRASONIC PESTREPELLER** is a stylish and effective pest control device provides you a more intensive pest control effect. **ULTRASONIC PESTREPELLER** comes with a sturdy detachable bracket provides the possible multi-angle adjustment when the device is mounted to the ceiling or to a wall. While simply placing the unit on the floor or shelf, the specially designed bracket makes it possible to point the **ULTRASONIC PESTREPELLER** downward or upward.

ULTRASONIC PESTREPELLER is effective in controlling mice, rats, cockroaches, and most of the other common pests. Laboratory research has shown ultrasonic sound wave attacks the auditory and nervous systems of most common pests causing them pain and discomfort. Pests will give up their source of food, water and shelter and move on. These high-intensity sound waves are out of the hearing range of human beings. **ULTRASONIC PESTREPELLER** will not interfere with TV, radios, electronic burglar alarms, fire or smoke detectors, pacemakers, hearing aids or other electronic equipment.

ULTRASONIC PESTREPELLER will change the living environment of rats, mice and other common pests. The ultrasonic sound waves projects by **ULTRASONIC PESTREPELLER** will attack the auditory and nervous systems of rats and mice. It is an effective, safe and risk-free way to get rid those pests from you living area; create no pollution of electro-magnetic field to ensure no possible adverse side effect for human's health.

CHARACTER:

ULTRASONIC PESTREPELLER is a pest control device of intensity frequency range from 20,000 Hz to 27,000 Hz. The unique circuitry design is effective to prevent pests from immunity to the sound waves producing by the device. The sturdy detachable bracket of the device allows multi-angle setting of **ULTRASONIC PESTREPELLER** for obtaining the most effective result of pest control. This is also the feature of the device.

ULTRASONIC PESTREPELLER effectively protects an area measuring 3,500 to 4,500 unobstructed square feet. Of course, the rule of each room or area separated by partition needs one unit is to be noticed as ultrasonic sound waves can not penetrate walls and ceiling. After plugging **ULTRASONIC PESTREPELLER** in, you will notice a built- in small red L.E.D. on the main unit to indicate the **ULTRASONIC PESTREPELLER** is operating properly. Let **ULTRASONIC PESTREPELLER** work for year round, day and night pest control. In 4 to 6 weeks the infestation should be over and you'll be free of pests.

HOW TO INSTALL:

Mounting to the wall or ceiling:

1. Install the main machine of **ULTRASONIC PESTREPELLER** at the proper position near by the electric outlet and from about 6 to 9 feet off the floor. Use the supplied screws to fix the mounting bracket first. Then, attach the main machine to the bracket properly.
2. Adjusting the proper angle according to the tip, plug the output end of the adapter in the DC 9V INPUT on the back panel of the main machine and plug the adapter in the electric outlet. The built-in red LED indicator will be on to shown the device is working properly.

Placing on the floor or shelf: Just place the unit on the floor or shelf. Following the above point 2 for proper operation.

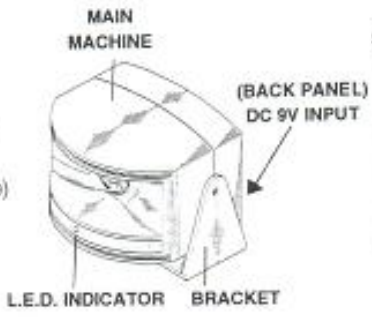
Tip: Unit should be aimed so it points into the area to be protected. Where walls are available for reflection of sound, unit can be aimed slightly toward the wall to create the greatest bouncing around of sound in the enclosed area. Using the mounting bracket to adjust the most suitable angle for the area to be protected.

NOTICE:

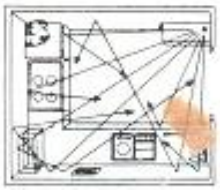
Do not direct **ULTRASONIC PESTREPELLER** to the carpeted surfaces or other soft objects as they will absorb the sound waves. Do not let the unit come in contact with water. Do not modify or tamper with the unit internal components. Covering or painting over the front speaker can damage the device and cause it malfunction or working improperly.

SPECIFICATIONS:

Dimensions:	105 X 92 X 78 mm
Weight:	170 g
Power supply:	220-240 VAC, 50/60 cycles 100-120 VAC, 50/60 cycles
Power consumption:	1 1/2 watts (about 1 ½¢ a day to operate)
Frequency range:	20,000 Hz to 27,000 Hz (continuously variable)
Output sound pressure:	130dB
Effective range:	3,500 to 4,500 square feet (unobstructed)



HOW ULTRASONIC SOUND WAVES REFLECT:



4) Bed Bug Treatment

Bedbug (Cimex lectularius)numbers are increasing sharply in the UK and other countries. As a result, the number of requests for bedbug treatments is also increasing.

Corresponding increasing customer concerns and expectations, coupled with interim reports of UK bedbug resistance to insecticides, require that pest control technicians must be acutely aware of the methodical and detailed approach required to treat bedbugs successfully. Reliable bedbug control strategies can often be unfamiliar to many pest control technicians and therefore this manual aims to provide the standard by which such treatments should be instigated and treated as part of an Integrated Pest Management programme.

This manual is intentionally prescriptive, but it does not intend to dictate the methods by which pest control technicians organise their work, if they are able to achieve the same level of service and safety by other means - for

example, the use of computerised records or ISO accredited quality systems. It is hoped that by stating clearly the minimum requirements that a pest control technician should employ when conducting any bedbug treatment, consistent standards can be achieved throughout the industry, allowing bedbug control to develop and improve.

Identification and biology

Public health significance The close association of bedbugs with humans means that the insect can cause substantial nuisance, as they feed at night on sleeping human hosts. Itching caused by the bites and the possibility of secondary infection are common. All stages of bedbugs take blood meals and so are equally important as nuisance pests. There is no current evidence of bedbugs being involved in the transmission of infections or diseases to humans. The presence of bedbugs can cause distress and prevent people from enjoying a sense of well-being. As the World Health Organization defines health as 'a state of complete physical, mental and social wellbeing, not merely the absence of disease or infirmity', it is clear that bedbugs are a pest of public health significance.

The reaction to a bedbug bite can vary. Some people show little or no reaction whereas others may suffer allergic or other severe reactions and sleepless nights. The biting nuisance must not to be underestimated. Bedbugs feed on exposed areas of skin, with most bites being found on the abdomen, but also the neck, arms, shoulders, back and chest and very occasionally on the legs and feet. The lesions are varied in appearance, often recognisable as raised reddened swellings, similar to flea bites, although with no central red area.

Evidence of bedbugs

Indications of bedbug activity include: • Live or dead bedbugs, cast nymphal cuticle and hatched or unhatched eggs • Blood spotting. This is digested blood defaecated by the insect, which may be initially observed on bed linen, but can be noticed along mattress seams and other places where bedbugs will hide. (Technicians should note that the faeces of nymphal cockroaches can have similar appearance, however bedbug blood spotting tends to occur in clusters as the insect, by its nature, will aggregate) • A sickly, sweet, coriander / almond-like smell may be present if there is heavy activity • Customer complaints and/or evidence of bites on the skin

Biology

Bedbugs use well defined resting sites in which the different stages in the life cycle can be found in significant numbers. Bedbugs spend the majority of their time in these harbourages, aggregated, and therefore targeted crack and crevice treatments are critical in their control. However, research has shown that female bedbugs disperse from the established harbourages to avoid multiple traumatic inseminations and male bugs will also disperse to avoid mating competition with other males. This dispersal behaviour should be taken into account when dealing with bedbugs. Female bedbugs generally produce around 2 to 3 eggs per day, which are deposited all around the environment in which the bedbug lives. Since they can live for several months, each female could produce around 400 - 500 eggs during her lifetime. The length of time spent in each stage of the life cycle is greatly dependent upon the food available, temperature and relative humidity.

Inspection and assessment

Preparation

An inspection to ascertain the presence of bedbugs is essential and must be conducted methodically. Bedbugs have a flat body shape and can hide in virtually any crack and crevice, preferring dark, isolated and protected areas. Bedbugs prefer wood, paper and fabric surfaces and so these materials

should be concentrated on in the inspection process. The technician will need unobstructed access to all areas of the room(s), including cupboards and drawers. In addition there may be a need to remove bed heads, lift carpets and dismantle other items to access all bedbug harbourages.

In domestic properties, it is particularly important to ensure the occupier is completely aware of the level of intrusion into their home and belongings.

To assist the inspection process, the occupier should be instructed to:

- Loosen the carpet at wall / floor junction, but do not remove it from the room
- Remove any wall-mounted items, but do not take them out of the room
- Make arrangements to isolate the supply to the room and loosen / remove electrical socket and switch plate covers
- Remove linen from bed and base. These should be bagged and laundered
- Empty wardrobes and cupboards of items, but do not remove them from the room
- Not remove any items from the room so that the extent of the bedbug activity can be assessed.

Removal of items could facilitate the spread of bedbugs to other rooms To conduct a thorough inspection, the technician will need to use several tools to gain access to the areas outlined above, including a torch, screw drivers (flat and Philips head), adjustable spanner, hammer and a suitable knife.

One of the most common reasons for ineffective treatments is the failure to identify all areas of bedbug activity. Technicians must therefore be given adequate time to conduct the inspection. Not only will this increase the chance of a successful treatment, it will also provide an indication as to the potential time required to undertake the treatment itself.

Domestic property

The technician should ascertain where bedbugs have been seen and investigate any complaints of bites. The technician should also attempt to determine how the bedbugs were brought into the home as luggage may need to be treated. Areas where dirty clothes and linen are stored should be examined and the occupier questioned about any previous control attempts.

Block or large commercial property Once bedbugs are introduced in high density housing or multi occupation properties (e.g. hotels) they can quickly become established and spread throughout the building. If only one room is left untreated, this can act as a reservoir for the re-infestation of the whole of the building. Similar initial questions about the distribution of complaints, sightings and the movement of guests should be asked. However, if possible, it is important that housekeeping / maintenance staff are contacted as they may have more detailed knowledge about bedbug activity than management.

In all cases, the rooms adjoining those in which bedbugs have been found should be inspected. Sufficient details must be taken to ensure accurate records can be made, noting the areas where evidence of activity has been found. Based on the evidence from the survey confirm the existence and extent of any activity and record the details. Details of contributory factors should also be recorded.

The technician must consider the property as a whole when making any assessment. The supervisor/ manager should be involved in any assessment to ensure thorough control. Involving Environmental Health Practitioners etc., may be necessary. Such agencies may also include housing officers or representatives of any other client organisation who manages the property and representatives of the occupants of the property.

When there is a high level of activity, there is increased risk that bedbugs can be located in numerous breeding sites, including books, CDs, pictures, wall

hangings, clothing, domestic appliances, under carpets, behind skirting boards and in wall cavities.

When treating larger properties and/or larger infestations, it is advisable that a supervisor/manager compiles a detailed management plan, which can be provided to all parties to assist in the coordination of resources and assessment of the treatment. Plans should be based on the criteria previously stated.

Inspection

To avoid the risk of transferring bedbugs from room to room, the technician should aim to take a minimal number of items into the infested room.

Using a flushing agent, inspect the mattress first, paying attention to the edge nearer the wall where it is darkest.

The technician should pay close attention to:

- The seams, under buttons, handles and labels
- If the mattress is on a divan base, this should also be examined. This examination should include the edge of the material underneath the base and hollow caster legs.
- If the mattress is placed on a metal frame with wooden slats, these should be inspected The dispersal behavior of bedbugs should be taken into account when conducting an inspection, which is why the remaining areas and items around the bed must be inspected, including:
- The bed frame, bed head and bedside furniture;
- Bedside furniture, tables, etc. should be turned over and examined
- The drawers in tables and cupboards should be removed and examined
- If bed heads are attached to the wall, they should be removed (with owner's permission)

- Other furniture in the room should be inspected, especially locations where luggage is placed
- Electrical fittings and appliances, such as telephones, clock radios, televisions, computers
- Underneath carpet edges and along the straight edges
- Floor-board joins
- Under loose wallpaper
- Architraves, dado rails, cracks and joins in the ceiling and ceiling mouldings • Picture frames, wall mirrors, blinds, curtains and curtain rods, books, behind electrical conduit
- Lounges and common rooms of hotels, hostels etc.
- Housekeeping rooms, trolleys and laundry rooms

The aim of the inspection is to provide sufficient information for the technician to assess the extent and severity of the activity so the treatment can be planned accordingly. Sufficient details must be taken to ensure accurate records can be made, noting the areas where evidence of activity has been found. A room site plan should be drawn showing the location and degree of any activity. Adjoining rooms and spaces (either side, above and below), should also be inspected.

Based on the evidence from the inspection, confirm the existence of any activity and record the details.

Treatment methods

Non-chemical methods

Non-chemical options should be considered as management tools only. Thus, while they can be utilised to reduce the overall bedbug population as part of an Integrated Pest Management programme, complete elimination of an infestation is unlikely unless insecticides are used.

Physical removal

The overall numbers of a bedbug infestation can be reduced by discarding infested furniture, particularly torn mattresses. However, the technician must only recommend this option if it is entirely necessary and appropriate, as it will be very expensive to the occupier. Any item to be removed must be treated and sealed in plastic. To avoid others acquiring bedbugs from discarded infested items, the furniture should be destroyed or rendered unusable. Sticky tape may also be used to remove bedbugs, but only where numbers of bugs are very small.

Vacuuming

Bedbugs should be physically removed via vacuuming if numbers are low on mattresses. Always use a vacuum machine that has a disposable dust bag. Vacuum the floor and use a crack and crevice extension at wall / floor junctions, along carpet edges, bed frames, mattress seams and in ensemble bases, furniture, and other potential harbourages. Vacuuming cracks and crevices prior to insecticide treatment will not only remove the bugs but dirt as well, which will allow the chemicals to penetrate better and improve their residual effect. Vacuum cleaners with HEPA filters are recommended to prevent the spread of potentially irritating debris through the exhaust.

After vacuuming is complete, the contents of the vacuum must be sealed within a plastic bag and removed from site for suitable disposal, preferably by incineration. Insecticide dust can also be applied to the contents.

It should be noted that vacuum cleaners could spread bedbugs. The vacuum should be 'treated' by soaking plastic parts in hot water. Vacuuming will not remove all bedbug eggs, so insecticide application is essential.

Heat

Bedbugs are very sensitive to heat and are rapidly killed when exposed to temperatures over 45°C. If heat is used for bedbug control it is important that the high temperatures are applied suddenly, as a gradual rise in

temperature may cause the bedbugs to disperse. As previously stated, infested linen can be laundered in hot water followed by hot tumble drying to kill any all stages. Washing at a temperature of 60°C will kill every bedbug stage. However, high temperature treatments will not offer any residual effect.

Steam

The use of steam is particularly effective as it kills all life stages of the bedbug, including the egg (this is important to note as most insecticides are nonovicidal). The use of steam, rather than insecticide, may also be preferable for some customers particularly for their mattress and bed. However, steam treatments can be very time consuming and offer no residual effect. Therefore, any steam treatment should be followed by insecticide, which can provide better long-term control than the use of insecticides alone.

The technician should follow the steam machine manufacturer's instructions and vacuum all areas before treatment.

The quality of steam is important. The steam machine used for the treatment must be able to produce steam of a low vapour flow and high temperature. 'Dry' steam with less than 5% humidity, at 94°C, applied at a high pressure is recommended. The nozzle of the steam machine must come in direct contact with the surface being treated, moving the nozzle along at a rate of approximately 30cm per every 10-15 seconds. Ideally, the operating temperature of the machine should be regularly checked with the aid of an infrared thermometer. Immediately after steam treatment the surface should be recording at least a temperature of 70-80°C. Steam flow rate must be kept to a minimum and a suitable nozzle used to avoid unnecessarily distributing bedbugs (as well as any exuviae, eggs and nymphs). After completion, any dead bugs should be removed by vacuuming.

Cold

Freezing has the advantage that heat sensitive materials will not be damaged. While this method can often not be directly used by the technician, it can be recommended to the occupier for small items. Any item for freezing should be placed loosely into a bag and into the freezer operating at approximately -20°C for a minimum of 10 hours (More dense items may take several days for the centre to cool sufficiently).

Chemical methods

Choice of formulation and active ingredient The type of formulation selected for the treatment will depend on its usage patterns. For example, dusts can be used in areas occupied by electrical equipment and/or wall voids if the bugs are penetrating such areas, whereas liquid formulations can be utilised in more obvious locations. Suitable active ingredients would include bendiocarb, deltamethrin, alphacypermethrin, lambda-cyhalothrin. Aerosol insecticides can be used for 'quick kill' and as a flushing agent. Products such as synergised synthetic pyrethroids act very effectively to knockdown and kill bedbugs when applied directly to the insect.

Application and use of insecticide

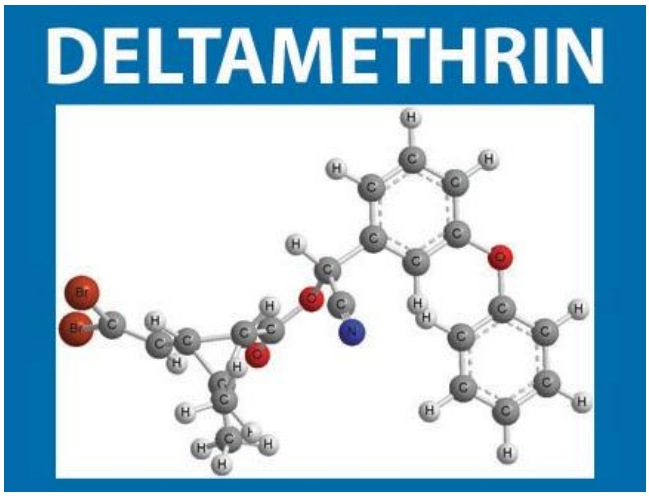
Only approved products must be used. The insecticide must be directed at all harbourages identified in the inspection and applied in accordance with manufacturer's instructions. The carpet and underlay should be peeled back and the wall/floor junction treated.

Suitable application methods

The use of extension nozzles allows the insecticide to be applied accurately to areas such as beading on mattresses and cracks and crevices in furniture. For wall hangings and delicate or antique furniture, aerosols may be more appropriate than other formulations, after vacuuming. When applying liquid formulations, fan spray nozzles should be used along carpet edges and pin stream nozzles for cracks and crevices.

Resistance Management

Technicians should avoid selecting for resistance by refraining from repeated use of the same insecticide or related products in the same class of insecticides. Choose insecticides from all the available classes on a rotational basis to slow resistance development. For example, if pyrethroids are used in the first treatment, use a carbamate in the second treatment or vice versa. Also involve insect growth regulators and dessicant dusts, where appropriate.



5) Snake and Scorpion Control

SNAKE CONTROL PROCEDURE

Most people are bitten when trying to kill or handle a snake. As a general rule, snakes are just as frightened of you as possibly you are of them. Often they move as quickly as possible in the other direction. Snakes cause no property damage, but seeing a snake or its shed (skin) may frighten some people.

Snakes are seen more often in the spring or fall as they search for food or move to and from a hibernation area. Snakes frequently are associated with small mammal habitat because rodents are a primary food source. For this reason snakes are considered beneficial to man.

There are two forms of control measures that can be taken (nonlethal and lethal). The difference is that while nonlethal measures can be taken at any time, lethal measures can only be taken when a snake is seen.

Nonlethal control measures are the most commonly practiced forms of control. Snakes can be discouraged from staying in an area by cutting off their food supply and cover. Mow closely around homes and outbuildings, and store firewood and lumber away from residences. Reduce mulch layers around shrubs to about 2 to 3 inches in depth to discourage small animals. Close cracks and crevices in buildings and around pipes and utility connections with 1/4-inch mesh hardware cloth, mortar or sheet metal. All doors and windows should have tightly fitting screens.

Small areas where children might play can be protected from most snakes with a snake-proof fence. The cost of the fence may make it impractical for an entire yard. The fence is made of 1/4 inch mesh wire screening built up 30 inches and buried 6 inches underground. It should slant outward at a 30 degree angle from bottom to top. The supporting stakes must be inside the fence and any gates must fit tightly. Tall vegetation just outside the fence should be removed.

Repellents such as sulfur or mothballs have proven ineffective at keeping snakes away from residences. However, snakes can be easily moved. Small snakes may be swept into a box or bag and removed. A large snake can usually be carried outside suspended over a long stick.

If a snake enters a residence, it may be difficult to find. Since snake are drawn to moist areas, they can be encouraged to move to one area by placing a wad of damp cloth covered with a dry one at different places along a wall. The pile must be large enough to allow the snake to crawl under it. Check the piles each day and remove the snakes found there.

The only lethal measure recommended is a long-handled shovel or hoe to kill the snake by severing the head from the body. DO NOT handle the head of a venomous snake alive or dead. A recently killed snake may bite by reflex action. Venomous snakes should only be killed if their presence endangers humans or pets. More than 80% of snakebites occur when a person is trying to kill or handle a snake. If the snake is encountered outdoors, the best defense is to back slowly away from it.

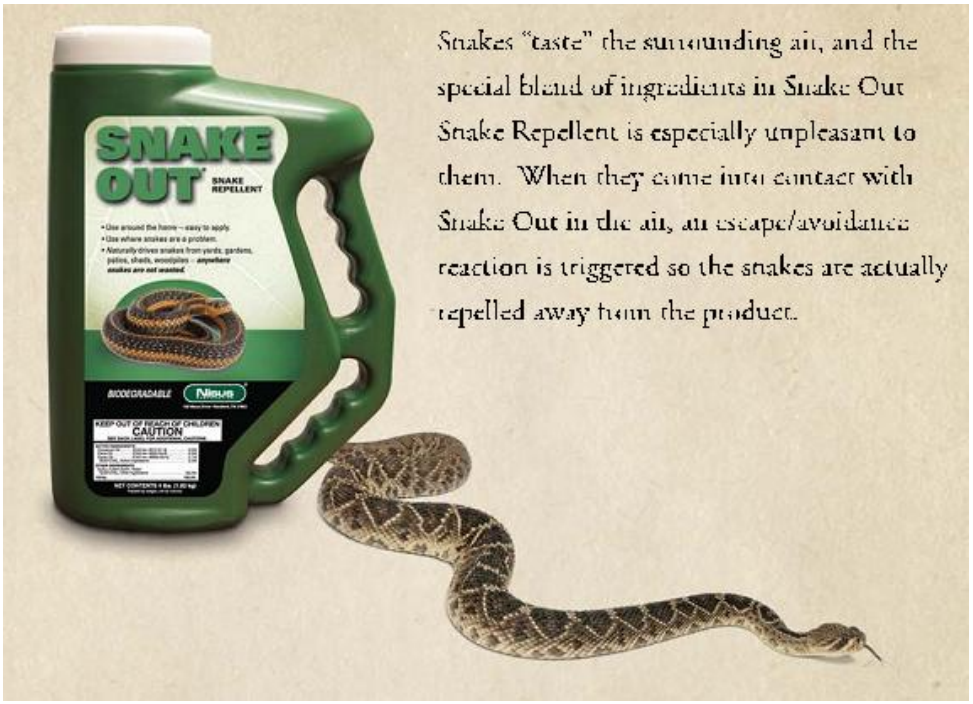
SNAKE OUT

Snake Repellent effectively repels snakes from around your home or structure. Apply around homes, garages, barns, swimming pools, gardens (not for use directly on vegetable gardens), garden sheds, woodpiles, and other areas where snakes may be a problem. May be used in areas where children and pets play. Snake Out Snake Repellent is biodegradable and, when used as directed, will not harm lawns, gardens, flowerbeds or other desirable plants. Not for aquatic use. Do not apply to crops being grown for food or feed.

Snake Out is an EPA 25(b) exempt product. This product is not registered with the Environmental Protection Agency.

Nisus Corporation represents that this product qualifies for exemption from registration under Federal Insecticide,

Fungicide, and RodenticideAct.



How It Works:

Snakes can actually taste the air around them via a receptor organ known as the Jacobson's organ. Snake Out's unique combination of ingredients creates a powerful taste/scent that snakes find unpleasant and triggers an avoidance behavior

that makes snakes want to escape the area where it is applied. Snake Out Snake Repellent does not harm snakes; it drives them away from areas where people, pets and children may be active.

How To Use:

Using the convenient shaker top on this package, lightly sprinkle a band 6-8 inches wide, around, into or next to the area you wish to protect. It is not necessary to cover the ground completely with product. One pound will treat a band 8 inches wide by 50 feet in length or 1 lb per 100 square feet. Do not water in after application. For outdoor use, reapply product after heavy rains or every two weeks to obtain best results. Snake Out works best and lasts longer when applied to protected areas such as

crawlspaces, attics and any areas protected from rainfall. Apply into voids, holes and cracks in and around the structure where snakes may enter. Snake Out can be applied to the interior perimeter of garages, storage rooms, sheds, out buildings and boat houses. Apply SnakeOut to the interior perimeter walls of crawlspaces, basements and to sill areas above the foundation walls where snakes may travel or harbor. A duster applicator may be used to apply Snake Out into in accessiblearea.

Endangered Species Considerations – Before using this product, consult with State or local wildlife authorities to ensure that use does not present a hazard to any threatened or endangered species. Where necessary, obtaining all required permits and licenses is the responsibility of the applicator.

6) Termite Post & Pre-Treatment

Termites live in underground nests deep in the soil. Their basic diet is cellulose, which is the principal constituent of organic wastes and the roots of plants and trees. Once they have eaten naturally occurring sources of cellulose, they look for other, manmade sources, such as wooden structures, furniture, books and clothing. Termites can also attack the plastic insulation of electrical wiring and cables, causing short circuits and irreparable damage to electronic equipment.

Hidden Invaders

No building, whether RCC framed or hollow-block masonry, is safe from termites. Subterranean termites are silent invaders. They can pass through cracks and crevices only 1/64 inch wide and are able to get through slab joints, settlement cracks, expansion joints and electric conduits, and around utility pipes.

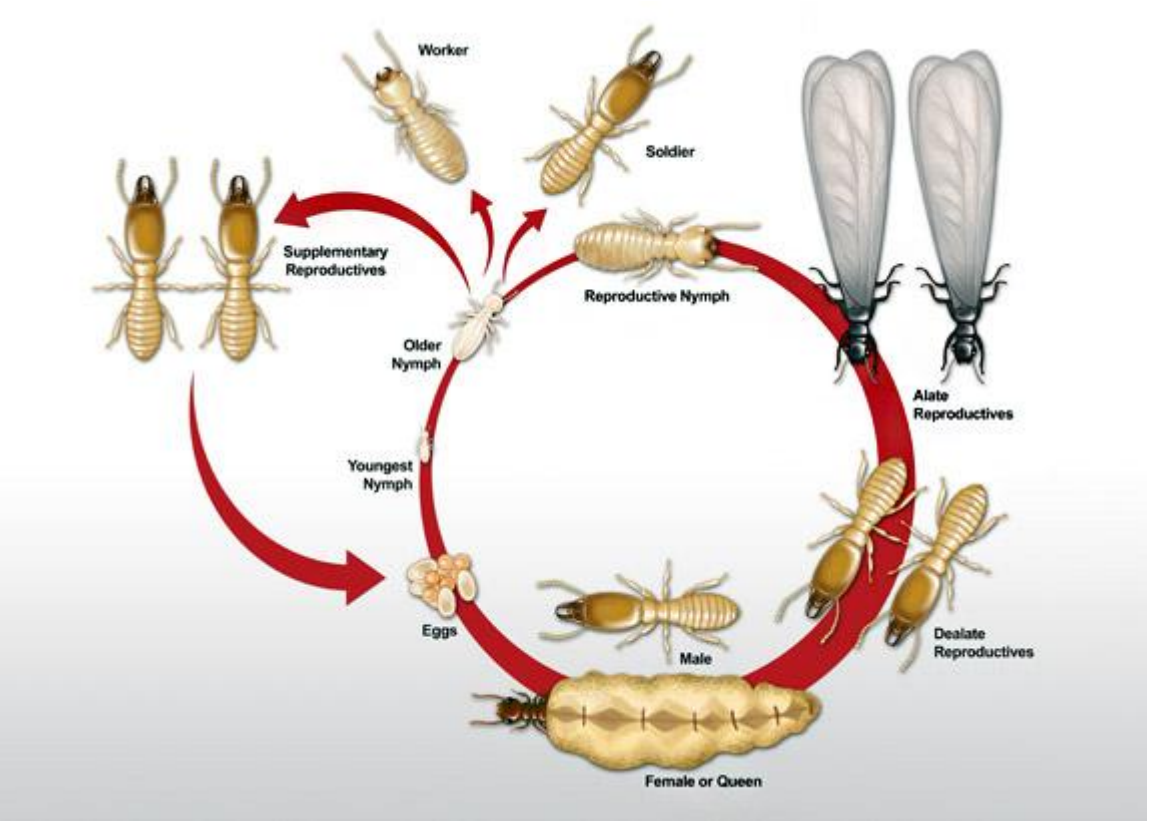
Once inside, they move surreptitiously, hidden in their mud shelter tubes. They can silently and systematically eat through your valuable possessions – furniture, clothes, books, documents, paintings, carpets, currency notes, etc.

Air-conditioned buildings provide a particularly favourable environment for termites. Because subterranean termites shun light and air, they normally eat only the inside of the wood. Termite-damaged timber may look perfectly sound on the outside, but be nearly hollow inside. Owners are usually unaware that there are termites until the damage is discovered.

Prolific Breeders

Subterranean termites live in well-organised colonies with a highly developed social order. Each colony consists of a pair of reproductives – referred to as king and queen – workers, soldiers and nymphs. The sole job of the queen is to lay eggs, which are fertilised by the king. The queen can live up to 25 years and lay thousands of eggs each year. The workers do all the work to feed the colony and the soldiers defend the colony against intruders – mostly ants. Nymphs are young termites.

Termite Life Cycle

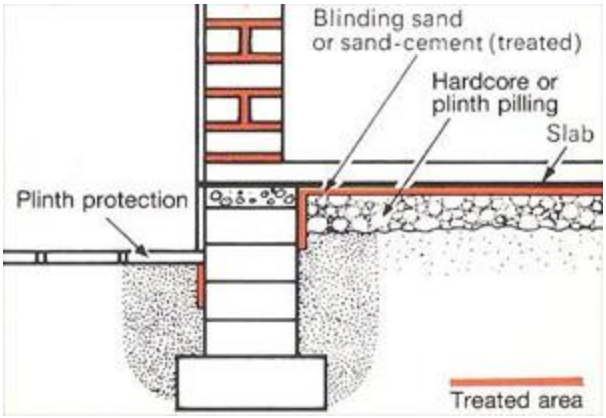


Termite Treatment

Termites are wily, elusive and stubborn. They multiply fast and, if you destroy them in one place, they will 'pop up' in other places with greater vigour and in larger numbers. In fact, any attempt to get rid of them superficially only serves to scatter the infestation.

It requires special knowledge, the right scientific control techniques, sophisticated equipment, trained personnel and professional know-how to tackle an infestation. Only an experienced pest control operator like Muna Noor Pest Control Division can deal effectively with the menace.

Chemical Barrier



Chemical treatment is the only method of termite prevention and control ever proven to be totally effective.

The basic principle of termite control is to treat the soil under the building with chemicals that remain in the soil for a long period and do not allow termites to pass through. This can be achieved through different procedures on buildings under construction or existing buildings.

Pre-Construction Termite Treatment for New Buildings

Termites have been found in new homes as early as four days after construction was completed. The best results are obtained if termite protection measures are included during the early stages of the construction of a building. Pre-construction soil treatment is the ideal method of termite control for buildings under construction. The soil all around the foundations and under the floor slab is first charged with termiticide to seal it. This creates the chemical barrier that termites cannot pass through.

Pest Control Division can select appropriate specifications for built-in termite proofing of your building.

Post-Construction Treatment for Existing Buildings

Our termite treatment is adapted to take care of termite infestations in existing buildings. The treatment is curative-cum-preventive, and is carried out in graded steps.

Termite post-construction measures consist of injecting chemical toxicants through holes drilled into the floor and wall junctions to simulate conditions similar to laying a chemical barrier below a building as in pre-construction.

Treatment of infested timber and fumigation of termite mud runways are carried out to exterminate subsidiary termite colonies located above the ground level.

7) Fumigation

MPC offers fumigation services to kill grain pests in stored foods, such as rice, wheat and pulses. The process is carried out under tarpaulin cover with approved fumigants, which eliminate pests such as tribolium, moths, weevils, flour beetles, etc.

MPC also fumigates in-transit containers after inspection, to control wood borer and other pests, as and when the exporters/shippers require this service.

Swingfog SN 50

Portable machines, available with four types of chemical tank made of stainless steel or synthetic material (polyethylene). The fuel tank is made of stainless steel.

All metal parts coming into contact with the chemical are also made from stainless steel.

SAFETY

SAFETY SHOES

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"Protecting our health and property"

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