Integrated Pest Management for Rat, Mice, and other Rodents at Thurston County’s Waste and Recovery Center

When you think of garbage you automatically think of rats and rodents because they are very opportunistic and populate areas with easily available food and harborage. Because of this, rodents are commonly found at garbage landfills. Thurston County’s Waste and Recovery Center (WARC) is no exception. Even though the WARC ships all of the incoming waste offsite, there are still areas that receive and manage decaying food waste in open areas. These waste handling activities attract rats and other rodents. These pests need to be controlled because they are a potential health hazard, they have caused damage to facility equipment, and because control of the rats and other rodents are a requirement of the State of Washington land filling Regulations (WAC 173-351-200). This regulation requires municipal solid waste landfills to prevent or control on-site populations of disease vectors (to include rodents, flies, etc.).

Rodent control using Integrated Pest Management means the County will monitor the facility and use several techniques to reduce the favorable environmental factors that promote rodents and their ability to thrive (food sources and harborage). It is the goal of the WARC personnel to maintain an environment that discourages rodent populations.

Description

The main rodent of concern at the WARC is the rat. The most common rats in Thurston County are the Norway rat (Rattus norvegicus) and the roof rat (Rattus rattus). To a lesser degree mice and raccoons occasion the WARC but rarely, if ever, require control. Until a rat is trapped on-site, identification of the type of rat causing a problem is typically unknown. Behavior patterns can help distinguish between the types of rat, but control methods are similar for both species. Roof rats tend have overhead travel (power lines, trees, etc.) and harborage (attics, between walls, etc.) as part of their behavior whereas Norway rats tend to live in underground burrows and travel mainly across the ground.

Monitoring

Inspection for rats and rodents shall be continuous during regular daily operations. Norway rats will create burrows along building foundations, under concrete slabs, near bushes or vegetation. Roof rats often live above ground within trees and along with Norway rats will live within accessible buildings (within insulation, between walls, or other hiding areas). Employees will notify the WARC manager when visual evidence of rodent activity occurs. Visual evidence consists of any of the following; seeing a rodent, droppings, damaged and contaminated insulation, burrows, gnawed building material (damaged material or small piles of wood shavings or insulation), partially eaten food with rodent droppings, etc. After signs of rodents are observed, it is important for WARC employees to clean the area and remove any contamination so that future monitoring of the area can distinguish between past activity and ongoing activity. When rats are presumed to be living within a building (or especially difficult to trap), ultraviolet light can be used to identify main travel routes and areas most frequented by the rats (because their urine will fluoresce in ultraviolet light).
Threshold of Concern

Control efforts will be made when unacceptable rodent activity is observed in the working areas of the WARC (areas where people routinely work or occupy). Unacceptable levels of rodent activity include; any visible signs of rodent activity within a habited building (office, toll booth, and other heated building) or an uninhabited building area (shed, garage with bay doors, tipping floor area, vault, etc.). Unacceptable levels of rodent activity in unoccupied areas will be tolerated unless there is visual sighting of rats in the daytime (activity that implies high populations in the area) or harborage (nest) is found. Control will begin when an unacceptable level of rodent activity is found.

Control Strategies

The most important steps in controlling rats and rodents involve sanitation, exclusion, and elimination of their home or nest sites. These methods of control should take place before any population control efforts are made.

Sanitation

1. All edible food (lunches and snacks) will be stored in rodent-proof containers not in desk drawers.
2. Spilled or uneaten food will be cleaned up and removed from eating area by the end of each day.
3. Garbage cans in eating areas will be emptied daily or have tight fitting lids.
4. There will be no garbage cans for food waste in uninhabited buildings.
5. Exterior garbage areas will be kept clean and free of organic debris on the ground.
6. Fruit trees will be free of fruit fallen on the ground during the summer and fall.
7. Birds, squirrels and other wildlife will not be fed within 200 feet of any County building.

TIPPING FLOOR AREA

8. All municipal organic wastes will be removed from the tipping floor and placed into transport container by the end of each working day.
9. When the tipping floor develops a thick layer of organic slime from incoming waste, the floor will be swept with a sweeper truck that can scour the floor and remove the organic layer.
10. Annually, the tipping floor area and associated covered area will be emptied of all equipment and waste so that the entire room can be cleaned (walls, floors, etc).
11. Annually, the platform used to support and extend the reach of the excavator within the tipping floor area will be deconstructed and rebuilt to eliminate ongoing harborage (throughout the years this platform has been constructed from rock, broken glass, and eco blocks and rats still create nesting areas in it).

Exclusion

In occupied buildings, all areas of potential access by rodents should be identified and sealed.

1. Repair/seal any cracks or small holes ¼ inch in diameter or larger in the foundation, walls, near windows, around pipes and cables entering building, in and around air vents, etc.
2. Repair broken windows and doors – ensure door seals are tight for any inhabited buildings.
3. Repair screens and cover foundations vents with rodent-proof screen material (1/4 inch holes).
4. Repair material should consist of metal sheeting, steel wool, durable steel mesh screen (with holes ¼ inch in diameter or smaller), concrete mortar or appropriate patching compound.
5. Around building foundations and concrete slabs where burrows are found – a two foot wide, six inch deep strip of one-inch rock can be used to reduce the potential for future burrowing.
6. A three foot buffer should exist between buildings and vegetation. Trees should be pruned so that they are not in contact with building wall, eaves, or roofs.
7. Regular inspection and reporting of the exterior of buildings to determine new potential rodent entry points, habitat, or visible rodent activity will be performed at least annually.
8. The base of all exterior doors will be secure enough to prevent any rodent access.

**Population Control (non-chemical)**

When exclusion and sanitation has been performed and there is still an unacceptable level of rodent activity, population control is warranted.

1. Snap traps are the preferred control option for use within inhabited and uninhabited buildings.
2. Traps should be baited (non-chemically) for a few days prior to setting them so the rodents get accustomed to eating from them. Traps should be tied down or anchored in a way to prevent rats from dragging the trap away if they are only partially caught. After bait has been eaten, the traps should be re-baited, set, monitored, and reloaded until rodent activity is no longer observed.
3. Snap traps will be utilized within a protective bait station similar to the ones used for chemical baiting (ex. Protecta Rat Station®). These stations will protect workers and the public from contacting the traps as well as dead rodents.

**Population Control (chemical)**

All chemical baiting shall be used in accordance with the Rodenticide Control Pesticide Rules established by the Washington State Department of Agriculture (WAC 16-228-1380). The following steps will also be undertaken by County personnel or hired contractor(s) whenever chemical baiting is performed on County property;

1. All chemical rodenticides will utilize anchored baits within a weather-resistant bait station.
2. All chemical bait stations will be tamper-resistant with keyed access and will be anchored in place.
3. All chemical baits will be formulated into a wax or paraffin block to minimize the chance for rodents to remove it from the bait station.
4. All bait stations will be monitored frequently throughout the baiting process to remove dead animals and maintain fresh bait.
5. Chemical bait stations will be emptied of all chemical bait after rodent activity has been reduced to acceptable levels.

**At all WARC buildings** - Rodenticide baits can be very effective in rodent control programs. However, they should only be administered after sanitation, exclusion measures, and trapping have been attempted for at least one month, daily visual evidence of indoor rodent activity is still occurring, and it is determined by an authorized County personnel or a licensed pest management professional that chemical control is warranted. At that time, chemical baiting can take place until the indoor rodent problem is resolved (when daily signs of rodent activity is not seen for two weeks). If there are no visual signs of indoor or exterior (within 20 feet of the structure) rodent activity, all baiting with an active ingredient will be stopped and bait stations will be emptied of rodenticide baits. If indoor rodent activity has stopped, outside chemical baiting can continue until feeding stops or until feeding levels are light. If
outside rodent activity remains (continuous heavy or moderate feeding of baits), then baiting will continue for up to three months. After three months, chemical baiting will be substituted with non-chemical baiting and use of snap traps. If outdoor rodent activity continues throughout the month of non-chemical baiting, then chemical baiting can resume for another three month cycle (this rotation of non-chemical baiting followed by chemical baiting can continue until feeding stops or feeding levels are light). During this chemical and non-chemical baiting process, potential harborage around the area should be evaluated and eliminated if possible.

**Around the tipping floor area (and attached building)** - There is daily need for rat population control around the tipping floor area. Rats come into the facility on a daily basis from roll-off containers that come from commercial sites throughout the county. These containers are out of the County’s ability to control and the rodent pressure that they introduce creates the daily need for population control for the protection of workers and the neighboring community.

All rodenticide products reviewed by Thurston County are rated high in hazard and pose a threat to non-target organisms. Because of this, there are no chemical active ingredients that are a clear choice for County use. Rodenticide product choice will be made to ensure effective rodent control and to reduce the chance for chemical resistance. At this time the most effective rodenticide products contain single-feeding anticoagulant chemicals. Single-feeding (second-generation anticoagulants) baits are the most effective chemical bait products currently on the market and represent the smallest chance for pesticide resistance (because rodents don’t live with a sub-lethal dose). When an effective, less toxic chemical option is available, this prescription will be amended to include the lesser toxic option.
TIPPING FLOOR & OFFICE BUILDING at the WARC