

**Standard Operating Guideline**

**Pest and Rodent Control**



District Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date Prepared: Date Revised:

OBJECTIVE

* Ensure effective system-wide preventive and predictive maintenance actions.
* Ensure periodic task accomplishment.
* Identify potential/actual system problems.
* Ensure legal, safe, and consistent handling of hazardous materials.
* Maintain canal/ditch water delivery.
* Protect adjacent property.

RATIONALE/PURPOSE

* Ensure mission capability.
* Ensure system reliability.
* Develop predictive maintenance programs.
* Determine capital improvement budgeting.
* Develop loss trend analysis.
* Reduce property, liability, and injury/illness loss exposures.
* Reduce revenue loss and O&M costs.
* Ensure compliance with applicable governmental regulations.

METHODS/PROCEDURES

**(Note: Listed procedures are intended as guidelines only and may not be applicable for all districts or situations).**

General

* Wood and brush piles often provide shelter for ground squirrels and other unwanted vertebrate pests. Remove all woody debris adjacent to canals that rodents could use as habitat.
* Reform ditch banks periodically to reduce rodents and weeds.

**This model form/template must be customized to meet your Agency’s needs.**

* Ripping (in canal bottom and along toe) to destroy burrows before reforming canal bank/levee.
* Control weeds to allow visual inspection of canal banks/levees. When mowing is used as an alternative to herbicide use, inspect immediately after mowing to observe rodent activity.
* Eliminating fur-bearing or game animals may require depredation permits from the California Department of Fish and Wildlife (including beavers). (See Trapping Procedures Section).
* Muskrats do not require depredation permits for eradication (contact the local Fish and Wildlife office for questions or details).
* All pest control applicators should undergo “sensitivity training” to be able to recognize protected species (Fish and Wildlife).
* Only persons properly trained or under the direction of certified applicators (QAC) may perform pest control activities including gassing, gopher bombs, and poisoning by various means.
* Rodent barriers prevent some rodent activity where other methods are not effective (trench, then fill with concrete, adjacent to ditch bank).
* Owl boxes are another option. Efficacy is not fully known, studies have shown some benefit for gophers, but not ground squirrels as they do not feed on them. They do require annual cleaning which requires N95 masks. Other rodent varieties in the area may also be negatively impacted, so caution is warranted when considering their use.

Inspection

* Inspect banks and levees regularly for rodent activity.
* Do a complete inspection at the end of the season and set priorities for maintenance before the next water season.
* Animal burrows, once identified, should be excavated, inspected, and backfilled with compacted soil similar in material to the bank or levee.
* Boils should be investigated as a burrow.

ERADICATION

Poison/Bait

* Use of poisons and other hazardous materials shall be documented/logged. Complete a Weed and Pest Report – mile number and amount used.
* Feed only active holes. This poison is expensive and there is no need to waste it.
* The bait station entrance cannot be larger than three inches in diameter.
* Poison grain-timing is critical. Follow the recommended procedures for the material. Poison is typically more effective when other food supplies are limited.
* Diphacinone and Chlorophacinone work well for ground squirrels in rural/remote areas. For gophers, Strychnine is the most effective and can only legally be used underground in gopher burrows.
* When putting out the station in early spring, take a pad, and pencil, record mile numbers, and number of stations.
  + Example: Mi. 120.05 o/p side to 127.68 = 13 stations.
* The amount of bait used will vary depending on the size of the bait station. A good place to start is to put in 3 - 4 cups when setting out the station and then check every other day.
  + Do not let it run out of bait for more than three days. It is important to maintain a constant bait supply for maximum effectiveness.
  + Cover fill tube with a cap to keep out the rain.
  + Clean up any spill, put it in a bucket, or bury it.
* Weigh any partial bucket and record on the top of the bucket with a flow pen how much is left for inventory purposes. Know the weight of a full bucket.
* Keep bait stations full. Rodents must eat for 3 - 4 days to be effective.
* When bringing in bait stations in the fall, they should be cleaned out and old bait put in a container and disposed of in an approved manner.
* Use proper bait for application, broadcast versus bait station.
* Pest baiting must occur for a period to allow necessary feeding. Late spring through fall works best when there is less green vegetation.
* Broadcasting bait sometimes works better, but some crops do not allow this practice.
* Use a properly calibrated seed spreader to broadcast poison bait (for scavenging squirrels).
* Broadcast bait up to 20-feet from the hole.

Gassing/Bombs

* Use burrow fumigants when abundant soil moisture is present. For ground squirrels, this would be after they emerge from hibernation (hibernation is from November through January but can vary by region) up until mid-to-late spring. For gophers, this could be anytime you have abundant soil moisture. Potential burrow fumigation options for ground squirrels include gas cartridges, aluminum phosphide, CO2 injection devices, and pressurized exhaust machines. The same tools are effective for pocket gophers except for gas cartridges.
* Use smoke bombs only when the ground has enough moisture to be effective.
* Do not use smoke bombs in an area if there is a potential for fire danger.

Trapping

* When beaver activity is observed, the beaver should be removed (trapped), and the dam and blockages removed. A depredation permit will be required. Notify your local Fish and Game office and follow instructions as given for obtaining a permit, trapping, or other means of eradication.
* Poisoning of ground squirrels where endangered species are present (such as Kangaroo Rats) may be prohibited in some areas. Contact your local Fish and Wildlife office for more details. California Department of Pesticides has a website for applicators to determine which threatened and endangered species are known to be present in the area, and what can be done to mitigate impacts. See <https://www.cdpr.ca.gov/docs/endspec/prescint.htm>.

INCIDENT RESPONSE **See Canal Failure Response Standard Operating Guideline**

Preparation

* A standby/on-call procedure should be established to respond to emergencies.
* Equipment must be available to respond to and repair canal/levee failures.
* Proper fill material must be available to repair crews.

SAFETY CONSIDERATIONS

An effective maintenance program can help to prevent damage to property, the environment, and injury to employees and the public, and will help to:

* Preclude system and equipment damage.
* Preclude property and environmental damage.
* Facilitate operations and maintenance personnel safety.

Identification of safe work practices among employees should include:

* Hazardous material handling
* First Aid/CPR procedures and supplies
* Poison Control Procedures
* Eyewash and decontamination supplies
* Spill and containment equipment
* Fall protection
* Read SDS/MSDS before starting the job. Have a copy in the vehicle for an emergency.
* Follow established safe handling and operations procedures (as specified on SDS/MSDS and informational sheet).
* Wear all safety equipment (as specified on SDS/MSDS and informational sheet). Use rubber gloves when handling bait, coveralls, dust cover, measuring cup, and funnel.
* Keep all poison in a closed container.
* Before smoking or eating, wash hands with detergent and water.
* Only trained personnel shall handle hazardous materials.
* Watch your step on uneven ground.
* Watch out for snakes.
* Have contact information and communication means available onsite.

COST/BENEFIT

* Reduce revenue losses.
* Avoid costly liability, property, and injury/illness losses.
* Preventive maintenance and loss trend data would reduce facility, equipment, and system failures.

INSPECTION FORMS/CHECKLISTS/DOCUMENTATION

* Training Log
* Daily Weed Control Report
* Pesticide Safety Training Record

REFERENCES

* [University of California, “Pesticide Safety and Application Regulations.” UC Integrated Pest Management Website](http://ipm.ucanr.edu/IPMPROJECT/ADS/manual_safeeffectiveuse.html)
* [California Department of Pesticide Regulations website](https://www.cdpr.ca.gov)
* [U.S. Army Corps of Engineers, Levee Owner’s Manual for Non-Federal Flood Control Works,March 2006, Section 2.6.](https://www.nae.usace.army.mil/Portals/74/docs/Emergency%20Operations/USACE_NonFed%20Levee%20Owner's%20Manual_Mar06.pdf)
* [Pesticide Regulation's Endangered Species Custom Realtime Internet Bulletin Engine (PRESCRIBE)](https://www.cdpr.ca.gov/docs/endspec/prescint.htm)
* [University of California Ground Squirrel Best Management Practices](http://www.groundsquirrelbmp.com/)
* [Online Training: Managing Ground Squirrels and Pocket Gophers](http://www.groundsquirrelbmp.com/)
* [Vertebrae Pest Handbook: Pocket Gophers](http://vpcrac.org/files/3514/7612/1315/Pocket_gopher_chapter.pdf)