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Lompoc Valley Middle School Carbon Monoxide Gopher Machine Test Results

Date: Thursday 2/9/12 Location: LVMS Tester: John Webster and Tuan Nguyen

Condition: Using Lompoc City Pressurized Exhaust Rodent Controller and the Santa Maria Joint Union High School CO meter, we perform the following test at Lompoc Valley Middle School to record Carbon Monoxide reading.

The results are as follow:

Time (min)	Location/Distance from unit	Carbon Monoxide
0 min after unit starts	At the unit tank, around the engine	3 ppm
1 min after starting unit	At the unit, by the engine exhaust	200 ppm
1 min after starting unit	Truck exhaust, for comparison purpose.	145 ppm
1 min after starting unit	At probe #1, about 37 feet away from unit, with normal compact soil.	30 ppm
1 min after starting unit	At probe #1, about 37 feet away from unit, with open gopher hole near by (about 2 feet away)	> 1000 ppm
1 min after starting unit	At probe #1, about 37 feet away from unit, with semi mount dirt over gopher hole.	Range 50 ppm to 80 ppm
1 min after starting unit	At probe #2, about 37 feet away from unit, with normal compact soil.	30 ppm
5 min after starting unit	At probe #1, about 37 feet away from unit, with normal compact soil. Machine produces constant CO exhaust.	30 ppm
10 minutes after shutting off machine	At probe #1, about 37 feet away from unit, with normal compact soil. Machine is shut off.	5 ppm
10 minutes after shutting off machine	At probe #2, about 37 feet away from unit, with normal compact soil. Machine is shut off.	5 ppm

Analysis:

- Around the unit, after start up, the unit engine exhaust is producing around 200ppm. This is different from the CO reading at the probe. Design CO output at the probe is > 1000ppm.
- Around the unit tank, after start up, the CO reading is around 3 ppm. This shows that there is not very much CO leakage at the tank and connections.
- Temperature of CO exhaust is cool, around 60 degree F.
- At the probe location, with normal compact soil, the surface CO reading is around 30 ppm.
- At the probe location, with loose gopher mount soil, the surface CO reading is around 50 to 80 ppm
- 10 minutes after turning off the unit, the level at the probe location (37 feet away) drop to 5 ppm.

Recommendation

- After unit startup, user should avoid standing by the unit exhaust
- User should have a CO monitor to detect and stay clear of high CO level
- User needs to check the mount around the probe to insure proper CO protection and insure maximum CO level in the gopher hole.
- Provide a CO monitor at nearby portable structure (150 feet or less) as a precaution. Because some portables are sitting on dirt, there is potential gopher activity under the portable.
- We could not test the unit effectiveness because this is a time repetitive process. Based on Lompoc city usage for the last month and the reduction in gopher mount, this machine works very well to control gopher population.