

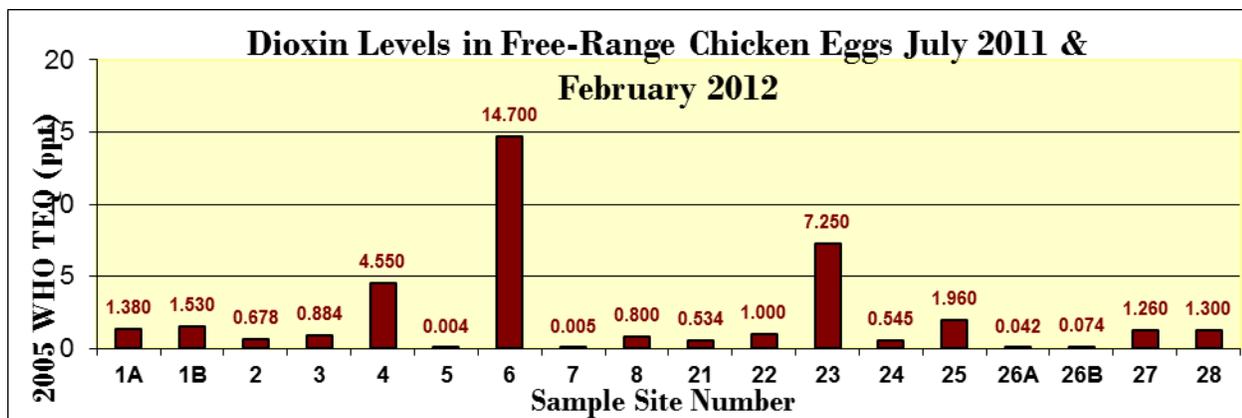
BEC Leads On Dioxin Discovery In Butte County

The Butte Environmental Council received a grant in September of 2010 from The California Wellness Foundation to educate about reducing exposure to toxic substances in Butte County. Most of this TCWF grant money was dedicated to testing eggs in south Oroville for dioxins.

Our goal was to add to the testing done by the California Department of Public Health (CDPH) Environmental Health Investigations Branch (EHIB) in 1988 and 1994, after the fire at the Koppers wood treatment facility that created dioxins by burning pentochlorophenol, a chemical used to treat wood. Testing dioxins is expensive—between \$800-\$1000 per test—because testing is done for the 17 most toxic “congeners” (kinds) of dioxins. This made it very unlikely that residents would do any testing on their own.

The Environmental Health Investigations Branch (EHIB) of the California Department of Public Health (CDPH) conducted dioxin tests on backyard chicken eggs in 1988 and 1994, leading to an advisory against eating eggs from free-range chickens in the south Oroville area. The Butte Environmental Council (BEC) initiated the testing of backyard chicken eggs, funded by a grant from The California Wellness Foundation, after learning that the CDPH did not intend to conduct any follow-up testing.

Although the geometric mean of dioxin levels in the south Oroville area has gone down from 2.2 ppt (parts per trillion) after the 1988/1994 tests to 0.636 ppt (2005 WHO TEQ) when combining the July 2011 & February 2012 test results, the range was between 0.004 ppt and 14.7 ppt (compared to 0.08 ppt to 18 ppt in the earlier testing). There is no set limit of the amount of dioxin allowed in chicken eggs; however, the United States government has pulled commercial eggs off of the shelves at 1.0 ppt in the past.



The first round of testing in south Oroville conducted by BEC was a small sample size of seven tests from six sites within a 1.25 mile buffer of the Koppers Superfund Site. Two more sites were tested to get some background information in other parts of the county; one was in north Chico and the other was in Forest Ranch. The Chico test came back low at 0.005 ppt, however the Forest Ranch test came back at 0.8ppt.

In a past advisory, the California Department of Public Health suggests only eating 3-4 eggs per week at if the levels were 0.6ppt, and not eating the eggs at all if they were 2.0ppt or above.

After finding such a wide range of dioxin levels, we decided to conduct further testing within a larger buffer distance from Koppers, increasing the circle to three and a half miles. The second round of testing conducted in February 2012 also had greatly varying results (ranging from 0.042 ppt to 7.25 ppt).

Area	Geometric Mean (ppt)	Average (ppt)	Range (ppt)	# of samples
Oroville 2011/2012	0.636	2.32	0.004 – 14.7	16
Oroville 2012	0.651	1.55	0.042 -- 7.25	9
Oroville 2011	0.616	3.30	0.004 – 14.7	7
Oroville 1994	2.6	4.8	0.62 - 14	10
Oroville 1988	2.0	4.2	0.08 - 18	25

BEC’s total sample size was too small to be able to make a definitive statement about where dioxins were concentrated; however, the data suggests there are still dioxins present in the environment as shown by egg dioxin levels. The data also suggests that backyard burning habits and pesticide/herbicide use may be a factor in dioxin levels. There are also other possible industrial sources of dioxins that may be adding to legacy contamination from the 1987 Koppers fire.

BEC’s goals are to offer best-practices suggestions for chicken-keeping that may help to bring down egg dioxin levels, and to offer the California Department of Public Health recommended guidelines for egg consumption. **However, the only conclusive way to determine dioxin levels is to test at that location.** We are happy to provide contact information for the lab that we used for our research, and to assist in interpreting test results. We strongly encourage anyone with the means to do so to consider testing their eggs or soil.

Because our test size was small, our results were not conclusive; but we believe that Oroville residents should be aware of the potential hazards of consuming home-raised animal products and make efforts to use practices that minimize livestock’s exposure to dioxin as suggested by the Public Health advisory. For chickens, these are (from CDPH’s 2004 Advisory):

- Removing the fat from chicken meat:** The skin of the chicken has high levels of fat. If you continue to eat chicken meat, remove as much of the skin and other sources of fat as possible. Avoid eating chicken livers.
- Changing your chicken-raising practices:** The best way to lower the dioxin levels in chickens is to keep them in cages above the ground. Several other practices may lower the amounts of dioxins. However, the practices listed below are not as effective as keeping chickens above the ground:
 - **Enclosing chickens in a coop:** Limiting the area where chickens forage by keeping them inside an enclosed pen may reduce their exposure to dioxins. This reduces foraging activity and soil contact.
 - **Having a barrier, such as cement, gravel, or straw, between the chickens and the ground:** This may help to reduce the amount of dioxins in chickens and their eggs. The California Department of Food and Agriculture also recommends this to prevent the spread of infectious diseases in poultry.
 - **Removing backyard dioxin sources:** Remove any wood thought to be treated with pentachlorophenol (PCP) (for example, scrap pieces of telephone poles) or other types of treated wood. Do not burn any treated wood. Ash piles created by burning PCP-treated wood should also be removed. Most land-fills will accept these materials.

That brings us to the Covanta cogeneration plant on South 5th St. in Oroville. During the process of our egg testing, we tried to identify other possible sources of dioxin. Despite documents Air Quality Management District shared with us that showed dioxin stack emissions at the plant as being within acceptable limits, we tested a Covanta ash pile on Hicks Lane in Chico that had been used as an agricultural input in an almond orchard. We tested the ash pile in response to information that the plant had been burning “urban wood waste”—construction debris from San Jose. Burning plastics and other materials in this mix could result in creating unacceptable levels of dioxin. The level of TCDD in the Hicks Lane ash pile exceeded California Human Health Screening Levels, and qualified it as toxic waste—yet it was being disposed of freely in orchards throughout Butte County and beyond. This was very alarming, and BEC quickly made the decision to pay for further testing.

Now that Covanta has announced that it is closing, it is vitally important that community members don't allow them to sneak away without addressing something they hope to outrun—DIOXIN. BEC has come to the end of the TCWF grant and now it is up to local agencies to continue testing—and up to Covanta to pay for that testing. Additionally, Covanta needs to be prepared to address and remedy the harm that they have done here, in the form of cleaning up toxic ash piles and compensating growers