INTEROFFICE MEMO

Ohio Environmental Protection Agency

To: Distribution

From: Paul Koval, Acting Manager, Air Toxics & Monitoring Section

Date: April 27th 2017

Subject: Screening Value Adjustment for Formaldehyde

The Air Toxics & Monitoring Section of DAPC is providing an alternative concentration for protecting public health from exposure to Formaldehyde [CH_2O] CAS # 50-00-0. The current maximum allowable ground level concentration [MAGLC] from Ohio's Air Toxic Policy is 2.93 µg/m^3 (micrograms per cubic meter). Recent permit applications involve large diesel-type engines running on natural gas emitting CH_2O. The size and number of these engines creates a situation where the permits do not pass the MAGLC analysis. The model predicts the 1-hour concentrations to be above the MAGLC.

The Air Toxic Policy is a screening tool that has a significant margin of safety. In cases where the MAGLC cannot be met, Ohio EPA evaluates the toxicity of the specific compound to determine if alternative concentration thresholds would be protective of public health. Based on current research regarding the toxicology of formaldehyde, we found a diverse range of exposure benchmarks and exposure duration limits allowed for permitted concentrations of the pollutant.

We reviewed each of these exposure benchmarks to determine which represented the most robust analysis. Based on this nationwide review, we determined that alternatives to the Air Toxic Policy's MAGLC screening value were appropriate in this specific case. These are discussed below.

U.S. EPA's re-assessment of formaldehyde is currently in the external review process in IRIS (integrated risk information system). The current chronic toxicity value listed in IRIS for carcinogenic risk is 8.0 µg/m^3 for the 1.0 E10-4 risk level. However, our traditional goal is to limit new permitted sources in the 1.0 E10-5 risk level, in this case 0.8 µg/m^3. Chronic limits for non-cancer effects vary among federal agencies and other states. Our goal is to define a reasonable short-term exposure number that is protective of public health for a maximum hourly-modeled exposure, which also transposes into a value protective of public health for chronic carcinogenic effects using IRIS. We propose the long-term chronic ambient air exposure goal remain 0.8 µg/m^3 based upon the 1.0 E-05 cancer risk level currently in IRIS.

We propose a screening 1-hour maximum modeled exposure limit of 49 µg/m^3, the current Agency for Toxic Substance Disease Registry (ATSDR) acute exposure value.

Summary: Maximum 1-hour concentration 49 µg/m^3
Long-Term Chronic (annual average) 0.8 µg/m^3