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Environmental Protection Agency
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Comments of the Methanol Institute Regarding Drinking Water Contaminant Candidate List 3 – Draft

The Federal Register notice of February 21, 2008, published for public review and comments a draft list of contaminants that are currently not subject to any proposed or promulgated national primary drinking regulations, that are known or anticipated to occur in public water systems, and which may require regulation under the Safe Drinking Water Act. This notice included methanol as a candidate chemical for listing. We believe that methanol does not pose a risk to drinking water and would therefore not be an appropriate candidate for a national primary drinking water standard.

The Methanol Institute serves as the trade association for the global methanol industry. Methanol is an essential chemical building block used to manufacture a wide range of products including building materials, plastics, adhesives, solvents, paints, textiles, refrigerants, windshield wash and anti-freeze, and fuels. In 2008, the U.S. is expected to consume 6.7 million metric tons (or 2.2 billion gallons) of methanol. Our industry's commitment to product stewardship helps ensure that methanol is used in a safe and responsible manner.

In considering whether to include methanol in the draft CCL 3 listing, the Agency's own evaluation team assigned methanol to the "L?-L" model decision category. This means that the evaluation team found methanol to be close to the boundary for a List-Not List decision, and "leaned" towards listing. Clearly, the evaluation team itself questioned a listing for methanol, and in reviewing the "Attribute Score" for methanol we can see why methanol was on the boundary.

Methanol was assigned a potency score of "3," on a "1" to "10" range indicating that low doses of methanol are not a significant concern for adverse health effects. In terms of severity, methanol scored a "6" on a nine point range as having health effects that may be "significant, irreversible, non-lethal conditions or disorders." In terms of severity, methanol was not considered a risk for developmental or reproductive effects, tumors or disorders likely leading to death, or death. These scores are based on a reference dose (U.S. EPA 1986), which is considered the richest supporting data set.

The preliminary CCL3 suggests a severity grade of "6" for methanol toxicity, "significant, irreversible, non-lethal conditions or disorder". The data from the selected study (the basis for the EPA RfD) indicated altered organs weights and increased serum enzymes indicative of liver toxicity, but no liver pathology was present. Therefore, there is no indication from these data that the effects were irreversible. On the contrary, one

would expect these effects to disappear following a recovery period without methanol exposure. Based on the data, a severity grade of "5" (significant reversible effects) is more appropriate.

Methanol's consideration for listing is likely not based on these health effects attributes, but simply because methanol scores highly on the occurrence attributes. Methanol scored a "10" for both prevalence (how widespread the occurrence) and magnitude (quantity). In assessing occurrence, there were no findings of methanol in finished water systems or in ambient water, which form the top of the hierarchy for assessing actual occurrence in drinking water. Methanol is a high production chemical, which accounts for its high occurrence ranking, even if its has not actually been found in drinking water. For magnitude, methanol releases reported under the Toxics Release Inventory, must account for its "10" ranking. Again, since no methanol was identified in finished or ambient water, there are no median values, which are at the top of the hierarchy for measuring magnitude. Persistence and mobility make up the lower end of the magnitude hierarchy. Here methanol is identified as a chemical that "biodegrades fast," so it is not considered a persistent contaminant. Methanol is completely miscible in water.

We can understand the apprehension the evaluation team may have had when considering to list methanol. It would appear that methanol was included in the draft list only because it is a high production volume chemical. The occurrence data does cite 201,697,278 lbs/year in total releases according to the 2004 TRI report, but when you examine the TRI report in detail, a different picture emerges. First, total TRI on-site and off-site reported "disposed or otherwise released" figures have consistently fallen for the past 15 years, with 178,319,830 pounds reported in the 2006 TRI Report. Of this total, more than 83% are fugitive or point source air emissions and deposition to water bodies is not a factor. Only 0.022% of the total methanol is represented by "total off-site disposal or other releases." Further, the total quantity disposed of or otherwise released on- and off-site, represents just 0.07% of the total production-related waste managed for methanol, with the vast majority of methanol recycled or treated on- or off-site. By these metrics, there is only a minimal concern for methanol entering surface or ground-water resources.

In 1999, the Methanol Institute commissioned a study by Malcolm Pirnie, Inc. entitled "Evaluation of the Fate and Transport of Methanol in the Environment" (available at www.methanol.org). The purpose of this report was to summarize the existing information through a literature review of over 100 reports, as well as the use of computer modeling, to determine the fate of methanol in the environment. The researchers also explored three conceptual release scenarios, including tank truck or rail car release, barge release, and release from underground storage tanks at a refueling facility. This study found:

"The physical and chemical properties of methanol help to further define the fate and transport of this chemical in the various environmental media in the context of each of the conceptual release scenarios. The dominant mechanisms of methanol loss from subsurface soil and groundwater are expected to be biodegradation and advection (dispersion and diffusion) with little loss from adsorption on soils due to its high solubility and low retardation factor. In surface water, the infinite solubility of methanol will result in rapid wave-, wind-, and tide enhanced dilution to low concentrations (< 1%). Once concentrations have been diluted below toxic levels the dominant mechanism of methanol loss is expected to be biodegradation. Compared to other loss mechanisms identified, including volatilization and chemical degradation, biodegradation is expected to be the dominant process controlling the fate of methanol in the soil, groundwater, and surface water environments. In addition, the biodegradation of methanol can occur under both aerobic (oxygen present) and anaerobic (oxygen absent) conditions.

Therefore, following any of the three conceptual release scenarios presented, methanol is not likely to persist in soil or water due to its rapid biodegradation. Methanol is miscible in water and consequently will dissolve quickly and be diluted to low concentrations in the event of a surface water spill. In groundwater, methanol concentrations are highly dependent on the nature and the magnitude of the release, but will likely fall to

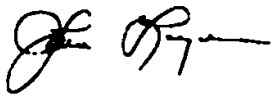
low concentrations once complete dissolution has occurred. In both surface and ground waters, methanol will likely be easily biodegraded under a wide range of possible water quality conditions."

These findings are consistent with the EPA's Evaluation Team's notation the methanol "biodegrades fast," and is generally considered to be environmentally benign. Further, over 200 wastewater treatment plants inject methanol into the treatment process for denitrification with no significant residual methanol in the effluent. With many of the nation's most sensitive estuaries being harmed by high nitrogen loading, methanol is playing an increasingly important role in helping to prevent and reverse the spread of "dead zones."

The Malcolm Pirnie study also addressed human health effects finding: *"Methanol's properties and toxicity are well understood, an the ocular toxicity and metabolic acidosis that are effects of acute high doses of methanol are well-known. Methanol is neither mutagenic, nor carcinogenic. While methanol produces toxic effects on humans and animals, the current evidence suggests that these effects only occur at high doses."* This report also focused on the potential use of methanol as a transportation fuel in comparison with gasoline and stated, *"In conclusion, the fate and transport of methanol in the environment is well understood. Methanol spills to the soil, groundwater, and surface water will quickly biodegrade under both aerobic and anaerobic conditions and, consequently, methanol is not expected to persist. Methanol exhibits a lower toxicity to both humans and indigenous microbes then conventional gasoline. Therefore, based on this analysis, methanol appears to be a more environmentally benign fuel compared to conventional gasoline."*

In conclusion, we would encourage the Agency not to include methanol on the final Contaminant Candidate List 3. The Attribute Score for methanol – when explored in detail – would indicate that methanol has a low risk for human health impacts and that there is very little concern that methanol would impact finished water systems or ambient water. While methanol is an essential chemical for the U.S. economy, a detailed review of the Toxics Release Inventory demonstrates that methanol does not pose an environmental threat. Since the half-life for methanol in groundwater and surface water is just one to seven days, methanol is not a persistent contaminant. We appreciate this opportunity to provide our comments, and would be pleased to address any questions you may have regarding this statement.

Sincerely,



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