

HSIA

HALOGENATED SOLVENTS INDUSTRY ALLIANCE

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Ms. Maureen O'Neill
Office of Water Resources
Louisiana Department of Environmental Quality
625 North Fourth Street
Baton Rouge, LA 70802-0625

O.p. Units
Lulu Charles
Water Quality St.

Dear Ms. O'Neill:

The Halogenated Solvents Industry Alliance (HSIA) represents producers, distributors, and users of chlorinated cleaning solvents, including tetrachloroethylene (perchloroethylene), trichloroethylene, carbon tetrachloride, and chloroform. HSIA requests that the following comments be considered in preparation of the final Louisiana Water Quality Standards for surface waters.

1. Tetrachloroethylene and trichloroethylene should not be regulated as carcinogens. Unit risk estimates developed by the federal Environment Protection Agency (EPA) are not an appropriate means for establishing regulatory standards or guidelines for these solvents. While unit risk estimates may be useful as a means of comparing possible carcinogenic potencies, it is important to recognize that they do not reflect a determination that a substance actually poses a cancer risk to humans, particularly for substances for EPA categories B and C. Calculation of quantitative estimates of cancer risk is not premised on a determination that a substance will cause cancer in humans.

Indeed, tetrachloroethylene is considered "possibly carcinogenic to humans" (but not "probably carcinogenic to humans") by the International Agency for Research on Cancer (IARC). The evidence for trichloroethylene is considered inadequate even to merit IARC classification as "possibly carcinogenic to humans." HSIA, consequently, recommends that water quality standards for tetrachloroethylene and trichloroethylene be based on chronic (non-cancer) toxicity data, rather than carcinogenic risk estimates.

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2. Use of the 10^{-6} Risk Level for calculating human health criteria for probable carcinogens is overly conservative. The unit risk numbers developed by EPA employ the linearized multistage model. EPA has stated in its final Guidelines for Carcinogen Risk Assessment:

It should be emphasized that the linearized multi-stage procedure leads to a plausible upper limit to the risk that is consistent with some proposed mechanisms of carcinogenesis. The true value of the risk is unknown and may be as low as zero.
(51 Federal Register 33997-33998, September 24, 1986)

The EPA human health criteria for chemical substances having known or suspected carcinogenic potential establish an estimate of risk ranging from 10^{-5} to 10^{-7} . The proposed ambient water quality standards for water designated as public water supplies are based on an incremental cancer risk level of 10^{-6} . However, EPA recognizes that it is unnecessary to apply the same human health criteria associated with public water supplies to water bodies not being used as sources of drinking water.

The designation of water for both primary and secondary contact recreational use does not require the full implementation of human health criteria as would be necessary for the protection of a public water supply. The ingestion or absorption of chemicals from contact recreational use of a water body is nowhere near as great as might result from the lifetime daily consumption of two liters of drinking water. Since the potential health risk is related to the exposure potential, waters designated for primary and secondary contact recreational use do not need the level of protection required for waters designated as a public water supply.

A number of states, including those in the Great Lakes region, have adopted a risk level of 10^{-5} as the basis for water quality standards. Moreover, California has adopted 10^{-5} as the basis for establishing no significant risk levels under the California Safe Drinking Water and Toxic Enforcement Act (Proposition 65). This risk level (10^{-5}) is a more appropriate basis for establishing risk-based regulatory levels for compounds considered by the state to be known or probable human carcinogens.

3. Louisiana Human Health Criteria should not be more conservative than EPA Gold Book Criteria for a stated risk level. Use of more conservative assumptions than employed by EPA has resulted in human health criteria much lower than those recommended in EPA's "Gold Book" (EPA 440/5-88-001).

The revised assumption of 6.5 grams/day for the consumption of contaminated fish is more appropriate than the value contained in the previous draft. For water accidentally ingested while swimming, however, the EPA recommended value of 2.5 milliliters per day, or ml/day, (1988 EPA Superfund Exposure Assessment Manual) should be used instead of the current value of 89 ml/day. The value of 89 ml/day is based on a person swimming 5 days/week for 6 months of each year in a 70 year lifespan.

4. The proposed health criteria for public water supply sources are more conservative than EPA Drinking Water Standards. It is unreasonable and unnecessary that the Louisiana human health criteria for stream segments that are designated for use as a public water supply be more stringent than federal maximum contaminant levels (MCLs). Although it may be a desirable goal, it is unrealistic to assume that one can directly drink from a public drinking water supply. Accordingly, there is no justification for establishing water quality standards that are more stringent than drinking water standards.
5. Water Quality Standards should not be set at concentrations below the Method Detection Limit (MDL) for EPA-approved methods that have been developed and validated with intra- and inter-laboratory studies (e.g., EPA Methods 624-625 or the 601-612 series). The numerical criteria proposed by the state for some toxic organic pollutants are below their MDLs by the 624 and 625 methods, particularly for chloroform and carbon tetrachloride.

Moreover, at the limit of detection, an analyst can only say whether or not a compound is present, not at what concentration. The American Chemical Society (ACS) recommends that the limit of detection be three times the standard deviation of the background noise level. Not until the limit of quantitation concentration is reached can one begin to reliably measure the amount of the compound. ACS recommends that the quantitation limit be at least ten times the standard deviation of the background noise level. For instance, given that the detection limit is 10 parts per billion, or ppb, (based on the Method 624 minimum levels), the quantitation limit would be at least 33 ppb. In practical terms, then, the analyst cannot reliably determine that the system is not in compliance until a concentration level of at least 33 ppb is present.

Even the 10-ppb limit of detection is applicable only to low interference samples. At the low concentrations proposed by the state, considering the analytical variability,

uncertainty, and sensitivity of the methodologies, data submitted for model validation would be highly subject to false positives as well as questionable quantification.

6. Aquatic life protection criteria should not be based on acute or chronic toxicity studies in which carrier solvents have been used to enhance solubility of the pollutant being tested. A review of such studies strongly suggests that the carrier solvents interfere with the integrity of the test results by synergistic or other potentiating mechanisms. For example, EPA's recommended marine Acute Criteria for trichloroethylene and tetrachloroethylene, derived from studies in which triethylene glycol (TEG) was used as a carrier solvent, are much lower than their freshwater Acute Criteria, derived from studies in which no TEG carrier was used.

The LC₅₀ for trichloroethylene does not represent the true lethality of this substance. Rather, it represents a concentration at which behavioral effects are noted. The LC₅₀ which represents lethality should be the basis of an aquatic standard. Therefore, HSIA recommends the use of alternative data that results in a marine Acute Criteria of 1400 micrograms per liter (ug/l) instead of the proposed 200 ug/l.¹ Alternative criteria also should be selected for tetrachloroethylene and any other pollutants where aquatic life criteria were developed from tests involving carrier solvents.

7. It is premature for the standards to address criteria for sediments since EPA has not yet issued sediment criteria. The State of Louisiana should wait for EPA to issue guidelines for sediment criteria before making any statements about sediments. Moreover, the reference to the presence of substances in sediments in quantities that will "measurably increase" health risks (Section 1113.B.5) requires clarification.
8. The ZID and Mixing Zone Determination guidelines are unclear and appear to leave many decision-making criteria unaddressed and to the discretion of the state. For categories #1 through #4, the mixing zone rules under Section 1115.D. imply that the General Morphometry of MZs and ZIDs cannot be calculated or empirically determined. If one cannot determine the morphometry of MZs or ZIDs, it would appear difficult or impossible to enforce the prohibitions under Section 1115.D.5.

¹Ward, G.S., Tolmsoff, A.J., and Retrocelli, S.R., Acute toxicity of trichloroethylene to saltwater organisms, Bull. Environ. Contam. Toxicol. (1986), 37:830-836.

9. The 7Q₁₀ flow value is an inappropriate statistic to in performing mixing zone and ZID calculations. The geometric mean flow value, or perhaps the 30Q₂, would better represent low flow conditions as the basis for MZ or ZID calculation.
10. Numeric Water Quality Criteria should not be applicable in streams below a statistical low-flow cut-off level representing extreme drought conditions. Application of the water quality standards under drought conditions would be unreasonable for a discharger located on a small stream. Some consideration must be given to those situations where the natural dilution effect is diminished due to drought. To do otherwise would require the discharger to have an effluent quality that meets or closely approximates the water quality standard, which is not possible.
11. The proposed standards give DEQ staff considerable discretion in interpreting what constitutes "unacceptable degradation," and too much authority in determining what constitutes an acceptable toxics testing program for a discharger, and in interpreting toxicity test results. Limits should be established on the DEQ's discretionary power under the proposed Implementation Plan for Antidegradation Policy and the term "unacceptable degradation" requires clear definition. Moreover, the successful implementation of the proposed water quality standards should include technical input from the regulated community to accomplish the desired goals in a timely and effective manner.

HSIA appreciates the opportunity to comment on the proposed Louisiana Water Quality Standards for surface waters. Please contact me if you have questions about the above comments or require additional information.

Sincerely,

Paul A. Cammer

Paul A. Cammer, Ph.D.
President