

March 22, 2022

Comments on the Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0

Submitted online via Regulations.gov to docket EPA-HQ-OPPT-2021-0415

These comments are submitted on behalf of the undersigned scientists. We declare collectively that we have no direct or indirect financial or fiduciary interest in the subject of these comments. The co-signers' institutional affiliations are included for identification purposes only and do not imply institutional endorsement or support unless indicated otherwise.

We appreciate the opportunity to provide comment on EPA's "*Draft Toxic Substances Control Act (TSCA) Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0*" (Fenceline Screening Methodology).¹ We also appreciate that EPA provided a deadline extension to submit comments and support the Agency's decision to revisit and evaluate the previous Administration's exclusions of exposures to communities surrounding polluting facilities.

When the Fenceline Screening Methodology came out In January 2022 we were deeply troubled that the comment period was so short (less than 60 days) to review a 200+ page document. Additionally we were concerned that, for an item directly impacting the lives of communities of color and/or low-wealth communities, the methodology was not accessible to community experts. Thus we and other groups submitted comment requesting that the deadline be extended, that EPA provide a non-technical summary and conduct targeted outreach to impacted communities for feedback.

Agencies such as EPA must actively seek technical guidance from communities when developing improved screening tools to build a comprehensive understanding of the cumulative and disproportionate impacts of chemicals. This is why it is integral that EPA provide community-specific explanations of the data and technical analysis in its Fenceline Screening Methodology to impacted communities. Additionally, many impacted communities do not know that they are in fact impacted. In line with its stated goals on environmental justice, EPA

¹ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

must use its resources to pursue a robust outreach strategy informing communities and seeking their expertise on this Fenceline Screening Methodology.²

Upon reviewing the Fenceline Screening Methodology, we found a series of methodological and logistical decisions that, if finalized, would cause the Fenceline Screening Methodology to systematically underestimate risk. This underestimation would cause EPA to fail to meet its mandate to make decisions about chemical risks based on the “best available science, “adequate information” and “weight of the scientific evidence”³ and would adversely impact the health of communities that this document is explicitly stating it wants to support. However, there are many things that we identify below, such as health-protective default adjustment factors and using existing data and models to their fullest capacity, that EPA can incorporate immediately to improve this approach’s ability to protect fenceline populations. Additionally, using the best available science, as required by TSCA, to address risks from the combinations of activities means that EPA must quantify the aggregate exposures and cumulative risks. We also strongly recommend that EPA not only submit the methodology to the SACC for peer review, but also submit it to the National Environmental Justice Advisory Council, the White House Environmental Justice Advisory Council, and the Children’s Health Protection Advisory Council, as these are topics directly under their purview.

Our comments on screening methodology address the following main issues:

- 1. EPA has still not taken steps to make its Fenceline Screening Methodology accessible to impacted communities.**
- 2. The objectives of EPA’s Fenceline Screening Methodology and its case studies are unclear.**
- 3. EPA’s definition of Fenceline Communities and considered exposure pathways are overly narrow and severely limits the impact of the Fenceline Screening Methodology.**
- 4. The Fenceline Screening Methodology must consider aggregate exposure within and across populations, otherwise it will fail to account for many exposures to fenceline communities and underestimate risk.**
- 5. EPA’s approach does not make use of all relevant emissions data in the Agency’s possession for chemicals subject to risk evaluation that are also hazardous air pollutants, such as methylene chloride**
- 6. EPA’s approach to “distilling” model results for risk characterization hides the highest modeled ambient concentration estimates and the highest risks.**

² US EPA. (2020). EJ 2020 Action Agenda: EPA’s Environmental Justice Strategy Available: <https://www.epa.gov/environmentaljustice/ej-2020-action-agenda-epas-environmental-justice-strategy>

³ 15 USC §2625 (h)-(i) and 15 USC §2601 (b)(1)

7. EPA's statements that its estimates are "conservative" and may "overestimate" risk are not scientifically supported, and key elements of its proposed approach are likely to underestimate ambient concentrations.

We appreciate the opportunity to provide public input. Please do not hesitate to contact us with any questions regarding these comments.

Sincerely,

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DETAILED COMMENTS

1. EPA has still not taken steps to make its Fenceline Screening Methodology accessible to impacted communities.

EPA's Fenceline Screening Methodology is critically important to its activities under amended TSCA and its commitments to environmental justice. This methodology will guide EPA's calculations about – and ultimate decision-making around – the human health risks of chemical exposures in the communities where toxic chemicals are manufactured, used, disposed, and released. This is both crucial to fulfill EPA's commitments to environmental justice and its mandate under amended TSCA to address risks to PESS, and consistent with EPA's activities during the first 10 risk evaluations.^{4,5} EPA must work to build a more complete, “whole fabric” understanding of health effects of environmental exposures to chemicals, putting a special focus on understanding overlapping risks.

While preparing this Fenceline Screening Methodology, EPA identified impacted communities and calculated community risks associated with three chemicals.⁶ Although these risks affect hundreds of communities across the country, the current document fails to identify these communities or the polluting facilities putting them at risk and explicitly states that “All case study chemicals included in this work are presented for illustrative purposes only to demonstrate the applicability and efficacy of the proposed methodology.”⁷ EPA should identify and reach out to these communities for information regarding their exposures as it will provide critical knowledge and not only empower these communities, but allow EPA to ground-truth its modeling data and assumptions, leading to more comprehensive and accurate assessments.

The lack of ground truthing of data with impacted communities is part of a larger pattern of conducting assessments that do not account for the scientific and real-world human exposures and experiences in communities. Identifying and evaluating on-the-ground experience in communities will provide the critical scientific data to characterize multiple pollutants from multiple sources through multiple exposure pathways, along with interacting influences on risk, like stress. Community participation would also build trust and ameliorate frustrations due to

⁴ US EPA. (2020). *Nontechnical Summary of the Risk Evaluation for Methylene Chloride*. Available: https://www.epa.gov/sites/default/files/2020-06/documents/mc_final_re_nontechnical_summary.pdf.

⁵ US EPA. (2020). *Nontechnical Summary of the Risk Evaluation for Trichloroethylene*. Available: https://www.epa.gov/sites/default/files/2020-11/documents/tce_nontechnical_summary_finalre.pdf.

⁶ The chemical “case studies” included in the Fenceline Assessment Methodology are for methylene chloride, 1-bromopropane, and N-Methylpyrrolidone.

⁷ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 10 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

lack of community participations in decision-making while experiencing the burden of these exposures.

Without community input EPA cannot fully and scientifically show whether the case studies (and thus its methodology) are applicable or effective. It is critical that EPA recognize that community residents are the experts concerning environmental conditions in their communities. The scientific needs of communities cannot be met if issues related to environmental justice, equity, and transparency are not addressed as well.⁸ A final version of this methodology must inform and incorporate the feedback of the communities used as case studies, rather than just report their exposures.

Further comments around these issues can be found in more detail in our letter to Dr. Alaa Kamel. (Appendix 1)

2. The objectives of EPA's Fenceline Screening Methodology and its case studies are unclear.

Presentation of this proposed screening methodology is an important step by EPA toward ensuring that its TSCA risk evaluations appropriately consider risks to fenceline communities. However, EPA is not clear regarding what it means by "screening level approach" in the context of understanding fenceline community risks and does not clearly state the objectives of the methodology and the case studies. Further, EPA does not discuss how its "screening" approach differs from an implied more-refined approach. It is important that EPA address these points to create clear expectations for the information that would be provided by the proposed methodology, and to inform reviewers in considering the merits of the proposed approach in comparison to alternative approaches that are available to the Agency.

An important question for this method to answer is "What are the ambient concentrations of the chemical at various individual locations near emitting facilities?" However, at present, EPA's approach is not designed to address this question. Instead, the method seems to be addressing "What are typical ambient concentrations of the chemical across various locations resulting from emissions from individual facilities assigned to each specified occupational exposure scenario?" EPA's approach does not consider how multiple facilities may contribute to ambient concentrations of a chemical in a community, i.e. aggregate exposure, and (as detailed below) the summary statistics reported from the modeling do not present ambient

⁸ Sullivan, J.; Croisant, S.; Howarth, M.; Subra, W.; Orr, M.; Elferink, C. Implications of the GC-HARMS Fishermen's Citizen Science Network: Issues Raised, Lessons Learned, and Next Steps for the Network and Citizen Science. *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy* 2019;28:570-598

concentration values from individual model receptor locations but instead compile and combine results from multiple receptors.

EPA should revise its methodology to determine aggregate ambient concentrations of chemicals at individual receptor locations in fenceline communities. This revision would not require a major overhaul of the methodology, but a re-orientation of some steps in the approach as follows:

- Reduced effort to “map” TRI facilities to OES categories. While this exercise can be useful for identifying gaps in the emissions data (i.e. categories of facilities without data), the relationship of the modeled ambient concentrations to particular industry categories is less important for an initial stage of analysis. In instances where environmental concentrations of chemicals are found to pose additional risks to fenceline communities, further analysis can then be conducted if necessary to identify particular industry categories that are drivers of that risk.
- Utilize all emissions data available to the Agency, including data assembled by the Office of Air and Radiation (OAR), instead of relying primarily on industry-reported TRI data. Even for chemicals being evaluated under TSCA that are not hazardous air pollutants, OAR emissions inventories may provide useful information (e.g. facilities in particular industry categories, criteria air pollutant emissions data, etc.) to inform emissions estimation.
- Model the ambient concentrations resulting from emissions from multiple sources that may affect a fenceline community, regardless of conditions of use or occupational exposure scenarios. In other words, estimate the actual ambient concentration experienced in fenceline communities rather than concentrations related to individual facilities. In instances where there are multiple facilities in a community that emit the same chemical, this would reduce the number of model runs required by the current methodology in which the model is run separately for each facility. Modeling total ambient concentrations also makes feasible the evaluation of the screening methodology’s outputs by comparison to monitored concentrations, where available.
- Use the model outputs for individual receptor locations to determine whether there are fenceline communities with ambient concentrations posing an additional risk.

3. EPA’s definition of Fenceline Communities and considered exposure pathways are overly narrow and severely limits the impact of the Fenceline Screening Methodology

EPA’s Fenceline Screening Methodology defines fenceline communities as:

“Members of the general population that are in proximity to air emitting facilities or a receiving waterbody, and who therefore may be disproportionately exposed to a chemical undergoing risk

evaluation under TSCA section (6). For the air pathway, proximity goes out to 10,000 meters from an air emitting source. For the water pathway, proximity does not refer to a specific distance measured from a receiving waterbody, but rather to those members of the general population that may interact with the receiving waterbody and thus may be exposed.”⁹

The document later states *“This work does not include proposed methodology for other pathways previously not assessed (e.g., disposal, land use, groundwater-derived drinking water sources like wells, fish consumption) in published risk evaluations.”¹⁰*

Given EPA’s requirements under TSCA to consider “the manufacture, processing, distribution in commerce, use, or disposal of a chemical substance or mixture, or any combination of such activities,”¹¹ which have been reaffirmed by the courts¹², the Fenceline Screening Methodology’s inability to define and incorporate real-world exposures pathways via groundwater and disposal will hinder its ability to meet its statutory requirement to account for and ultimately eliminate unreasonable risks to fenceline communities (which are PESS as they are highly exposed). Failure to craft an explicit and robust definition of fenceline communities will lead to underestimated or unidentified risk.

As it stands, EPA’s current definition and scope are overly narrow, ignoring groundwater and limiting its water pathway to only surface water releases, which is ill-defined as it doesn’t account for rainwater runoff or other flooding events, and excluding many ways that communities are exposed to toxic chemicals such as via disposal. EPA’s wholesale exclusion of critical exposure pathways from the Fenceline Screening Methodology such as groundwater-derived drinking water sources is concerning, particularly as two of its case study chemicals, methylene chloride and n-methylpyrrolidone (NMP), are known groundwater contaminants and were identified as such by EPA in the risk evaluations.^{13,14} In fact, many of the first 10 chemicals considered for risk evaluation under EPA (1,4-dioxane, perchloroethylene, trichloroethylene,

⁹ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 9 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

¹⁰ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 10 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

¹¹ §2605 (d)(3)(A)(i)(I)

¹² *Safer Chemicals, Healthy Families v USEPA* (2019). No. 17-72260 (9th Cir. Nov. 14, 2019). Pg. 53. “EPA’s contention that TSCA can reasonably be read to refer to the future use of a product, and disposals associated with such use, only when the product will also be manufactured in the future for that use—and not when the product is no longer manufactured for the relevant use—is without merit. TSCA’s “conditions of use” definition plainly addresses conditions of use of chemical substances that will be used or disposed of in the future, regardless of whether the substances are still manufactured for the particular use.”

¹³ US EPA. (2019). Toxic Substances Control Act (TSCA) Science Advisory Committee on Chemicals Review of Risk Evaluation for Methylene Chloride. Comment submitted by Swati Rayasam, Science Associate, Program on Reproductive Health and the Environment, University of California, San Francisco (UCSF PRHE) et al. Available: <https://www.regulations.gov/document?D=EPA-HQ-OPPT-2019-0437-0069>

¹⁴ US EPA. (2020). Meetings: N-Methylpyrrolidone; Draft Toxic Substances Control Act (TSCA) Risk Evaluation and TSCA Science Advisory Committee on Chemicals. Comment submitted by Veena Singla, Associate Director, Program on Reproductive Health and the Environment, School of Medicine, University of California, San Francisco. Available: <https://www.regulations.gov/document?D=EPA-HQ-OPPT-2019-0236-0040>

carbon tetrachloride) are groundwater contaminants. The approach's inability to incorporate this pathway will leave many communities, particularly fenceline communities with subsistence fishers and tribal populations, unaccounted for. EPA also fails to consider the disposal pathway, even though communities that are targeted for polluting industry sites share many of the same sociodemographic factors as communities targeted for hazardous waste sites: they are disproportionately Black and/or impoverished. Again EPA's overly narrow scope on exposure pathways of consideration will again, only lead to underestimated or unidentified risk.

4. The Fenceline Screening Methodology must consider aggregate exposure within and across populations, otherwise it will fail to account for exposures to fenceline communities and underestimate risk.

To accurately account for real-life exposures, EPA needs to aggregate exposures across exposure pathways. EPA's Office of Pesticide Programs has described the concept of assessing aggregate exposures as "the risk cup," where every use of a chemical contributes to filling the cup.¹⁵ The Agency can only determine if risks exceed levels of concern, that is whether the risk cup is full or overflowing, by adding together all contributing exposures and taking into consideration extrinsic and intrinsic factors which contribute to vulnerability. However, if known chemical uses and exposures are ignored, the cup levels will be an underestimate of the true risk posed, suggesting that risks are below levels of concern when in reality the cup might be full or overflowing. This is compounded by the fact that the population is not only exposed to a single chemical through multiple pathways, but that they are exposed to mixtures of *multiple* chemicals (disclosed or undisclosed due to CBI) through *multiple* pathways. These chemicals may present human health hazards both individually and compounding health hazards additively and/or synergistically. Not considering cumulative risk also underestimates risk. By examining the risk of an adverse outcome for fenceline communities from exposure to a single chemical, EPA overlooks how that chemical can contribute to that outcome from joint exposure with other chemicals, and other stressors.

However, on page 11 of the Fenceline Screening Methodology, EPA says that it is "not providing a proposed methodology for conducting screening level analyses for aggregate/cumulative exposures in this work. However, EPA believes the design of the proposed methodology presented in this work is sufficiently flexible to allow addition of expanded capacities to evaluate concepts like aggregate/cumulative exposures."¹⁶

¹⁵ US EPA (January 31, 1997) PRN 97-1: Agency Actions under the Requirements of the Food Quality Protection Act. Available: <https://www.epa.gov/pesticide-registration/prn-97-1-agency-actions-under-requirements-food-quality-protection-act#risk>

¹⁶ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 11 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

It is critical to note that the fenceline communities that this methodology is seeking to address are the communities that are most likely to experience aggregate and cumulative exposures to both chemical and non-chemical stressors. These are the communities where industries site their facilities disproportionately due to low land value, these are the communities who often depend on those same facilities for economic security, and these are also the communities who are likely to be disproportionately low-wealth and/or Black, brown or Indigenous. Thus if the Fenceline Screening Methodology continues to exclude aggregate and cumulative exposures, it will ultimately underestimate the risk to these communities.

Amended TSCA provides the ability to aggregate exposure of a single chemical across all sources, uses, pathways and exposure settings to determine whether it poses an unreasonable risk. At present, EPA's approach is facility-by-facility and chemical-by-chemical, and contrary to the Agency's assertion, the Fenceline Screening Methodology is overly narrow and restrictive. It is also unclear how EPA plans to incorporate these concepts into the more refined methods that may be proposed in the future. Using the best available science, as required by TSCA, to address risks from the combinations of activities means that EPA must quantify the aggregate exposures and cumulative risks. Additionally, there are existing published case studies that EPA can use to inform the development of these methods.¹⁷ In the interim if EPA wants to take action to address unreasonable risk to fenceline communities and other PESS, then it must immediately incorporate health-protective default adjustment factors.

5. EPA's approach does not make use of all relevant emissions data in the Agency's possession for chemicals subject to risk evaluation that are also hazardous air pollutants, such as methylene chloride

EPA's Toxics Release Inventory (TRI) provides annual information on the emissions and management of more than 700 toxic chemicals.¹⁸ While the TRI is a useful tool, it has significant limitations. For example, in order for chemicals to be reported on the TRI, the facility has to meet **all** of the TRI reporting criteria, which is to:

- Have 10 or more full-time employees; **and**
- Have its primary NAICS code included on the TRI list (or be a federal facility); **and**
- Manufacture, process, or otherwise use a TRI-listed chemical; **and**
- Exceed any of the thresholds for a TRI chemical or chemical category.

¹⁷ Pullen Fedinick K, Yiliqi I, Lam Y, Lennett D, Singla V, Rotkin-Ellman M, Sass J: A Cumulative Framework for Identifying Overburdened Populations under the Toxic Substances Control Act: Formaldehyde Case Study. *Int J Environ Res Public Health* 2021, 18(11).

¹⁸ US EPA. Toxics Release Inventory (TRI) Program. Available: <https://www.epa.gov/toxics-release-inventory-tri-program>

If the facility does not meet any one of these criteria, it is not required to report to the TRI.¹⁹ This is a limitation around database robustness as the TRI only contains data around certain chemicals and certain industries. Beyond these criteria-based limitations, all of the data on the TRI is reported by facilities. While EPA regularly conducts quality control, self-reported data is a limitation to data quality.

EPA also says that it did not use the 2017 National Emission Inventory (NEI), prepared by EPA's Office of Air and Radiation (OAR), because TRI data for 2019 were more current.²⁰ EPA's explanation disregards the extensive information in the NEI that goes far beyond TRI.

The NEI incorporates emissions data provided to EPA by state, local and tribal air quality agencies, and data gathered by EPA to support development of CAA regulatory standards.²¹ These data are much more extensively scrutinized and validated than the industry-submitted TRI data; furthermore, EPA's Fenceline Screening Methodology reveals that there are extensive gaps in the coverage of the TRI data, which could potentially be filled with use of the NEI. It also shows that only using the TRI data will underestimate emissions and exposures to toxic chemicals and thus underestimate risks.

6. EPA's approach to "distilling" model results for risk characterization hides the highest modeled ambient concentration estimates and the highest risks.

EPA's approach to estimating ambient air concentrations of chemicals in fenceline communities involves estimating the dispersion of emissions from a specified point location to a number of model "receptors" representing various locations near the emissions source. Patterns of dispersion are estimated considering meteorology data such as wind speed and direction. EPA explains the model receptors as follows:

EPA modeled exposure concentrations at 8 finite distances from a releasing facility (5, 10, 30, 60, 100, 2,500, 525 5,000 and 10,000 meters) and one area distance from a releasing facility (100-1,000 meters) in a series of concentric rings around the facility.²²

All modeling scenarios utilized a region of gridded receptors placed around a ring/radial at varying distances from the facility being modeled. Receptors were placed every 22.5

¹⁹ US EPA. Basics of TRI Reporting. Available: <https://www.epa.gov/toxics-release-inventory-tri-program/basics-tri-reporting>

²⁰ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 21 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

²¹ US EPA. (2021). 2017 National Emissions Inventory: January 2021 Updated Release, Technical Support Document. Available: epa.gov/sites/default/files/2021-02/documents/nei2017_tsd_full_jan2021.pdf

²² US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 31 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

degrees (starting due north of the facility) around each ring resulting in 16 receptors around each ring.²³

For the “area” of receptors, receptors were regularly spaced at 100-m intervals every 22.5 degrees in all directions within the area between 100 m and 1,000 m from the facility, which is necessary to average the modeled concentrations across the area.²⁴

All receptors were set at 1.8 m above ground, as a proxy for breathing height of an average receptor.²⁵

EPA used the 10th, 50th, and 95th percentile estimated concentrations for each facility (and each alternative release estimate) at each distance evaluated for risk calculation purposes.²⁶

For the eight finite distances, EPA modeled ambient concentrations at a total of $8 \times 16 = 128$ distinct model receptors around each emitting facility. For the area between 100 - 1,000 meters, an additional 9 distances are modeled, for additional $9 \times 16 = 144$ distinct model receptors. Thus, a total of 272 receptor locations are modeled for each facility.

However, EPA does not use the modeled concentrations at any of these 272 individual model receptor locations in determining whether there is an “additional risk” to fenceline communities. Instead EPA “distilled” the results from the individual receptors to combine the data at each distance modeled. For example, Table 3-6 presents a compilation of 95th percentile modeled concentrations for 1-bromopropane. Included is a “maximum” daily average concentration for each source category, at each modeled distance – such as 9.53E-02 for the degreasing OES at the distance of 100 meters. This value, however, is not the maximum daily concentration modeled for the OES at any of the 16 model receptors at the 100 meter distance around each of the 34 facilities in the category. Although EPA’s description of its approach is lacking in detail, it appears that the distillation of data consists of these steps:

- For each facility, compile all of the daily values for each of the 16 directions ($365 \times 16 = 5,696$) at each distance (e.g. 100 meters) distance into a single data set
- Compute the 95th percentile of the 5,696 values for each facility for each distance (not each receptor)

²³ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 36 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

²⁴ Id. pg. 37

²⁵ Id. pg 37

²⁶ Id pg.39

- Compare the 95th percentile values at each distance across all of the facilities in the OES to identify the highest 95th percentile for each distance.

EPA has thus hidden the actual maximum daily concentration in two ways. First, it has combined the 16 receptors at each distance (e.g. 100 meters) into a single data set, rather than considering each receptor separately. This is scientifically inaccurate because concentrations may vary considerably by direction – for example, concentrations at 100 meters due east of a facility may be much greater than concentrations at 100 meters due west of the same facility if prevailing winds blow from west to east. Therefore, the 95th percentile value for a specific distance could be much less than the 95th percentile value at a single receptor. Second, EPA has chosen the 95th percentile concentration as its summary statistic, rather than the maximum concentration, with no justification. EPA’s goal should be to determine if there is an “additional risk” for any community – which requires looking at the maximum concentration at any receptor, and identifying all receptor locations where the modeled concentration exceeds the hazard benchmark values. Even the maximum concentration may underestimate actual risk to fenceline communities, due to possible underestimation of emissions.

In addition, the utility of EPA’s approach to modeling of the “area” from 100-1,000 meters is also unclear and not scientifically justified. There is substantial utility in conducting modeling for receptors in the 100-1,000 meter range - especially since the 8 finite distances described above do not include any receptors between 100 and 2,500 meters - but EPA averages the modeled concentrations from all of these receptors to produce a single average daily value. Given that there may be substantial variability across the receptors by both distance and direction, the interpretation of an average across all receptors in the 100-1000 meter range is uncertain; again, values for individual receptors would be much more informative and scientifically appropriate regarding risk to the fenceline community. In addition, the Figure 2-8 adds to the confusion regarding this aspect of the methodology, as the illustration is substantially different from the text description; the illustration does not depict concentric rings and does not depict 16 receptor directions for each distance. Further, EPA’s assumption of flat terrain does not consider meteorological factors that govern ambient air pollution, and it is not clear why EPA has taken the path of assuming a flat terrain when AERMOD elevation data and USGS elevation data would be reasonably available. EPA also assumed a receptor height of 1.8m, which is the average height of a male adult, however this fails to account for the exposure of children.

- 7. EPA’s statements that its estimates are “conservative” and may “overestimate” risk are not supported, and key elements of its proposed approach are likely to underestimate ambient concentrations.**

In several places, EPA asserts that its proposed screening level methodology incorporates conservative assumptions and provides conservative estimates of risk, in the sense of being more likely to overestimate than underestimate. EPA provides little or no scientific justification for these statements, and there are many scientific reasons while EPA's approach will underestimate risk. As noted above, EPA's approach underestimates risk by not modeling actual ambient concentrations considering the combined contributions of all emissions sources, but rather sub-divides the emitters into industry categories and models each of these categories, and the individual facilities in these categories separately.

In addition, EPA asserts that the release parameters used for modeling concentrations are conservative:

stack emissions released from a point source at 10 meters above ground from a 2-m inside diameter stack, with an exit gas temperature of 300 °Kelvin and an exit gas velocity of 5 m per second (see Table 6 of the IIOAC User Guide). EPA acknowledges these stack parameters represent conservative plume characteristics which resemble a slow-moving, low-to-the-ground plume with limited dispersion but believe are appropriate for screening level purposes.

Fugitive emissions were modeled using a release height of 3.05 m above ground from a square area source 10 m on a side (see Table 7 of the IIOAC User Guide). These parameters are also conservative in that they represent fugitive sources relatively low to the ground with no buoyancy or momentum to the emissions.²⁷

EPA has not provided any scientific rationale or data for characterizing these assumptions as conservative. Given that EPA later reports that modeled concentrations from stack emissions are consistently orders or magnitude lower than the concentrations from fugitive emissions, it is clear that no findings of "additional risk" in fenceline communities may be attributed to any possible conservatism in stack release parameters. Regarding the parameters for fugitive emissions, it seems reasonable rather than conservative to assume releases relatively close to the ground.

EPA also describes the risk estimates based on the 95th percentile values as "conservative:"

²⁷ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 33 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

Risk estimates in Table 3-9 are based on the 95th percentile values of modeled exposure concentrations around individual facilities, and the range of risk estimates covers all facilities under an OES.... 95th percentile values represent a conservative, screening-level analysis and may potentially overestimate chronic and/or lifetime cancer risks.²⁸

EPA does not present any scientific justification for this characterization or basis to think that the 95th percentile values – disregarding the highest five percent of concentrations – are overestimates of risk. EPA seems to be interpreting the 95th percentiles here as upper bounds representing uncertainty in the true concentrations, rather than a measure of variability representing relatively high (but not maximum) concentrations. In addition, as discussed above, these 95th percentiles are derived from a compressed distribution that has first aggregated together results for the 16 receptors at each distance, rather than the full distribution of model receptor locations, therefore excluding consideration of those most exposed and most at risk.

EPA’s approach to emissions estimation for facilities lacking TRI data is not conservative and may in many instances underestimate emissions, concentrations and risk by not accounting for significant uncertainty when making use of very limited data. For example, the category of spray adhesives is the one OES for which EPA did not find “additional risks” from 1-bromopropane. This is a category for which there was no TRI data. According to Table 3-4, EPA identified a contractor report reporting data for a single facility and assumed these data were representative and appropriate for representing this category in the screening-level methodology. The contractor report said that there were no fugitive emissions from this facility, with all emissions going through the stack. It seems highly unlikely that this category would have absolutely no fugitive emissions; Table 3-4 shows that no other OES had zero fugitive emissions of 1-bromopropane. Rather than assuming no fugitive emissions for this OES, which very likely underestimates ambient concentrations and risk, EPA should develop a non-zero estimate based on use of data for other OES as surrogates or based on expert engineering judgment. More generally, EPA should adopt a method to account for uncertainty in emissions estimates for categories with very limited data. As mentioned above, use of OAR emissions inventories and expertise may provide improved emissions estimates.

With regard to land use, EPA model also made assumptions around risk of exposure that were unsupported and could underestimate risk. EPA describes this aspect of the screening methodology as follows:

²⁸ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 89 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

EPA conducted a review of land use patterns around facilities where there was an indication of risk...Where the radial distances showing an indication of risk occur within the boundaries of the facility or is limited to uninhabited areas, EPA does not reasonably expect an exposure to fenceline communities to occur and therefore does not expect an associated risk.²⁹

First, EPA's assumption of its source of exposure comes from TRI-reported data, and the actual point within a facility at which the chemical is released is unknown. The Agency later acknowledges uncertainty in the release point: "This could shift the actual modeled exposure concentration from within the facility property-line to well outside of the facility property-line where fenceline communities may be exposed (e.g., the actual release point may be directly next to a residential community or school yard just outside the facility property-line)." ³⁰ Failure to account for this uncertainty could significantly impact the Fenceline Screening Methodology's ability to approximate both the existence of fenceline communities (as detailed below) and their risk, does not represent a conservative approach, and is a situation that could be ameliorated through community involvement in data gathering and ground truthing.

Second, looking only at zoning/permitting documents and aerial imagery analysis, EPA makes assumptions about land use (or lack thereof) that are unsupported. For example, the land use assumptions don't accommodate for unhoused populations who may be living in the areas that EPA considers "uninhabited." Similarly, EPA doesn't account for potential exposure to communities such as recreational hunters who may use the "uninhabited" ground. Again, this is a situation where EPA could inform its approach by drawing on community expertise regarding the reality of how spaces are used.

EPA's model assumptions for 1-bromopropane were also not conservative and underestimated risk to children and some workers. EPA indicates that "the emission rates for dry-cleaning operations were generated using EPA's dry-cleaning model (sections 2.3.1.16 and 4.3.1.6 of the *Risk Evaluation for 1-Bromopropane*). The data set contains nine emission scenarios, representing a variety of operational scales and conditions. The co-resident screening methodology for this work considered both dry-cleaning and spot cleaning operations, as applicable for the chemical undergoing risk evaluation."³¹

²⁹ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 39 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

³⁰ Id pg. 58

³¹ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 40 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

However, we submitted extensive comments which went unaddressed about the scientific inadequacy of EPA's model assumptions for 1-bromopropane and their impact on PESS in 2019.³² Therefore, we encourage EPA to review previous comments and SACC reports before using any model used in its previous risk evaluations for this Fenceline Screening Methodology (or other documents moving forward), and again to submit them for peer review.

Finally, EPA's discussed its drinking water exposure approach as follows:

Drinking water exposure was estimated for the following age groups: Adult (21+ years), Youth (16-20 years), Youth (10 to 15 years), Child (6 to 10 years), Toddler (1 to 5 years), and infant (birth to <1 year). For NMP, exposure was also estimated for pregnant females as a susceptible population. Drinking water intake rates are provided in the 2019 update of Chapter 3 of the EFH (U.S. EPA, 2019e). Weighted averages were calculated for acute and chronic drinking water intakes for adults 21+ and toddlers 1 to 5 years. From Table 3-17, 95th percentile consumer data were used for acute drinking water intake rates. From Table 3-9, mean per capita data were used for chronic drinking water intake rates. The intake rates from Table 3-3 were used for pregnant females in NMP exposure estimates.³³

Aside from our previously stated concerns around EPA's use of the 95th percentile (Point 6), its current model for drinking water exposure fails to account for important PESS, particularly for non-breastfeeding (or formula-fed) infants. Compared to infants who are breastfed, formula-fed infants are likely to have an increased drinking water intake, which means increased exposure. While the Agency references use of the Exposure Factors Handbook, and the increase water intake of formula-fed infants is represented in the EF handbook, it does not appear to be represented in EPA's Fenceline Screening Methodology (either in the narrative text or the associated excel spreadsheets referenced).³⁴ The exclusion of this highly susceptible and highly exposed group is troubling, particularly because the data sources the Agency is using for this approach have the capacity to meet that need, and does not represent a conservative or overestimating approach.

³² US EPA. (2019). Toxic Substances Control Act (TSCA) Science Advisory Committee on Chemicals Review of Risk Evaluation for 1-Bromopropane. Comment submitted by Swati Rayasam, Science Associate, Program on Reproductive Health and the Environment, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco et al. Available: <https://www.regulations.gov/document?D=EPA-HQ-OPPT-2019-0235-0053>

³³ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 49 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

³⁴ US EPA. (2022). 14. SF FLA Water Pathway Exposure Data for NMP. Available: <https://www.regulations.gov/document/EPA-HQ-OPPT-2021-0415-0028>

Appendix 1: Request for Comment Period Extension on “Draft Toxic Substances Control Act (TSCA) Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities” from Academics, Scientists, and Clinicians

Request for Comment Period Extension on “Draft Toxic Substances Control Act (TSCA) Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities” from Academics, Scientists, and Clinicians

Submitted online via Regulations.gov to docket EPA-HQ-OPPT-2021-0415 and via email to Dr. Alaa Kamel

February 1, 2022

Dr. Alaa Kamel
Designated Federal Officers
Office of Chemical Safety and Pollution Prevention
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001

Dear Dr. Kamel,

We respectfully request that EPA extend the public comment deadline for its recently released *“Draft Toxic Substances Control Act (TSCA) Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0”* (Fenceline Screening Methodology) by at least 30 days, from February 22, 2022, to March 24, 2022. Additionally we request that EPA – in line with the Agency’s and this Administration’s commitments to environmental justice – provide an accessible non-technical summary and conduct targeted outreach to impacted communities regarding this Fenceline Screening Methodology which will inform how EPA understands and interprets their environmental conditions.

We support EPA’s decision to revisit and evaluate the previous Administration’s exclusions of exposures to communities surrounding polluting facilities. However, to ensure that EPA’s new risk determinations reflect the real-world exposures that fenceline communities experience, EPA must inform them, and solicit and consider their input on this draft methodology. This is in line with President Biden’s memorandum on “Modernizing Regulatory Review,” stating that a good regulatory analysis should “take into account the distributional consequences of regulations, including as part of any quantitative or qualitative analysis of the costs and benefits of regulations, to ensure that regulatory initiatives appropriately benefit and do not inappropriately burden disadvantaged, vulnerable, or marginalized communities.”³⁵

³⁵ Presidential Memorandum, *Modernizing Regulatory Review*, § 2(b)(i) (Jan. 20, 2021).

This letter is submitted by the University of California, San Francisco's Program on Reproductive Health and the Environment (UCSF PRHE) on behalf of the undersigned academics, scientists, and clinicians. We declare collectively that we have no direct or indirect financial or fiduciary interest in the subject of these comments. The co-signers' institutional affiliations are included for identification purposes only and do not imply institutional endorsement or support unless indicated otherwise.

This letter addresses the following main issues:

- 1. EPA must extend the public comment period by at least 30 days.**
- 2. EPA must make its Fenceline Screening Methodology accessible and known to impacted communities.**
 - a. EPA must publish a non-technical summary document of the Fenceline Screening Methodology.**
 - b. EPA must conduct targeted outreach to impacted communities to brief them on the Screening Methodology and inform them of the current comment period.**

We appreciate the opportunity to provide input. Given the approaching comment deadline, we appreciate your prompt response to this request. Please do not hesitate to contact us with any questions regarding this request.

Sincerely,

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**Indicates Institutional Support*

DETAILED COMMENTS

1. EPA must extend the public comment period by at least 30 days.

The Fenceline Screening Methodology is an integral piece of EPA's risk evaluation process under amended TSCA, specifically EPA's mandate to address the impacts of chemical exposures on potentially exposed or susceptible subpopulations (PESS). PESS is defined in TSCA section 3(12) as:

"...a group of individuals within the general population identified by the Administrator who, due to either greater susceptibility or greater exposure, may be at greater risk than the general population for adverse health effects from exposure to a chemical substance or mixture, such as children, women who are or may become pregnant, workers, or the elderly."

However, at present, EPA is giving the public only 32 days to comment on a 204-page document that will significantly affect how it assesses risks to PESS. This woefully short comment period does not provide impacted communities, nor scientific experts, sufficient time to carefully review and provide feedback on EPA's proposed methodology. Additionally, it is important to keep in mind that publication of Federal Register notices and standard public comment processes – submitting written comments to a docket, signing up to provide oral comments at a public meeting that may not be easily accessible – work well for stakeholders like industry trade associations that have ample resources and are familiar with the processes. These standard processes, however, are a barrier to participation by residents of overburdened communities. EPA needs to actively solicit community input and provide an accessible forum for community comment and discussion, addressed further in Point 2 below.

EPA's draft risk evaluations provided at least 60 days for public comment. Considering that this Fenceline Screening Methodology is a critical analytical piece of those evaluations, EPA should allow a similar time period for review. The Scientific Advisory Committee on Chemicals (SACC) will be reviewing this methodology from March 15-17, 2022, and in line with our previous comments, we feel that it is important to share public comments with the SACC in order to help inform their peer-review process. In line with this thinking EPA can specify two comment period deadlines, one deadline by which such comments will be sent to the SACC for consideration (March 7, 2022) and another deadline following the meeting (March 24, 2022). This is consistent with EPA's past actions.^{36,37}

2. EPA must make its Fenceline Screening Methodology accessible and known to impacted communities.

a. EPA must publish a non-technical summary document of the Fenceline Screening Methodology.

Executive Order 12898 (the nation's principal environmental justice executive order) states that "each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public."³⁸

Agencies such as EPA must actively seek technical guidance from communities when developing improved screening tools to build a comprehensive understanding of the cumulative and disproportionate impacts of chemicals. This is why it is integral that EPA provide community-

³⁶ US EPA. (2019). 1-Bromopropane (1-BP); Draft Toxic Substances Control Act (TSCA) Risk Evaluation and TSCA Science Advisory Committee on Chemicals (SACC) Meetings; Notice of Availability and Public Meetings, 84 Fed. Reg. 39,830.

³⁷ US EPA. (2019). Draft Toxic Substances Control Act (TSCA) Risk Evaluations and TSCA Science Advisory Committee on Chemicals (SACC) Meetings; Cyclic Aliphatic Bromide Cluster (HBCD) and 1,4-Dioxane; Notice of Availability and Public Meetings, 84 Fed. Reg. 31,315.

³⁸ US EPA. (1994). Federal actions to address environmental justice in minority populations and low-income populations. Available: <https://www.archives.gov/federal-register/executive-orders/1994.html#12898>

specific explanations of the data and technical analysis in its Fenceline Screening Methodology to impacted communities.

As stated above, EPA's Fenceline Screening Methodology is critically important to its activities under amended TSCA and its commitments to environmental justice. This methodology will guide EPA's calculations about – and ultimate decision-making around – the human health risks of chemical exposures in the communities where toxic chemicals are manufactured, used, disposed, and released. While the technical methodology must be sufficiently detailed and robust to ensure that EPA is not underestimating risk to these populations, it is also equally important for the methodology to be accessible to the communities whose harm it is seeking to understand and address. This is not only crucial to fulfill EPA's commitments to environmental justice and its mandate under amended TSCA to address risks to PESS, but also consistent with EPA's activities during the first 10 risk evaluations.^{39,40}

EPA must work to build a more complete, “whole fabric” understanding of health effects of environmental exposures to chemicals, putting a special focus on understanding overlapping threats. The Fenceline Screening Methodology calculates community exposures and risks using a methodology that is inaccessible to many residents of those communities. These communities often lack the scientific expertise and resources needed to evaluate, much less comment on, EPA's exposure modeling and risk determinations. A non-technical summary would allow those residents to participate more meaningfully in the public comment process. This participation would also ameliorate the frustration that communities feel regarding exposures to environmental hazards that they disproportionately bear the burden of, but historically have had limited decision-making power or influence over. Providing communities with information regarding their exposures and valuing their leadership and knowledge not only empowers these communities but allows EPA to ground-truth its modeling data and assumptions, leading to more comprehensive and accurate assessments.

b. EPA must conduct targeted outreach to impacted communities to brief them on the Screening Methodology and inform them of the current comment period.

Many impacted communities do not know that they are in fact impacted. This is why EPA, in line with its stated goals on environmental justice, must use its resources to pursue a robust outreach strategy informing communities and seeking their expertise on this Fenceline

³⁹ US EPA. (2020). *Nontechnical Summary of the Risk Evaluation for Methylene Chloride*. Available: https://www.epa.gov/sites/default/files/2020-06/documents/mc_final_re_nontechnical_summary.pdf.

⁴⁰ US EPA. (2020). *Nontechnical Summary of the Risk Evaluation for Trichloroethylene*. Available: https://www.epa.gov/sites/default/files/2020-11/documents/tce_nontechnical_summary_finalre.pdf.

Screening Methodology.⁴¹ To conduct this outreach, EPA can rely on the support of its Office of Environmental Justice, the National Environmental Justice Advisory Council, and the White House Environmental Justice Advisory Council.

While preparing this Fenceline Screening Methodology, EPA identified impacted communities and calculated community risks associated with three chemicals.⁴² Although these risks affect hundreds of communities across the country, the current document fails to identify these communities or the polluting facilities putting them at risk. EPA's current strategy with this Fenceline Screening Methodology presents research and digital literacy obstacles by forcing impacted communities to navigate a series of chemical specific spreadsheets and supplements with illegible titles on regulations.gov. In the current Screening Methodology, EPA indicates to readers that:

*"The MC fenceline analysis spreadsheet, SF_FLA_Environmental Releases to Ambient Air for MC (Appendix B), contains the rationale for the mapping of each facility in 2019 TRI to an OES. Refer to this spreadsheet for details of the mapping at the facility-level."*⁴³

However, within the document EPA fails to provide a direct link to that spreadsheet for readers, either in the body of the Fenceline Screening Methodology or in Appendix B, which requires readers to navigate regulations.gov to download it, which presents myriad access issues. Additionally, how EPA has even structured this sentence fails to provide many readers (and particularly any impacted community) with sufficient information to navigate community risk determinations, as it contains shorthand and abbreviations that are foreign to anyone not closely following EPA's and OCSPP's activities. Finally, even if a reader makes it as far as this spreadsheet, it is still difficult to match specific facilities with EPA's unreasonable risk determinations, requiring a side-by-side comparison between the spreadsheet and the Methodology document.

This is part of a larger pattern at EPA of conducting assessments that do not account for the scientific and human realities in the community. Well-meaning staff are focused on completing their assigned tasks, which are usually organized to look at a specified piece of the larger exposure and risk puzzle – a specific pollutant, or emissions from a single facility – rather than the real-world experience of community residents who are affected by multiple pollutants from

⁴¹ US EPA. (2020). EJ 2020 Action Agenda: EPA's Environmental Justice Strategy Available: <https://www.epa.gov/environmentaljustice/ej-2020-action-agenda-epas-environmental-justice-strategy>

⁴² The chemical "case studies" included in the Fenceline Assessment Methodology are for methylene chloride, 1-bromopropane, and N-Methylpyrrolidone.

⁴³ US EPA. (2022). Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0. pg. 92 Available: https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf

multiple sources through multiple exposure pathways, along with interacting influences on risk, like stress.

It is critical that EPA recognize that community residents are the experts concerning environmental conditions in their communities. The scientific needs of communities cannot be met if issues related to environmental justice, equity, and transparency are not addressed as well.⁴⁴ This is why outreach to impacted communities was also identified as one of UCSF PRHE's evidence-based priority recommendations for both Chemical Policy and Environmental Justice to strengthen EPA and its mission to protect public health.⁴⁵ For EPA's programs to be successful in protecting human health and reducing inequities in exposure, risk and health outcomes, EPA must increase and improve community participation and engagement to ensure accountability that EPA actions demonstrably reduce inequitable pollution exposures.

⁴⁴ Sullivan, J.; Croisant, S.; Howarth, M.; Subra, W.; Orr, M.; Elferink, C. Implications of the GC-HARMS Fishermen's Citizen Science Network: Issues Raised, Lessons Learned, and Next Steps for the Network and Citizen Science. *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy* 2019;28:570-598

⁴⁵ UCSF Program on Reproductive Health and the Environment. Prioritizing Science and Public Health. Available: <https://prhe.ucsf.edu/recommendations-epa>