



AMERICAN PUBLIC HEALTH ASSOCIATION
For science. For action. For health.

June 2, 2020

TSCA Science Advisory Committee on Chemicals
U.S. Environmental Protection Agency
Washington, DC 20460

SUBJECT: Draft Risk Evaluation of Asbestos. Docket No. EPA-HQ-OPPT-2019-0501

Dear Members of the TSCA Science Advisory Committee on Chemicals:

On behalf of the American Public Health Association, a diverse community of public health professionals who champion the health of all people and communities, I write to submit comments on EPA's Draft Risk Evaluation of Asbestos. These comments were developed in collaboration with APHA's Occupational Health and Safety Section. APHA's mission is to improve the health of the public and achieve equity in health status. Our vision is to create the healthiest nation in one generation. Accomplishing these goals requires focus and action on numerous social determinants of health. These determinants include exposure to toxic substances in schools, homes, workplaces, and the natural environment.

Asbestos poses a grave risk to public health. There is no safe level of exposure to any form of asbestos. APHA submitted comments to EPA in 2017 on the agency's Scoping Document for asbestos, as well as in 2018 on its Problem Formulation document for its risk evaluation. In testimony before the Subcommittee on Environment and Climate Change of the U.S. House Committee on Energy and Commerce in May 2019, we expressed deep concern that EPA's decisions would result in an incomplete and inadequate assessment of the threat asbestos poses to public health.

APHA provides the following comments on EPA's draft Risk Evaluation of Asbestos (85 *Federal Register* 18954 (April 3, 2020)). We agree with EPA's determination that these seven uses of asbestos pose an unreasonable risk:

- Processing and Industrial Use of Asbestos Diaphragms in Chlor-Alkali Industry
- Processing and Industrial Use of Asbestos-Containing Sheet Gaskets in Chemical Production
- Industrial Use and Disposal of Asbestos-Containing Brake Blocks in the Oil Industry
- Commercial Use and Disposal of Aftermarket Automotive Asbestos-Containing Brakes/Linings
- Consumer Use and Disposal of Aftermarket Automotive Asbestos-Containing Brakes/Linings
- Commercial and Consumer Use and Disposal of Other Vehicle Friction Products
- Commercial Use and Disposal of Other Asbestos-Containing Gaskets

EPA's Risk Evaluation of Asbestos, however, has many flaws, including:

- Failing to include legacy uses of asbestos
- Failing to include health endpoints other than mesothelioma and lung cancer
- Failing to include amphibole asbestos
- Failing to address exposure during disposal
- Using inappropriate assumptions and incomplete evidence

As a result, EPA's Risk Evaluation of Asbestos understates the risk to public health. We urge the SACC to use its influence so that the EPA's Risk Evaluation addresses these flaws in order to fully protect the health of all people and communities.

EPA Fails to Evaluate the Risk of Legacy Uses of Asbestos

EPA's Risk Evaluation of Asbestos is incomplete because it fails to address the health risk associated with exposure to the millions of metric tons of asbestos in homes, industrial buildings, schools, offices, infrastructure, and elsewhere. In housing alone, asbestos-containing materials are in use as attic insulation, floor tiles, drywall joint compound, water heater and wiring insulation, and roof shingles. EPA refers to asbestos in these circumstances as legacy uses. Factually, these asbestos-containing materials are in use each and every day. They are no less hazardous than the asbestos in the seven applications for which EPA has determined pose an unreasonable risk.

As Brent Kynoch, managing director of the Environmental Information Association wrote in March 2018 comments to EPA:

“Every time a maintenance worker strips and waxes an asbestos tile floor, every time an electrician moves a ceiling tile in a building with spray-applied asbestos fireproofing, and every time an HVAC technician enters a boiler room with asbestos-containing insulation, these materials are being ‘used’ and create the potential for unprotected exposure to both these workers and others in the building.”

The ‘use’ of the material does not end at the time of manufacture or installation. For many of these materials, the ‘use’ only begins at installation. Most certainly, building ‘users’ are at risk of asbestos exposure from installed legacy asbestos-containing materials caused by vibration, air erosion, water damage and inadvertent or accidental physical contact by citizens and tradesmen.”¹

It is crucial to identify and include all sources of exposure to asbestos in the Risk Evaluation. Failing to do so results in an incomplete assessment of the threat asbestos poses to public health.

By excluding these legacy uses in the Risk Evaluation, EPA is ignoring the source of exposure for the greatest number of U.S. residents. This includes families living in substandard housing and children going to school where cities have disinvested in public buildings. Foreseeable

¹ Brent Kynoch. Unsafe Exposure to Asbestos from Installed Asbestos-Containing Building Materials, March 2018. EPA-HQ-OPPT-2016-0736-0123

exposures occur when asbestos-containing materials (ACM) become friable during their use, when they are disturbed or removed, as well as during disposal. It is, in part, because of exposure to this ACM that incidence rates of cancer in U.S. firefighters that are twice as high as the general public² and school teachers are developing mesothelioma.³

Exposure to the legacy uses of asbestos continues. It occurs during equipment repair and building maintenance, and during remodels, renovations, and demolitions. It occurs when homes and buildings are damaged or destroyed by extreme weather events, and when water and sewer mains rupture.⁴ It occurs when emergency responders serve their communities during fires and after disasters. As long as legacy uses of asbestos are not addressed by EPA, Americans face an unreasonable risk of harm.

At a May 2019 hearing before the Energy and Commerce Committee of the U.S. House of Representatives, Chairman Frank Pallone described the intent of Congress with respect to asbestos, pursuant to the 2016 amendments to the Toxic Substances Control Act. To EPA's assistant administrator for the Office of Chemical Safety and Pollution Prevention, Chairman Pallone explained:

“We did not intend EPA to conduct risk evaluations that ignore major drivers of risk like the risk posed by *legacy asbestos*. ...you've also excluded *disposal* of legacy asbestos, despite the fact that disposal is explicitly included in the statute.”⁵

Furthermore, in November 2019 the U.S. Court of Appeals for the Ninth Circuit rejected EPA's argument that it lacked authority under TSCA to assess the risks of legacy asbestos. The Court ruled that legacy uses of asbestos needed to be included in the agency's Risk Evaluation of Asbestos.⁶

EPA fails to make any estimate of the number of buildings that contain asbestos. The agency could, for example, use data from the U.S. Census Bureau's American Housing Survey to identify potential asbestos exposure in housing. The most recent data from the survey indicates that 40% of the nation's 118 million housing units (i.e., 47.2 million) were built before 1970. EPA could also use data from the AHS to estimate the annual number of renovations, repairs, and remodeling in which ACM may be encountered.

EPA's Office of Land and Emergency Management could assist with the Risk Evaluation. In its previous assessments, it reported residential structures built before 1975 “may contain significant

² Daniels RD, Kubale TL, Yin JH, et al. Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago and Philadelphia (1950–2009). *Occup Environ Med*. 2014 Jun;71(6):388-97.

³ Ruderman W, Graham KA. Cancer in the classroom. *The Philadelphia Inquirer*, November 21, 2019.

⁴ M. Haag and M. Gomez. Asbestos confirmed in steam pipe that exploded in Manhattan. *The New York Times*, July 19, 2018.

⁵ Subcommittee on Environment & Climate Change, Committee on Energy & Commerce, U.S. House of Representative. Hearing on "Ban Asbestos Now: Taking Action to Save Lives and Livelihoods," May 8, 2019.

⁶ *Safer Chemicals, Healthy Families v U.S. EPA*, No. 17-72260 (9th Cir. Nov. 14, 2019).

amounts of asbestos” and even “structures built after 1975 may also contain asbestos,”^{7,8,9} in use as attic and appliance insulation, floor tiles, etc.

Similarly, EPA could estimate the number of schools and public buildings that contain asbestos. One source of data would be the U.S. Department of Education’s National Center for Education Statistics. NCES reports the average number of years “since construction” of all U.S. public schools is 40 years.¹⁰ Investigations by the *Detroit Free Press* and *The Philadelphia Inquirer* offer just two recent examples of the ways in which students, teachers, and staff are exposed to asbestos-containing materials in our nation’s public schools.^{11,12}

EPA asserted previously that its Risk Evaluation would not address exposure to legacy uses of asbestos because these hazards are addressed by other laws.¹³ In November 2019, however, the U.S. Court of Appeals for the Ninth Circuit rejected EPA’s argument that it lacked authority under TSCA to assess the risks of legacy asbestos. The Court ruled that legacy uses of asbestos needed to be included in the agency’s Risk Evaluation of Asbestos.¹⁴

EPA now offers a different explanation for failing to include legacy uses of asbestos in the Risk Evaluation. The agency says it “intends to consider legacy uses and associated disposal in a supplemental scope document and supplemental risk evaluation.”¹⁵ APHA is deeply concerned and disagrees with EPA’s decision to defer evaluating these substantial sources of exposure to some future date. APHA has no confidence that EPA will do so.

APHA finds the exclusion of exposure to legacy uses of asbestos to be a fundamental flaw in EPA’s Risk Evaluation of Asbestos. TSCA requires risk evaluations to look holistically at all sources of exposure that contribute to risk. Failing to do so underestimates the risk to workers and the general public who have exposure to both legacy asbestos and active asbestos products.

⁷ U.S. Government Accountability Office. Hurricane Katrina: EPA's current and future environmental protection efforts could be enhanced by addressing issues and challenges faced on the Gulf Coast. June 2007, <https://www.gao.gov/assets/270/262716.pdf>

⁸ U.S. EPA. Dealing with Debris and Damaged Buildings. <https://archive.epa.gov/katrina/web/html/debris.html#Asbestos>

⁹ In some U.S. cities, the percent of housing built prior to 1970 is substantial. According to the American Housing Survey, (2015 National, General Housing Data: All Occupied Units), the percentage of housing that fits this category in Pittsburgh, PA is 67 percent; in Rochester, NY and Philadelphia, PA it is 59 percent; in Detroit, MI it is 54 percent; and in Chicago, IL it is 53 percent.

¹⁰ U.S. Department of Education. Condition of America’s Public School Facilities: 2012-2013. Report No. NCES 2014-022.

¹¹ J. Dixon and K. Tanner. “Deadly asbestos: workers put in jeopardy, but state won’t get tough.” *Detroit Free Press*, April 30, 2016; J. Dixon. “Asbestos contractors target homeless, other vulnerable people.” *Detroit Free Press*, May 1, 2016. J. Dixon. “Dearborn Heights janitor says she’s vindicated by OSHA.” *Detroit Free Press*, June 30, 2016

¹² W. Ruderman, B. Laker, D. Purcell, et al. Toxic city: The ongoing struggle to protect Philadelphia’s children from environmental harm. *The Philadelphia Inquirer*, May 2018 to February 2020; KA Graham. As reports of asbestos in Philly schools pile up, teachers union calls for ‘rapid-response’ team in the district. *The Philadelphia Inquirer*, February 5, 2020.

¹³ U.S. EPA. Asbestos Scoping Document, May 2017; Asbestos Problem Formulation, August 2018.

¹⁴ *Safer Chemicals, Healthy Families v U.S. EPA*, No. 17-72260 (9th Cir. Nov. 14, 2019).

¹⁵ U.S. EPA. Draft Risk Evaluation of Asbestos, March 2020. (See footnote on p. 29)

EPA must combine the potential exposure to asbestos from all sources in order to evaluate the total risk.

EPA Fails to Include Relevant Health Endpoints

EPA fails to include all relevant cancer and non-cancer morbidity and mortality in the Risk Evaluation of Asbestos. Besides mesothelioma and lung cancer, exposure to asbestos causes cancer of the lung, larynx, and ovary, and is strongly associated with cancer of the pharynx, stomach, and colorectum.¹⁶

Exposure to asbestos also causes non-malignant respiratory disease. Workers with asbestos-related interstitial lung disease experience diminished pulmonary function, including measures of forced vital capacity (FVC) and of the gas exchange capability of the lung (i.e., diffusing capacity.)^{17,18,19} The pleural disease caused by exposure to asbestos can result in significant decreases in pulmonary function and the ability to carry out activities of daily living. Individuals with this disease suffer from severe chest pain requiring narcotic medication.²⁰ These health endpoints must be included in the Risk Evaluation.

EPA Abdicates Mandate to Conduct a Comprehensive Risk Evaluation

The Toxic Substances Control Act aims to protect the public from exposure to chemical hazards in order to prevent disease and other impairment. As originally designed and in the 2016 amendments, Congress intended TSCA to be a gap-filling statute. Lawmakers recognized the limitations of other federal statute with respect to chemical hazards and gave EPA co-existing and compatible authority with other agencies (e.g., the U.S. Department of Labor) to regulate chemicals.

The Risk Evaluation of Asbestos is incomplete because it excludes release of asbestos to air, water, and waste. By doing so, the agency is ignoring relevant exposure pathways, such as those from disposal of asbestos-containing debris in landfills, air emissions of asbestos during construction or renovation operations, and from asbestos-cement water mains. In its current form, EPA's Risk Evaluation of Asbestos ignores the central goal of the 2016 amendments to TSCA:

(1) to conduct comprehensive risk evaluations on ubiquitous chemicals; and

¹⁶ IARC (2012) IARC Monographs: Arsenic, Metals, Fibres, and Dusts, Volume 100 C. A Review of Human Carcinogens. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. International Agency for Research on Cancer, World Health Organization.

¹⁷ Lilis R, Miller A, Godblod J, Chan E, Selikoff IJ. Pulmonary function and pleural fibrosis: Quantitative relationships with an integrative index of pleural abnormalities. *Am J Ind Med.* 1991; 20:145–161.

¹⁸ Miller A, Lilis R, et al. Relation of spirometric function to radiographic interstitial fibrosis in two large workforces exposed to asbestos: An evaluation of the ILO profusion score. *Occup Environ Med.* 1996;53:808–812.

¹⁹ Miller A, Warshaw R, Nezamis J. Diffusing capacity and forced vital capacity in 5,003 asbestos-exposed workers: relationships to interstitial fibrosis (ILO profusion score) and pleural thickening. *Am J Ind Med.* 2013 Dec;56(12):1383-93.

²⁰ Black B, Szeinuk J, et al. Rapid progression of pleural disease due to exposure to Libby amphibole: “Not your grandfather's asbestos related disease.” *Am J Ind Med.* 2014;57(11):1197-1206.

(2) to examine the impacts of these chemicals on health and the environment through all of the diverse pathways and modes of release that may result in harm.

By amending TSCA in 2016, Congress also acknowledged that existing protections for workers from chemical hazards are inadequate, including exposure to asbestos. It's one of the reasons that "workers" are identified explicitly in the statute as "potentially exposed or susceptible subpopulation." This is an important point with respect to occupational exposure to legacy uses of asbestos, as well as active manufacturing uses, because of regulatory gaps in the Occupational Safety and Health Act. More than 8 million workers are not covered by the OSH Act, including 8 million public sector workers, such as firefighters and the professionals who work in schools and for government agencies. Others who are not covered by the OSH Act include the 15 million people who are independent contractors or otherwise self-employed, and agricultural workers on small farms.

With respect to worker protection from asbestos, the permissible exposure limit adopted by OSHA and the Mine Safety and Health Administration is not a risk-based standard.²¹ By statute, OSHA and MSHA standards must be economically and technologically feasible.

In adopting its asbestos standard, OSHA conceded it would not adequately reduce workers' cancer risk. The agency estimated 6-7 workers per 1,000 would develop lung cancer even if every employer fully complied with the asbestos standard. Under TSCA, a complete and well-conducted risk evaluation of asbestos—resulting risk management requirements—has great potential to eliminate this unreasonable risk for both workers and the public.

In the past, EPA's general policy has been to exclude from its risk evaluations the hazards and exposures that can be regulated through other statutes or by other agencies. The agency incorrectly asserts that these exposures are adequately addressed by Asbestos Hazard Emergency Response Act, the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act. These laws have gaps and are not effective at addressing asbestos risk.

The Asbestos Hazard Emergency Response Act, for example, addresses the asbestos in schools buildings, but a 2018 investigation by the EPA's Office of the Inspector General found that EPA was failing its responsibility to enforce AHERA. The OIG wrote:

"Without compliance inspections, EPA cannot know whether schools pose an actual risk of asbestos exposure to students and personnel."²²

The OIG reported that between FY 2012 through 2016 some EPA regional offices conducted zero or very few inspections to monitor compliance with AHERA (in the 29 states and the District of Columbia where EPA is responsible for monitoring compliance with AHERA.) During this five year time period, not a single inspection occurred in Arkansas, Louisiana, New

²¹ The permissible exposure limit enforced by OSHA and MSHA is 0.1 fiber/cc of air as an eight-hour time-weighted average and short-term excursion limit of 1.0 fiber/cc of air over a 30-minute period.

²² U.S. EPA Office of the Inspector General. EPA needs to re-evaluate its compliance monitoring priorities for minimizing asbestos risks in schools. Report No. 18-P-0270, September 17, 2018.

Mexico, Oklahoma, or Texas. In Iowa, Kansas, Missouri and Nebraska, only six inspections were conducted in that five-year period. The OIG reported that in five of EPA's 10 regions the agency only conducts AHERA inspections when they receive a tip or complaint.²²

Some asbestos releases into the ambient are regulated pursuant to the Clean Air Act's National Emission Standards for Hazardous Air Pollutants, however it does not apply to single family homes, residential buildings with four or fewer units, or structures which contain less than a regulated quantity of asbestos. This regulatory gap leaves communities unprotected. A demolition project in a blighted community, for example, can involve releases of asbestos if contractors fail to comply with OSHA standards. A neighbor has no recourse under the Clean Air Act because EPA lacks the authority to investigate and cite the contractor.

Regardless of the past EPA policy to exclude from its risk evaluations the exposures that can be regulated through other statutes, lawmakers reiterated in the 2016 amendments to TSCA that the law is a gap-filling statute. Congress strengthened TSCA and made it a new day in the U.S. with respect to regulation of chemicals. EPA must abandon policies from the past that allowed the agency to waive its responsibility to protect the public from chemical risks.

EPA Fails to Evaluate Risk of Amphibole Asbestos

EPA's Risk Evaluation of Asbestos is incomplete because of the agency's decision to only consider exposure to chrysotile asbestos. The public, however, is not just exposed to chrysotile asbestos. In homes, schools, public buildings, workplaces, and the environment, and through consumer products (e.g., cosmetics and toys containing talc), children and adults are exposed to a mixture of serpentine and amphibole asbestos.

Title II of TSCA defines asbestos as the asbestiform varieties of actinolite, amosite (cummingtonite-grunerite), anthophyllite, crocidolite (riebeckite), and tremolite. This definition is incorporated in rules enforced by EPA (e.g., Asbestos-Containing Materials in Schools Rule; National Emission Standards for Hazardous Air Pollutants,) as well as in health standards enforced by OSHA and MSHA to address work-related exposure to asbestos.

We urge the Science Advisory Committee on Chemicals to challenge EPA's decision to rely only on studies involving chrysotile asbestos. Such an approach was rejected previously by EPA's Science Advisory Board when the agency proposed estimating cancer risk by asbestos mineral type and particle size.²³ We urge the SACC to do the same by rejecting a risk evaluation based only exposure to chrysotile asbestos.

Libby Amphibole Asbestos

In the 1980's researchers with the National Institute for Occupational Safety and Health and others were reporting excess mortality from respiratory cancers and non-malignant respiratory disease in a cohort of vermiculate miners in Libby, Montana.^{24,25,26,27,28,29} In 1991, the EPA

²³ U.S. EPA. Science Advisory Board Consultation on Proposed Approach for Estimation of Bin-Specific Cancer Potency Factors for Inhalation Exposure to Asbestos, November 14, 2008.

²⁴ Amandus HE, Althouse R, et al. The morbidity and mortality of vermiculite miners and millers exposed to tremolite-actinolite: Part III. Radiographic findings. *Am J Ind Med.* 1987; 11: 27-37.

prepared a Health Assessment Document for Vermiculite that found a causal relationship of exposure to Libby Amphibole Asbestos and lung cancer, and that both occupational and non-occupational exposure to the LAA-containing vermiculite was high.³⁰ Most recently, EPA's Office of Research and Development published the agency's Toxicological Review of LAA.³¹ EPA's Risk Evaluation should include the evidence from this review.

The health risks associated with exposure to LAA is well documented and the evidence robust. Individuals exposed to LAA, both occupational and non-occupationally, are at significant risk of malignant mesothelioma, lung cancer, pleuroparenchymal lung disease, pleural scarring, and compromised pulmonary function.³²

We think it is important to note that EPA's Office of the Inspector General criticized the agency nearly 20 years ago for failing to take regulatory action to address the risk of LAA, specifically failing to do so under TSCA. In a 2001 report, the OIG wrote:

“...despite the initial effort to study the issue, EPA took no regulatory action to control asbestos-contaminated vermiculite under TSCA during this period.”³³

The OIG made specific recommendations to EPA to address the risk of LAA, including

“Regulation of products contaminated with asbestos under the Toxic Substances Control Act.”³³

EPA's investigation of the health and environmental disaster in Libby, Montana identified 245 facilities across the U.S. that received vermiculite from the W.R. Grace mine. EPA estimates that more than 6.1 million tons of vermiculite was shipped to these facilities from 1964 to 1995. ATSDR conducted investigations at 28 of the 245 sites to determine past, current, and future pathways of exposure to LAA. Based on the investigations, ATSDR concluded LAA may be

²⁵ McDonald JC, McDonald AD, et al. Cohort study of mortality of vermiculite miners exposed to tremolite. *Occup Environ Med.* 1986; 43: 436-444.

²⁶ McDonald JC, Sebastien P, Armstrong B. Radiological survey of past and present vermiculite miners exposed to tremolite. *Br J Ind Med.* 1986; 43: 445-449.

²⁷ Amandus HE, Wheeler R. The morbidity and mortality of vermiculite miners and millers exposed to tremolite-actinolite: Part II. Mortality. *Am J Ind Med.* 1987;11:15-26

²⁸ Amandus HE, Wheeler R, et al. Mortality of vermiculite miners exposed to tremolite. *Ann Occup Hyg.* 1988; 32: 459-465.

²⁹ Amandus HE, Wheeler R, et al. The morbidity and mortality of vermiculite miners and millers exposed to tremolite-actinolite: Part I. Exposure estimates. *Am J Ind Med.* 1987; 11: 1-14.

³⁰ U.S. EPA. Health Assessment Document for Vermiculite. U.S. Environmental Protection Agency, Washington, D.C., EPA/600/8-91/037 (NTIS PB92166834), 1991.

³¹ U.S. EPA, Office of Research and Development. Toxicological Review of Libby Amphibole Asbestos, 2014.

³² See American Public Health Association comments to EPA on Problem Formulation Document on Asbestos, Appendix A, submitted August 10, 2018 to EPA-HQ-OPPT-2016-0736-0130.

³³ U.S. EPA, Office of the Inspector General. EPA's Actions Concerning Asbestos-Contaminated Vermiculite in Libby, Montana. March 31, 2001.

present in both indoor settled dust and exterior soil at about 100 of the former exfoliation plants (some of which are still used for industrial purposes.)³⁴

LAA presents an unreasonable risk of injury, in particular to adults and children living in homes with vermiculite insulation. We urge the SACC to use its influence so that the agency's Risk Evaluation addresses this significant deficiency.

Asbestos Exposure and Climate Change

The congressionally-mandated National Climate Assessment, which was released November 2018, describes the grave threat of climate change to the U.S.'s aging infrastructure.³⁵ With the projected increases in severe weather, including droughts, hurricanes, and tornadoes, EPA Risk Evaluation of Asbestos should include an assessment of the likelihood and magnitude of occupational and community exposure from damaged residential and commercial buildings.

Millions of metric tons of asbestos were used in homes and buildings built in the U.S. An estimated 35 million structures alone contain Libby Amphibole Asbestos in Zonolite insulation. The potential for exposure to asbestos from these uses will be significant during storm events, from the initial damage assessments by first-responders and residents, to reclamation and the handling, transport, and disposal of refuse during clean-up operations.

During an extreme drought in Texas during 2011, 700 water mains ruptured in a single day in the City of Houston.³⁶ The rain-starved soil shrinks away from the water mains while more demand for water use increases pressure inside mains, the structures rupture. The city has more than 7,000 miles of pipes, including water mains made of asbestos-cement pipe. (Bulk samples of the pipe contained 10-15% crocidolite and 25-50% chrysotile, although amosite was also used in asbestos-cement pipe.)³⁷

Many of the city's public works crews, as well as subcontractors who were hired to make the repairs, were not aware they were handling asbestos-cement pipe. Some repairs were conducted in a rushed, haphazard manner, leaving piles of AC pipe in neighborhoods.³⁸ Upon inquiry, the City of Houston acknowledged it lack data on the location and prevalence of AC pipe in its water distribution system. The use of AC-pipe was typical in regions of the U.S.

A 2002 report by EPA on the nation's aging water system infrastructure indicated that a substantial portion of the distribution systems were installed between the 1950s and 1970's,³⁹ a time period when installation of asbestos-cement pipe was common. EPA's Risk Evaluation of Asbestos must include a national assessment of the prevalence of AC pipe. Workers who repair

³⁴ ATSDR. Summary Report: Exposure to Asbestos-Containing Vermiculite from Libby, Montana at 28 Processing Sites in the United States, October 2008.

³⁵ U.S. Global Change Research Program. (2018). Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment.

³⁶ M. Llanos. 700 water main breaks in Houston in one day. NBC News, Oct. 10, 2012.

³⁷ On file, C. Monforton.

³⁸ KHOU. "City contract worker exposed to asbestos while on the job: 'I'm scared,'" November 13, 2012.

³⁹ U.S. EPA. The Clean Water and Drinking Water Infrastructure Gap Analysis, 2002.

water mains—whether for infrastructure improvements or emergency repairs—are at risk of exposure to asbestos, as are the community members in the locations where the AC-pipe is used.

EPA Fails to Evaluate Risk of Disposal of Asbestos

In testimony before the U.S. House of Representatives' Energy and Commerce Committee in May 2019, EPA's assistant administrator for the Office of Chemical Safety and Pollution Prevention, conceded that risk evaluations under TSCA are meant to assess exposures related to disposal. EPA's 2018 Problem Formulation document failed to address health and environmental risks from exposure to asbestos from disposal, but the assistant administrator indicated that the agency's Risk Evaluation could be modified based on input from the public and peer reviewers.

The assistant administrator actually made an invitation to the Science Advisory Committee on Chemicals to critique the agency's decision to exclude exposures to asbestos from disposal in its risk evaluation. She said:

“Through the peer review process and through the transparent process we will follow this summer [sic] it will certainly be questioned whether that was a reasonable assumption...”⁵

We urge the SACC to insist that the risk evaluation include assessments with respect to disposal and environmental releases. EPA should consider, for example, the evidence of significant asbestos waste in the Toxic Release Inventory and the data and reports about sites on the National Priorities List (i.e., active and proposed Superfund sites.)

EPA Uses Inappropriate Assumptions and Incomplete Evidence

(1) We note that EPA relied heavily, in some cases exclusively, on testimonials and data provided by firms that import and use asbestos and asbestos-containing products. The SACC should be circumspect about whether responses provided by industry representatives reflect usual worksite conditions.

A document provided to EPA, for example, from the American Chemistry Council contained very brief responses from two firms that manufacture or use asbestos-containing gaskets.⁴⁰ The Branham Corporation described how it disposes of its asbestos-containing materials and debris:

“All material is double bagged and sealed per state and local requirements and handled as a regulated non-hazardous material. A generator label is created and sent with waste to a landfill designated to handle non-friable asbestos waste.”⁴¹

However, a different document in the record reveals the contrary. Environmental Health Management conducted asbestos air monitoring in 2012 at Branham Corporation's facility in Louisville, Kentucky. The purpose of the consultation was to determine whether airborne

⁴⁰ American Chemistry Council. Responses to EPA Questions Regarding Asbestos-Containing Gaskets, September 27, 2018. (Document No. EPA-HQ-OPPT-2016-0736-0504).

⁴¹ American Chemistry Council. Responses to EPA Questions Regarding Asbestos-Containing Gaskets, September 27, 2018. (Document No. EPA-HQ-OPPT-2016-0736-0504).

asbestos concentrations required the firm to provide respiratory protection to its employees in accordance with OSHA's asbestos standard.

Based on the samples collected on the day of the consultant's visit, the airborne concentrations of asbestos did not meet the threshold for the employer to implement a respiratory protection program. EPA uses this data in the Risk Evaluation. The remarkable part of the consultant's report, however, was not actually the subject of the consultant's visit. It was an observation made, perhaps as the consultant was departing the parking lot of the facility. A notation at the very end of the consultant's report reads:

“It was observed that the unused scrap pieces of reportedly ACM [asbestos-containing material] were placed in a dumpster with other waste and disposed with normal plant waste. EHM recommends that asbestos-containing waste be double bagged in 6 mil. polyethylene bags and placed in sealed, rigid containers...”⁴²

EPA's Risk Evaluation does not refer to this evidence of disposal as sources of exposure.

The agency must also include in its evaluation specific assumptions to adjust for actual practices, in contrast to what is reported by industry representatives. Assumptions should also be included to adjust for participant bias, that is, when exposure monitoring and simulations are being observed by government officials and conducted by researchers with financial conflicts of interest.

(2) EPA relies heavily on testimonials provided by the American Chemistry Council's Chlorine Chemistry Division with respect to asbestos exposure in nine chloralkali plants. One document includes a synopsis of what appear to be best practices for performing work task with potential asbestos exposure. The synopsis implies that all nine plants operate in exactly the same way with no differences in management, equipment, or operations at the nine plants. This is highly unlikely.

A table in the document lists each best practice (as if it is followed precisely in each plant) and summarizes asbestos air monitoring data from 1996-2016. The sampling results presented are merely a low-to-high range of asbestos concentrations during different tasks. The table provides scant data with questionable validity for risk evaluation purposes. It does not include the most fundamental information, such as the number of samples collected at each plant for each task, the industrial hygiene procedures and methods used for the sampling, or the laboratory analytical methods used.)

(3) The assumptions used by EPA to estimate worker and bystander exposures do not adequately adjust for weaknesses in the data. In just one example, EPA's assessment of asbestos exposure during removal of gaskets relies on one study, paid for by a gasket manufacturer that has been subject to lawsuits because its products contain asbestos.⁴³ The agency indicates that the value selected (i.e., the midpoint) to estimate occupational non-user exposure may overstate the risk

⁴² Environmental Health Management. (2013) Report for OSHA Compliance Monitoring at Branham Corporation, January 4, 2013.

⁴³ Mangold C; Clark K, et al. An exposure study of bystanders and workers during the installation and removal of asbestos gaskets and packing. *J Occup Environ Hyg.* 2006;3:87-8030 98.

because the simulation study occurred in an enclosed setting.⁴⁴ The agency does not, however, explain that the estimate may understate the risk because the simulation does not represent actual workplace conditions (e.g., participant bias.) In this same section of EPA's Risk Evaluation, the agency does not refer to a study by Longo et. al. which found much higher airborne exposures to asbestos during gasket removal, including some exposures that were substantially higher than OSHA's permissible exposure limits.⁴⁵ We are concerned that EPA did not identify all the relevant studies for the Risk Evaluation, or excluded some studies without explaining the rationale for doing so.

(4) EPA indicates it reviewed OSHA exposure monitoring data. This OSHA data is derived from industrial hygiene samples collected by federal OSHA's compliance officers. EPA does not indicate, however, that it reviewed data from any of the 22 states and territories that operate their own OSHA-approved state plans. Most of these state agencies have their own analytical laboratories and maintain their own exposure monitoring data from inspections of workplaces.

(5) When using exposure monitoring data from OSHA and the OSHA approved state plans, it must be evaluated in context. EPA should assume the industrial hygiene sampling results represent the best-case scenario in that workplace. It is not unusual for an employer to modify the usual work environment (i.e., the conditions in which workers are typically exposed) to reduce the concentration of the contaminant during an inspection. Workers may be instructed to modify the work environment (e.g., use dust controls, slow production) such that the worksite doesn't reflect usual conditions. Many workers report that the times when an OSHA inspector (or an insurance adjuster, safety consultant, corporate official, or investor) is on the premises, is the time that the worksite is the cleanest and the safest. EPA must include adjustment factors in any analysis of compliance sampling data so that it more closely reflects typical working conditions.

(6) EPA should review inspection data from OSHA and the OSHA-approved state plans for employer violations of the agencies' asbestos standards. Violation data is likely more informative than the agencies' data on results of asbestos air monitoring.

Employers can be cited for various provisions of the asbestos standard if the inspector confirms asbestos is present. The confirmation is often with a bulk sample (not an air monitoring sample that shows an overexposure to the permissible exposure limit). This provides evidence that workers were exposed or potentially exposed to asbestos, by failing to comply with one or more provisions of the standard. There are examples of non-compliance with OSHA's asbestos standard and resulting citation, but air monitoring was not conducted during the inspection.

(7) The vast majority of occupational exposure to asbestos will not come to the attention of federal OSHA or the OSHA-approved state plans. Therefore, the limited amount of data from air monitoring by these agencies is not an indication that significant exposure to asbestos is not occurring in U.S. workplaces. In any given year, less than 1% of all workplaces will be inspected by federal or state OSHA compliance officers. Most OSHA inspections that result in asbestos

⁴⁴ EPA. Risk Evaluation of Asbestos, March 2020 (p. 81).

⁴⁵ Longo WE, Egeland WB, et al. Fiber release during the removal of asbestos-containing gaskets: a work practice simulation. *Appl Occup Environ Hyg*. 2002 Jan;17(1):55-62.

violations occur because the agency received a complaint or asbestos-related violations were observed during an inspection focusing on a different hazard.

(8) EPA's risk evaluation must include assumptions that reflect the current realities of work in the U.S. The agency must assume that a significant portion of occupational exposure to asbestos occur because there is not strict adherence to all applicable federal, state and local regulations. This includes employers who prey on vulnerable workers to do the most hazardous work. For example, a 2016 investigation by the Detroit Free Press provides examples of economically vulnerable workers, such as homeless persons, being exposed to asbestos after being recruited to demolish blighted housing.¹¹

Vulnerable workers, such as individuals who do not speak English, unauthorized immigrants, low-income persons, the homeless, and the ex-incarcerated are unique category of "potentially susceptible or exposed subpopulations." They are often less familiar with asbestos-containing materials, are less likely to make inquiries about proper work practices, training and equipment, are significantly less likely to complain about unsafe working conditions, and face the very real choice of providing for their family or protecting their safety and health.

(9) EPA's assessment of the potentially exposed and susceptible subpopulations must take into account the family members and others in communities who are exposed secondarily to asbestos through occupational take-home exposures.

As we outline above, EPA's Risk Evaluation of Asbestos understates the risk to public health. We urge the SACC to use its influence so that the agency's substantially amends the document so that its subsequent risk management rules fully protect the health of all people and communities.

Sincerely,

A handwritten signature in black ink, appearing to read "Georges C. Benjamin". The signature is fluid and cursive, with a large, stylized initial "G".

Georges C. Benjamin, MD
Executive Director