



CHILDREN'S ENVIRONMENTAL HEALTH &
PROTECTION ADVISORY COUNCIL

July 6, 2016

The Honorable Larry Hogan
Governor
State of Maryland
Annapolis, MD 21401-1991

The Honorable Thomas V. Mike Miller, Jr.
President of the Senate
H-107 State House
Annapolis, MD 21401-1991

The Honorable Michael E. Busch
Speaker of the House
H-101 State House
Annapolis, MD 21401-1991

Re: House Bill 313 (Chapter 585), Acts of 2000 and Health-General Article, §13-1506(8)
2015 Legislative Report of the Children's Environmental Health and Protection Advisory
Council

Dear Governor Hogan, President Miller, and Speaker Busch:

Pursuant to Health-General Article, §13-1506(8), Annotated Code of Maryland, the Children's Environmental Health and Protection Advisory Council submits this annual legislative report on their activities. This report also includes follow-up items related to HB 897 (2015) – Public Health – Synthetic Infill Turf Fields – Informational Signs.

Thank you for your continued interest in children's environmental health issues in Maryland. If you should have any questions about this report, please do not hesitate to contact me at 410-767-6234.

Sincerely,

Clifford S. Mitchell, MD, MS, MPH
Chair

Enclosure

cc: Van T. Mitchell, Secretary, DHMH
Ben Grumbles, Secretary, MDE
Allison Taylor, Director, DHMH Office of Governmental Affairs
Howard Haft, Deputy Secretary, DHMH Public Health Services
Michelle Spencer, Director, DHMH Prevention and Health Promotion Administration
Sarah Albert, MSAR #1460

MARYLAND DEPARTMENT OF HEALTH AND MENTAL HYGIENE
MARYLAND DEPARTMENT OF THE ENVIRONMENT

CHILDREN'S ENVIRONMENTAL HEALTH AND PROTECTION ADVISORY COUNCIL

Health-General Article, §13-1501—1506, Annotated Code of Maryland

2015 ANNUAL REPORT

Larry Hogan
Governor

Boyd Rutherford
Lieutenant Governor

Van Mitchell
Secretary
Maryland Department of Health and Mental Hygiene

Ben Grumbles
Secretary
Maryland Department of the Environment

The Children's Environmental Health and Protection Advisory Council (CEHPAC) was established in 2000 pursuant to Chapter 585 of the Acts of 2000. CEHPAC advises the Governor and the General Assembly on environmental issues that may pose a threat to children. Specifically this statute requires CEHPAC to:

- (1) Review and comment on existing rules, regulations, and standards to ensure that the rules, regulations, and standards adequately protect the health of children from environmental hazards by taking into account the special vulnerability of children;
- (2) Review proposed regulations submitted to CEHPAC;
- (3) Comment on any proposed regulations that may be submitted by any other principal department of the Executive Branch during the public comment period if CEHPAC determines that the proposed regulation will have an adverse impact on children's health;
- (4) Gather and disseminate information to the public, including the research and medical communities, community-based organizations, schools, and State agencies, on how to reduce, treat, and eliminate children's exposures to environmental hazards;
- (5) Recommend uniform guidelines for State agencies to follow to help reduce and eliminate children's exposure to environmental hazards, especially in areas reasonably accessible to children;
- (6) Create and promote education programs, in partnership with health and environmental professionals, for parents, guardians, and caregivers of children that include information on: the potential health effects of environmental hazards; practical suggestions on how to reduce children's exposure to environmental hazards; and any other relevant information to assist parents, guardians, and caregivers in protecting children from environmental hazards;
- (7) Provide input to the General Assembly on legislation that may impact environmental hazards that affect the health of children; and
- (8) Report to the Governor and the General Assembly annually on the activities of CEHPAC.

Mission

CEHPAC seeks to identify environmental hazards that may affect children's health, and to recommend solutions to those hazards through interdisciplinary problem solving and coalition building. CEHPAC's goals were developed in 2001 and are reaffirmed annually. They are to:

- Ensure that the rules, regulations, and standards of the State protect children from environmental hazards;
- Educate involved parties regarding the environmental hazards that impact children's health and the means to avoid those hazards; and
- Enable children in Maryland to grow up in a safe and healthy environment.

Membership

CEHPAC is composed of members from State agencies and private sector representatives with interest and expertise in the area of children's health and the environment (see **Appendix A** for current CEHPAC membership).

CEHPAC Activities

CEHPAC convened in public session six times in 2015, including for an annual joint meeting with the Commission on Environmental Justice and Sustainable Communities. These meetings enabled CEHPAC to discuss and review proposed legislation and regulations, provide educational presentations for members, and discuss various children's environmental health issues. During the 2015 legislative session, CEHPAC held one meeting in Annapolis to allow for the appointed delegate (Delegate Angel) to attend and share information on current legislation, and one meeting at the Prince George's Department of the Environment.

During the 2015 legislative session, the Maryland Department of Health and Mental Hygiene (DHMH) requested the input of CEHPAC on HB 897– Public Health – Synthetic Infill Turf Fields – Informational Signs. HB 897 (2015) did not pass. Specifically, the DHMH addressed the challenges raised by HB 897 by:

1. Asking CEHPAC to conduct a literature review and make recommendations on this issue in its 2015 annual legislative report. CEHPAC was specifically created to provide input and advice to the General Assembly and the Executive Branch on issues related to children's environmental health.
2. Seeking input first from the Maryland Department of the Environment (MDE), then from the Johns Hopkins University and the University of Maryland regarding a possible study of the chemical composition of installed fields.

The first part of this effort involved the assembly and review of scientific literature on synthetic turf. This review looked at both the published literature and governmental reports on the subject. This review illuminated that there are significant data gaps on synthetic turf that would make issuance of recommendations challenging at this time. Specifically these gaps include:

- (1) A thorough inventory of field types and characteristics does not exist at the national or state (Maryland) level;
- (2) The different types of fields and the potential chemical hazards associated with each type of field are not yet clearly understood; and
- (3) Despite the availability of some studies looking at the chemical constituents associated with fields, there is a general lack of information regarding chemical hazards and their bioavailability or associated health outcomes. In fact, while this review was underway, the Federal government released a summary of the current literature and announced a significant research agenda regarding synthetic turf from crumb rubber, which is being undertaken by the U.S. Environmental Protection Agency, the Consumer Product Safety Commission, and the U.S. Centers for Disease Control and Prevention's Agency for Toxic Substances and Disease Registry.^{1,2}

The second part of this effort consisted of a request from DHMH and MDE to the schools of public health of the University of Maryland and the Johns Hopkins University to provide input

¹ See <https://www.epa.gov/chemical-research/tire-crumb-and-synthetic-turf-field-literature-and-report-list-nov-2015>.

² See <https://www.epa.gov/chemical-research/federal-research-action-plan-recycled-tire-crumb-used-playing-fields>.

on the potential health effects associated with synthetic turf. The Chair and Vice-Chair of CEHPAC jointly requested input from both institutions (**Appendix B**) and the Chair met personally with representatives from both institutions to discuss the question.

During meetings with the institutions, a number of questions were raised by the schools in context of the discussion. These questions follow:

- What chemicals would be involved in the analysis (volatile organic compounds, semi-volatile organic compounds, metals)?
- Would there be comparisons with non-synthetic turf fields to provide an assessment of relative risk?
- Since these fields are in communities where there are other sources of contamination, would there be an effort to characterize some of the other sources or otherwise attempt to determine whether the measured contaminants actually came from the fields or from elsewhere?

Finally, it was noted by both schools that the extent of any analyses would be dependent on the availability of funding. Based on these detailed discussions, the institutions are refining their preliminary thoughts in order to provide more complete final responses, which will be shared with both CEHPAC and DHMH and MDE (**Appendix C**).

Most significantly, as a result of outreach by CEHPAC and the attention on this issue by the General Assembly, DHMH has been approached by a community stakeholder about the possibility of collaborating on a research investigation focused on fields with synthetic turf. This stakeholder has both access to fields and has already done some preliminary work on better characterizing potential exposures. DHMH and MDE have had preliminary conversations with the community stakeholder, and a follow-up meeting to further clarify possible collaboration is expected to occur soon.

Another focus of CEHPAC during 2015 was evaluation of regulations proposed by the MDE for unconventional gas well development in the Marcellus shale (COMAR 26.19.01 – Oil and Gas Exploration and Production). A letter outlining concerns for children's health as a result of oil and gas exploration and production and which summarized the input of CEHPAC members was submitted to MDE in June (**Appendix D**). The opinions expressed in the letter do not reflect those of the State agencies that serve as CEHPAC members.

Discussions on exposure to microwave radio network radiation associated with computer networks (WiFi radiation) in schools and the potential health effects on students were held across several meetings in 2014 and 2015. The large volume of relevant literature and the need for focused attention to this topic prompted the formation of a CEHPAC work group on the issue. In 2016 the work group will review the literature and bring the review and their discussions to CEHPAC for consideration. CEHPAC members will then decide whether additional steps should be recommended.

DHMH also asked CEHPAC for input regarding proposed changes in the State's regulations and strategy for lead poisoning prevention. The regulation changes, testing strategy update, and expansion of testing throughout the State were discussed across many CEHPAC meetings. CEHPAC members have offered to support this initiative by sharing expertise on lead testing and children's health with stakeholders and communities throughout Maryland.

Finally, representatives from the Maryland State Department of Education and from the non-profit group Maryland Environmental Health Network gave presentations on green cleaning in schools. Both presentations updated CEHPAC on regulations governing green cleaning in schools, as well as future action to increase the use of these cleaning practices in Maryland schools. CEHPAC will continue to receive updates on this topic.

Activities for the Coming Year

Based on recent DHMH activities, CEHPAC members have identified several priority areas for the coming year:

1. *Synthetic turf use on school athletic fields:* CEHPAC will monitor this issue if responses are received from the State's academic institutions, as DHMH continues its discussions regarding a potential local research effort, and as the results of Federal research efforts become available.
2. *WiFi networks and radiation in schools:* A CEHPAC work group will continue to review the latest scientific literature and bring the discussion of this topic to the entire Council for further consideration.
3. *Green Cleaning in Schools:* Members hope to continue providing expertise and input on the usage of green cleaning products in schools, along with input regarding safety around school construction and renovation activities.
4. *Technical assistance:* CEHPAC will be available as a resource for other State agencies whose activities affect the health of children. In this regard, CEHPAC will continue to interact and collaborate with the Commission on Environmental Justice and Sustainable Communities on issues of mutual interest.

Conclusion

As evidenced in the 2014 Annual Report and again this year, CEHPAC is providing the Maryland General Assembly and State agencies with increasingly important input and advice regarding an expanding range of important children's environmental health issues. In addition to the advice that CEHPAC continues to provide on proposed regulations, CEHPAC now serves as one of the State's most important sources of expertise for the many State agencies whose activities affect the health of children through the environment.

Appendix A

CEHPAC MEMBERSHIP 2015

Maryland Senate Vacant	Licensed Pediatrician 1) Benjamin A. Gitterman, MD 2) Elizabeth Matsui, MD
Maryland House of Delegates The Honorable Angela Angel	Expert in studying the impact of environmental allergies and childhood asthma from Johns Hopkins University Greg Diette, MD
Department of Health and Mental Hygiene Clifford Mitchell, MD, MS, MPH Prevention and Health Promotion Administration (Chair)	Parent or Guardian Veronika Carella
Department of the Environment Jed Miller, MD, MPH Science Services Administration (Vice Chair)	Environmental Epidemiologist Nsedu Witherspoon
Department of Agriculture Robert Hofstetter	Economist Dr. David Bishai
Department of Education Alicia Mezu School Health Services	Environmental Toxicologist Dr. Megan Latshaw
Department of Human Resources Jacquelyn Powell Education/Health Specialist	Maryland Association of Counties Dr. Diana Abney
Department of Housing and Community Development Caroline Varney-Alvarado Policy	Private Industry Julian Levy
Governor's Office for Children Christina Church	Maryland Commission on Environmental Justice and Sustainable Communities Benoy Thomas

Appendix B
Letters on Synthetic Turf to Academic Institutions



STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene

Larry Hogan, Governor - Boyd Rutherford, Lt. Governor - Van Mitchell, Secretary

September 10, 2015

Jane E. Clark, PhD
Dean, University of Maryland School of Public Health
2242 Valley Drive
College Park, Maryland 20742-2611

Re: HB 897 -- Synthetic Infill Turf Fields -- Informational Signs

Dear Dean Clark:

Earlier this year, the Maryland General Assembly considered legislation that would require advisory signs for synthetic infill turf fields (see HB 897 Public Health - Synthetic Infill Turf Fields - Informational Signs). The signage was related to questions and concerns about the potential health concerns associated with the fields, including chemical exposures, heat exposures, and injuries.

As a part of these deliberations, the Department of Health and Mental Hygiene committed to some additional activities related to the questions raised about synthetic turf fields. The first was to ask the Children's Environmental Health and Protection Advisory Council (CEHPAC) to conduct a literature review and make recommendations on this issue in its next annual legislative report. The second was to seek input from the Maryland Department of the Environment (MDE) and academic institutions with appropriate expertise regarding a possible study of the chemical composition of installed fields. The goal of these activities would be to better understand potential exposures from the synthetic infill turf fields.

With respect to the latter activity, the purpose of this letter is to ask you about the possibility of evaluating potential exposures associated with fields installed in Maryland. Specifically, we would be interested in the following questions:

1. What would a potential study look like to characterize potential exposures, based on the literature and expert opinion – how many fields, what kinds of analytes, etc., in order to have some sense of what exists in the State?
2. What would be involved if the study also involved actual human exposures and dosimetry?

3. What would the cost of such a study be (either the characterization in (1) alone, or combined with human exposures or biomarkers in (2))?
4. Finally, as there are no State resources currently in place to support such a study, are there any research or teaching faculty who might be interested in pursuing such a project (which would presumably include looking for potential sources of funding)? Are there other ways such an investigation might be conducted (e.g., a student project)?

We recognize that this is a speculative endeavor, but are certainly willing to work with you or someone on your faculty to explore this issue further. We appreciate your time and interest in assisting with this question.

Sincerely,



Clifford S. Mitchell, MS, MD, MPH
Director, Environmental Health Bureau
Maryland Department of
Health and Mental Hygiene



Jed L. Miller, MD, MPH
Health Advisor
Maryland Department of
the Environment

Cc: Van Mitchell, Secretary, Maryland Department of Health and Mental Hygiene
Ben Grumbles, Secretary, Maryland Department of the Environment
Howard M. Haft, MD, DHMH Deputy Secretary for Public Health Services
Michelle Spencer, MS, Director, Prevention and Health Promotion Administration
Allison Taylor, MPP, JD, Director, Office of Governmental Affairs, DHMH
Horacio Tablada, MDE Deputy Secretary for Regulatory Programs and Policy
Mary Tung, MDE Deputy Secretary for Operations
Jeffrey Fretwell, Director, Office of Legislation and Intergovernmental Relations,
MDE



STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene

Larry Hogan, Governor - Boyd Rutherford, Lt. Governor - Van Mitchell, Secretary

September 8, 2015

Michael Klag, MD
Dean, Johns Hopkins Bloomberg School of Public Health
601 North Wolfe Street, Room W1041
Baltimore, MD 21205

Re: HB 897 -- Synthetic Infill Turf Fields -- Informational Signs

Dear Dean Klag:

Earlier this year, the Maryland General Assembly considered legislation that would require advisory signs for synthetic infill turf fields (see HB 897 Public Health - Synthetic Infill Turf Fields - Informational Signs). The signage was related to questions and concerns about the potential health concerns associated with the fields, including chemical exposures, heat exposures, and injuries.

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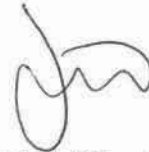
3. What would the cost of such a study be (either the characterization in (1) alone, or combined with human exposures or biomarkers in (2))?
4. Finally, as there are no State resources currently in place to support such a study, are there any research or teaching faculty who might be interested in pursuing such a project (which would presumably include looking for potential sources of funding)? Are there other ways such an investigation might be conducted (e.g., a student project)?

We recognize that this is a speculative endeavor, but are certainly willing to work with you or someone on your faculty to explore this issue further. We appreciate your time and interest in assisting with this question.

Sincerely,



Clifford S. Mitchell, MS, MD, MPH
Director, Environmental Health Bureau
Maryland Department of
Health and Mental Hygiene



Jed L. Miller, MD, MPH
Health Advisor
Maryland Department of
the Environment

Cc: Van Mitchell, Secretary, Maryland Department of Health and Mental Hygiene
Ben Grumbles, Secretary, Maryland Department of the Environment
Howard M. Haft, MD, DHMH Deputy Secretary for Public Health Services
Michelle Spencer, MS, Director, Prevention and Health Promotion Administration
Allison Taylor, MPP, JD, Director, Office of Governmental Affairs, DHMH
Horacio Tablada, MDE Deputy Secretary for Regulatory Programs and Policy
Mary Tung, MDE Deputy Secretary for Operations
Jeffrey Fretwell, Director, Office of Legislation and Intergovernmental Relations,
MDE

Appendix C
Preliminary Response from Academic Institutions on Synthetic Turf



UNIVERSITY OF MARYLAND

School of Public Health

Jane E. Clark, Ph.D. Dean
School of Public Health
College Park, Maryland 20742-2611
jeclark@umd.edu: email
301.405.2438: Phone
301.405.8397: Fax

November 4, 2015

Clifford S. Mitchell, MS, MD, MPH
Director, Environmental Health Bureau
Maryland Department of Health and Mental Hygiene
201 W. Preston Street
Baltimore, MD 21201

Jed L. Miller, MD, MPH
Health Advisor
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230

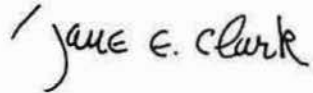
Dear Dr. Mitchell and Dr. Miller:

Thank you for your letter dated September 10, 2015 related to investigating the potential health effects associated with synthetic turf. As the only state-funded School of Public Health, we are sensitive to this concern raised within Maryland.

The faculty of the Maryland Institute for Applied Environmental Health is highly qualified to examine the exposure issues from synthetic turf. I have had informal discussions with several faculty including Drs. Amir Sapkota, Paul Turner and Lesliam Quiros-Alcala, who have expressed interest in assisting the Department of Health and Mental Hygiene (DHMH) with this public health concern. While the exact nature of the investigation may depend upon the availability of funds and timeframe, our faculty members, at a minimum, will be able to advise MPH student(s) looking for internships and related degree program experiences to work on this issue. The MPH students could: (i) provide a review of the published literature on chemical release from similar materials used elsewhere; and, (ii) collect air, water (runoff), and particulate samples from selected fields in Maryland to characterize potential hazards present in these environments, especially as a part of their internship or research projects. This initial screening will inform which specific chemicals to target if there is a need for more elaborate bio-monitoring studies. The study would provide a basic contamination assessment based on parameters including age of the material/field; and estimates of exposure based on frequency and duration of use, age of participants, and likely exposure routes (e.g., direct skin, abraded/cut skin, inhalation, ingestion). Studies would assess more traditional, non-synthetic playing fields to make similar measures to provide an assessment of relative risk. The built environment and other activity in close proximity to the fields will also be considered, as some environmental contaminants may be derived independently from the materials used to make the fields.

Our faculty and students have benefited from a very close working collaboration with DHMH, and I am sure this will result in another productive collaboration that will serve the needs of Maryland. Please let us know if you have any questions and how you would like to proceed.

Best regards,

A handwritten signature in black ink that reads "Jane E. Clark". The signature is written in a cursive, flowing style.

Jane E. Clark, Ph.D.
Professor and Dean

CC: Van Mitchell, Secretary, Maryland Department of Health and Mental Hygiene
Ben Grumbles, Secretary, Maryland Department of the Environment
Howard M. Haft, MD, DHMH Deputy Secretary for Public Health Services
Michelle Spencer, MS, Director, Prevention and Health Promotion Administration
Allison Taylor, MPP, JD, Director, Office of Governmental Affairs, DHMH
Horacio Tablada, MDE Deputy Secretary for Regulatory Programs and Policy
Mary Tung, MDE Deputy Secretary for Operations
Jeffrey Fretwell, Director, Office of Legislation and Intergovernmental Affairs, MDE

Appendix D

**Letter from CEHPAC to Maryland Department of the Environment on Proposed Regulations Concerning
Unconventional Oil and Gas Permitting (COMAR 26.19.01)**



CHILDREN'S ENVIRONMENTAL HEALTH & PROTECTION ADVISORY COUNCIL

June 8, 2015

Matthew Rowe
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230-1720

RE: Public Comments from CEHPAC on COMAR 26.19.01 Oil and Gas Exploration and Production

Dear Mr. Rowe,

The Children's Environmental Health and Protection Advisory Council (CEHPAC) respectfully submits its formal comments to the Maryland Department of the Environment (MDE) regarding the proposed repeal of existing Regulations .01—.15 and adoption of new Regulations .01—.58 under COMAR 26.19.01 Oil and Gas Exploration and Production. CEHPAC understands that the proposed updates to the regulations are necessary to address new technologies and will establish new oil and gas exploration and production standards intended to provide adequate protection for public health, safety, the environment and natural resources, all of which are critical to the health and safety of Maryland residents, particularly our most precious resource, our children.

CEHPAC seeks to identify environmental hazards that may affect children's health and to recommend solutions to those hazards. CEHPAC's goals were developed in 2001 and are reaffirmed annually. These goals are:

- ✓ Ensure that the rules, regulations, and standards of the State protect children from environmental hazards;
- ✓ Educate involved parties regarding the environmental hazards that impact children's health and the means to avoid those hazards; and
- ✓ Enable children in Maryland to grow up in a safe and healthy environment.

The Maryland General Assembly clearly identified children's environmental health as a priority for the State when CEHPAC was established pursuant to Health-General §§ 13-1503-1506. While the proposed changes to COMAR 26.19.01 offer improvements with regard to the impact of oil and gas exploration and production in Maryland, they do not address the true impact and subsequent consequences to children's environmental health. CEHPAC urges MDE to consider and take action on the concerns raised by members of the Council and documented in this correspondence as they serve to ensure that Maryland's efforts to protect children's environmental health will be successful.

CEHPAC believes that the emerging environmental health concerns related to unconventional oil and gas development and production have severe implications for children, and could result in an increase in adverse birth outcomes; exposure to carcinogens such as benzene, formaldehyde, and silica; and increased reports of sexually transmitted diseases. In July 2014, the Maryland Institute of Applied Environmental Health published a report on Marcellus Shale entitled, "Potential Public Health Impacts of

Natural Gas Development and Production in the Marcellus Shale in Western Maryland.” This report found a high or moderately high likelihood of negative health impacts in seven of eight categories studied. CEHPAC asks that MDE review the 52 recommendations put forth in this report and take proactive actions within the scope of the proposed regulations to address the core of the concerns raised with regard to impact of oil and gas exploration and production on public health in Maryland – particularly children’s health.

In 2014, New York banned unconventional shale gas development and production based on a study completed by the New York State Department of Health (*A Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development – New York State Department of Health, December 2014*), which concluded there were too many uncertainties about both the potential adverse health and environmental outcomes and the ability for regulations to address health risks. CEHPAC urges MDE to ensure that no permits will be allowed in Maryland until the concerns raised in both studies from New York and Maryland are addressed in our laws and regulations. Additionally, Pennsylvania is now taking action to better manage its oil and gas exploration and production based on recent experiences. In a letter to the Pennsylvania Department of Environmental Protection in June 2014, pediatrician Dr. Jerome Paulson, Director of the Mid-Atlantic Center for Children’s Health and the Environment, stated “Neither the industry, nor government agencies, nor other researchers have ever documented that unconventional shale gas development and production (UNGP) can be performed in a manner that minimizes risks to human health.”

Attached are CEHPAC’s specific comments and recommendations regarding the proposed regulation changes to COMAR 26.19.01. CEHPAC urges MDE to favorably enact recommendations offered by the Council. The opinions of the Council expressed in this letter do not necessarily reflect that of the Department of Health and Mental Hygiene or any other State agency. CEHPAC looks forward to working with MDE as well as the Governor and the General Assembly on this issue, and thanks you for your leadership with these regulations.

Sincerely,

A handwritten signature in black ink, appearing to read 'Clifford S. Mitchell', with a large, stylized loop at the end.

Clifford S. Mitchell, MS, MD, MPH
Chair

Enclosure

cc: Van T. Mitchell, DHMH Secretary
Benjamin H. Grumbles, MDE Secretary
Allison Taylor, MPP, JD, DHMH Director, Office of Governmental Affairs
Laura Herrera Scott, MD, MPH, DHMH Deputy Secretary, Public Health Services
Michelle Spencer, MS, DHMH Director, Prevention and Health Promotion
Administration

The Children's Environmental Health & Protection Advisory Council (CEHPAC) understands that the standards are intended to provide a suite of best practices that are to be followed for oil and gas production in the Marcellus Shale in Maryland. We applaud the Maryland Department of the Environment (MDE) for taking action especially in light of the fact that there are no corresponding federal standards to rely on. We agree that the proposed regulations for oil and gas exploration and production will impact many different parties, both positively and negatively. Our concern is for the negative impact these will have on children, their access to clean water, soil, air, and food, as well as how it will impact their ability to grow into healthy and productive adults. *[Note: sequencing of concerns does not indicate priority.]*

- 1) CEHPAC is particularly concerned that the requirement for making information available to the medical community is inadequate. Toxicological information – including information deemed 'trade-secrets' - needs to be given to the regional poison control center. This is the place practitioners will turn for such information and assistance. Therefore, the regulations should have a sentence that reads:

Prior to the use of any hydraulic fracturing fluid use, the complete list of the solution's contents (including items deemed 'trade secrets'), with chemical names, CAS numbers and concentrations needs to be provided to the Maryland Poison Center.

- 2) Because water contamination will concern residents near wells, the companies need to regularly test a sampling of private wells and make available the names of accredited laboratories that can do independent testing for the compounds being used. Therefore, the regulations should have a sentence that reads:

Testing of a sampling of private wells, as well as wells that serve the public such as those used in public schools, needs to be performed at periodic times not to be less than yearly. The populace living near wells needs to have the names of accredited, independent laboratories that can assay all of the compounds being used in the wells of their region.

- 3) The proposed regulations indicate that not all impacts can be determined at this time, particularly concerning is the noted inability to calculate 'Long-Term Impacts'. Prior to issuing any permits for oil and gas exploration and production, CEHPAC therefore requests that MDE determine real and actual impacts, and the direct, indirect and long-term effects on the public, including:
 - Health Protection;
 - Drinking Water Protection;
 - Natural Resource Protection;
 - Environmental Protection;
 - Impact to sensitive populations, especially children;
 - Long-Term Impacts (as they may differ significantly from immediate impact); and
 - Impacts and methods related to waste disposal – including all fluids and chemicals needed and used by permit holders.
- 4) CEHPAC concerns reflect our mandate of protecting children's health and their environment. The Department of Health and Mental Hygiene (DHMH) must engage in the decision making process. Namely we are calling for the impacts to public health not only to be assessed by the MDE and the Department of Natural Resources, but also by DHMH. While we are encouraged by the call for baseline environmental assessment and monitoring, we ask that the baseline assessments include baselines and ongoing monitoring for health and exposure indicators. Equally important is the need to fund healthcare services once an incident has occurred. The proposed regulations should reflect a source of funding for necessary remedies, when and if a negative impact is realized.

- 5) The proposed regulations outline some of the additional work for the MDE in reviewing Comprehensive Development Plans (CDPs). CEHPAC is concerned that the CDP only requires *“plans for exploration and production in the Maryland portion of an oil- or gas-bearing formation for at least the succeeding five years”*. CEHPAC requests that some provisions be included to address exploration and production in excess of five years as well as once the production is completed to ensure that the impact to Maryland’s air, water, soil, and public health will not become dangerous long after the permit has expired.
- 6) The regulations proposed by MDE would be inadequate to address well casing failures, infrastructure inadequacies, such as access to healthcare for a new worker population, or the lack of long-term research on health impacts. As an example, MDE’s action should ensure that Maryland’s acidic ground water will not compromise the abandoned oil and gas wells long after production has concluded, but while the residents of Maryland still rely on the surrounding groundwater as their sole source of drinking water. Additionally, this would include provisions related to the possible and probable seismic activity caused by an earthquake or vibration of the earth, whether due to natural or artificial causes, such as exploration of oil and gas in Marcellus Shale formations.
- 7) With the regulations outlining the additional work for MDE, including the review of CDP, the required two years of baseline data, and more detailed permit applications, as well as the additional work to monitor compliance with permit conditions, we are concerned that any additional costs to MDE for this work cannot be estimated unless the Department takes action within these proposed regulations to identify sources of funding, that such funds may not be available when needed, leaving the children and residents unprotected.

We understand that the Environment Article §14-105, Annotated Code of Maryland, authorizes the Department to assess permit and production fees in an amount necessary to operate the regulatory program, with a provision for annual adjustment. Sources of funding for continued monitoring and resources for remedies once an incident has occurred must also be addressed in the revised regulations.

- 8) The proposed regulations for allowing unconventional shale gas development and production (UNGDP) to proceed in Maryland are particularly concerning because of the potential exposures to children, particularly but not exclusively:
 - **Proximity to drilling operations:** These regulations are not protective of children’s health because they call for 1000 ft setbacks from schools, yet studies have now documented an increased incidence of skin and respiratory ailments in people living within 1 km (3280 ft) of drilling operations. Similarly, the regulations call for 2000 ft setbacks from private drinking water wells, yet studies have documented well contamination 1 km or more away.
 - **Air Emissions:** These regulations are not protective of children’s health because exposure to air pollution is known to be an important factor for health risks. Shale gas development and production creates hazardous air pollution through numerous pathways including vehicle emissions, drilling, and emissions from processing and pipelining shale gas. Among these emissions are particulates and volatile organic compounds that exacerbate asthma and other respiratory conditions, contribute to poor birth outcomes, cardiovascular disease, cancers, and an array of other health problems over time. Benzene and formaldehyde are known carcinogens that have been documented near UNGDP operations.
 - **Vulnerabilities for Children:** Children are especially vulnerable to exposures from shale gas extraction because they take in more pollutants relative to their body size than adults; their organs are still developing; and may be more susceptible to damage. Cancers and chronic diseases that emerge in later life may be related to childhood exposures and interactions that are still poorly understood. While the proposed regulations call for the use of technologies to

limit air emissions, there is little empirical evidence that this will be sufficient to adequately protect children's health, nor is it clear there will be adequate oversight to ensure compliance.

- **Disclosure of chemicals used in the UNGDP processes:** CEHPAC requests full disclosure of chemicals used in the UNGDP process. CEHPAC requests more safeguards against children's possible exposures since many chemicals in UNGDP fluids are known carcinogens, neurotoxins, and endocrine disruptors, as well as chemicals whose effects are unknown. MDE should request that "Trade Secret" status be waived by permit applicants in order to protect public health.

- 9) Regarding the identical sections F(1) thru F(4) on page 97 – There is no evidence presented that there "will be positive economic impacts to the residents in Garrett and Allegany Counties by enacting these more stringent regulations" or that the proposed regulations will "minimize the impacts from drilling to public health, safety, the environment and natural resources in these two Counties". We believe additional regulations must be adopted in order to accomplish the goal of minimizing these impacts so that the general citizenry of the two Counties will benefit from enhanced public health protection and safety, including better protections for air quality and sources of drinking water. With these added regulations we believe the "natural environment of the two Counties will be better protected, including forests, rivers, streams and other water bodies, wildlife, flora and fauna".
- 10) There is no evidence presented that the proposed regulations will actually benefit the "intended beneficiaries of the proposed regulations". Please provide evidence on how the residents of and visitors to Garrett and Allegany Counties (identified as beneficiaries) will benefit, particularly since these beneficiaries are identified by MDE as primarily households – presumably many of whom have children in their homes.
- 11) CEHPAC does not believe there is sufficient evidence for MDE to conclude that there will be "no impact on individuals with disabilities". Please provide CEHPAC with the data to support this conclusion as it does not correspond with information generally available on this matter.
- 12) CEHPAC requests expanded protections for all water sources, including but not limited to drinking wells, recreational bodies of water, etc. The proposed regulation [26.19.01.16(d)] *takes no action to deny a permit due to risk to well water for households, schools, etc.* It simply states that the, "Department may deny a drilling and operating permit if the Department determines that the proposed drilling or well operation poses a substantial threat to public safety or a risk of environmental damage particularly to:
 - (1) The Critical Area;
 - (2) Tidal or nontidal wetlands;
 - (3) Endangered or threatened species, or species in need of conservation or their habitat;
 - (4) Historic properties as provided for in Article 83B, §5-618, Annotated Code of Maryland; or
 - (5) Populated areas."
- 13) CEHPAC requests that MDE address requirements for waste water processing. Of the more than 80,000 synthetic chemicals in use today, few have been tested to determine what effect they have on humans, and the impacts on children are even less documented. MDE must take additional actions to identify and document the means of processing all waste water as it is potentially dangerous due to its chemical content. This is especially necessary since current municipal water-filtration methods cannot remove many of these chemicals, nor is it a US EPA requirement. A recent US Geological Survey study of rivers, including the Potomac, reported the same concentrations of some chemicals in the river water before and after it went through a waste water treatment plant. Maryland must ensure that our drinking water is safe after a permit is issued regardless of whether we obtain our water from a ground source, a water-treatment plant or a reservoir. Children are more sensitive at very low levels of contamination and have a longer time to present symptoms of an exposure. We owe our children clean water, soil, air, and good health.