

From: [Grether, Heidi \(DEQ\)](#)
To: [Delaney, Robert \(DEQ\)](#)
Cc: [McClellan, Michael \(DEQ\)](#); [Epkey, Amy \(DEQ\)](#); [Leeming, Susan \(DEQ\)](#); [Shirey, Kathleen \(DEQ\)](#); [Zimmer, Nate \(DEQ\)](#); [Boeskool, Travis \(DEQ\)](#); [Kneale, Catherine \(DEQ\)](#)
Subject: 2012 PFAS Report
Date: Friday, January 05, 2018 9:52:24 AM
Attachments: [PFAS Reports Recommendations and Responses 12.19.17 Draft.pdf](#)

Dear Bob:

The Department of Environmental Quality (DEQ) continues to make progress on its work on per-and polyfluorinated alkyl substances. Your 2012 report to then Director Dan Wyant has been reviewed by this administration and the recommendations in it and other reports pertaining to PFAS contamination are summarized below, along with the status of each of those recommendations.

As you are aware, a great deal of effort is being put forth in dealing with this emerging contaminant. The DEQ has established a multi-agency technical workgroup to establish standards and gather information on PFAS; a supplemental appropriation was recently passed that will enable the DEQ Laboratory to purchase equipment and hire staff to analyze environmental samples for PFAS; ambient water quality testing continues to be done to determine surface water impacts; and efforts are being made to identify air emissions that may contain PFAS. The DEQ, in conjunction with DHHS and local health departments, is directing provision of alternate water supplies and overseeing or conducting investigations into multiple locations with PFAS contamination.

A number of recommendations contained in your report are not within DEQ's authority to implement, but state government all the way up to the Governor is engaged and actively working to identify and mitigate potential threats to public health.

With respect to the site that you have managed, the Wurtsmith Air Force Base, since 2012, the site has been allocated over \$2 million of state funds to conduct activities not covered by federal funds. This includes tracking the PFAS contamination offsite by installing monitoring wells, and conducting groundwater, sediment, surface water, and foam testing. We have also supported residential well sampling to ensure safe drinking water for residents, conducted public outreach, and worked with state and local health departments to protect public health.

As the PFAS concern has become more visible in the media and to our government officials, it is important that we all understand what is being done to address this significant issue. Thank you for your continued work on the Wurtsmith Air Force Base and the Multi-Agency PFAS Workgroup. We value your contributions.

Sincerely,

Heidi

C. Heidi Grether

Director

Michigan Department of Environmental Quality

PFAS Reports Recommendations and Responses

DRAFT

Updated: 12/19/2017

Recommendation	Additional Comments	Report Date	Response Made
Support the development of in-house PFAS analytical capabilities at the DEQ Environmental Laboratory.	-	2011	A proposal and budget was developed to conduct PFAS testing at the DEQ lab. This is part of the recently passed supplemental request. The capability is currently being developed by the MDHHS lab and an MOU is in process to allow DHHS to analyze environmental samples until such time as DEQ can be functional.
Send at least one staff person to the annual PFAS conference organized by the United States Environmental Protection Agency (EPA).	-	2011	DEQ has sent staff to numerous conferences on PFAS, but does not consistently send a person the annual EPA conference.
Establish external collaboration with the "research corridor" of Michigan State University, the University of Michigan, and Wayne State University.	-	2011	No formal collaboration
Determine the scope and extent of PFAS contamination in surface water and fish in the area of WAFB. It is possible that the base is the state's worst-case scenario, thus results from the site would inform other decisions regarding PFCs in the state.	Obtain paired fish tissue and surface water samples from the Au Sable River and Van Etten Lake. Obtain groundwater samples from existing on-site monitoring wells.	2011	Work at WAFB is ongoing; the DEQ is conducting extensive studies to determine extent of contamination while engaging the US Air Force as much as possible. We are not waiting for them to conduct the studies, however. Current data suggests there are other PFAS sites which may also be used to inform decisions moving forward, but WAFB has the most extensive work done to date. WAFB has conducted on-base work with respect to PFAS. Formal dispute resolution has been invoked by DEQ for the Air Force's lack of responsiveness to off-site concerns.
Obtain data to test the hypothesis that the condition at the WAFB represents the most severe PFC contamination in the state.	Collect groundwater, surface water, fish, and mink/Bald Eagle/Herring Gull samples from Keweenaw, Luce, Mackinac, Kent, Ottawa and Southeast Michigan Counties as well as the Kalamazoo River watershed.	2011	Data continues to be obtained by the WAFB. Other sites are also currently being addressed with respect to PFCs. The hypothesis that WAFB is the most severe contamination in the state is not relevant to the ongoing work at each of the facilities. WAFB work is certainly helpful in the other studies, but each circumstance is unique, and the sources, current land use, and differing geology require individual approaches.
Conduct outdoor air sampling in identified urban centers to determine current ambient air levels.	-	2011	There is no accepted EPA protocol for this kind of sampling so it has not been conducted. Additionally, current knowledge suggests that endpoints in water (for fish or human) are the more relevant pieces of information to assess PFAS concerns.
Identify industrial manufacturing emission sources and assess feasibility of stack testing as part of permitting program under the 1990 Clean Air Act Amendments.	-	2011	Based upon some findings in New Hampshire, AQD is initiating stack testing at facilities with specific SIC codes where PFAS may be used. In particular, the focus is on chromium electro platers. AQD is also developing expertise by consulting with Minnesota via conference calls. Minnesota has more experience than almost any other state due to 3M being located in the state.

Assess overall impact to ambient outdoor air from elevated indoor air concentration when data are available by encouraging the scientific community to quantitate PFC absorption/desorption to dust and exchange rates of indoor PFAS to outdoor PFAS. Speculation and degradation information would also help to determine this as a source/reservoir for environmental concentrations.	-	2011	See row #6; while published literature does suggest that indoor dust can move to ambient air, the exposures that appear to lead to more risk are from water, so there has been limited work done in this area.
Convince upper management if the MDEQ (and eventually MDCH, MDNR, and MIDARD) that there is a statewide health crisis occurring with regard to increases in the autoimmune and neurological disorders.	-	2012	MDEQ recognizes the severity and need to address PFAS. The Michigan PFAS Action Response Team was established in recognition of the severity of this issue.
The Director of MDEQ and key upper level managers receive a briefing from the three following people: Dr. Richard DeGrandchamp (University of Colorado), Dr. John Meeker (University of Michigan), Dr. Deb MacKenzie-Taylor (MDEQ).	-	2012	No briefings have occurred from the experts identified here. (Note that in late 2017, Deb MacKenzie-Taylor transferred to the DHHS.)
A "blue ribbon" focus group should be formed from academia and the departments to review the situation, create white papers estimating the risks, the data gaps, needed studies, cost/benefit analysis of regulatory actions, adequacy of the existing laws, process to deal with the situation, and propose appropriate risk reduction measure that could be implemented.	List of suggested participants: Amy Babcock (MDEQ), Dr. Niladri Basu (UM), John Buchweitz (MDARD), Christina Bush (MDCH), Dr. George Corcoran (WSU), Dr. Richard DeGrandchamp (University of Colorado - Denver), +13 others	2012	The Governor launched a statewide effort by Executive Directive; the DEQ launched a Multi-Agency PFAS Technical Work Group and the DEQ launched a structured response within the DEQ.
Funding additional dose response studies on PFOS, PFOA, and other PFCs that are found in common contaminant mixtures and exploring the differences in toxicity of PFCs between humans and lower species.	-	2012	DEQ would support such funding, but has not initiated it, as it is not within DEQ's authority to implement.
Order a thorough review of the results of the C8 study	-	2012	This review, if warranted, would most likely be undertaken by MDHHS; DEQ could lend support.
Sample blood serum, hair, and/or fingernails of the people from across the state for PFC contamination (the same can be done for other suspect chemicals). Map the findings and figure out where our biggest problems are.	-	2012	This is a large-scale health study and is not within DEQ's realm.
Umbilical cord blood should also be monitored across the state for contaminants.	-	2012	Health studies are not undertaken by DEQ.
Check our food supply for contaminants.	-	2012	DEQ does not regulate food supply.
Toxicity testing on PFCs and PFC telomers.	-	2012	DEQ does not have facilities to conduct toxicity testing; we rely upon published studies in general.

<p>The Director could contact high level Air Force Staff and the Secretariat level through the Environmental Council of State, and discuss the need for collaboration on the investigations at the former WAFB.</p>	-	2012	<p>Communications regarding WAFB have been sent to the U.S. Air Force from various levels at the DEQ, following our policy of voluntary engagement and, if ultimately necessary, enforcement. The division director signed the last letter specifying the work DEQ believed necessary to investigate and remediate the site. (February 29, 2016). Correspondence has been to David Straininger, Base Realignment and Closure (BRAC) Environmental Coordinator. The State DSMOIA Coordinator has engaged with multiple officials in person at regular state-federal meetings. The DEQ has invoked formal dispute resolution to work out Air Force participation in activities off-base.</p>
<p>Water testing of private wells and municipal wells could be done around the state for PFC analysis.</p>	-	2012	<p>Water testing of private and municipal testing is being undertaken in the state where there is suspicion that a source may be present; it has not been initiated randomly or with an aim to testing every supply in the state. The supplemental passed by the legislature in December 2017 will allow the DEQ to conduct sampling of a subset of community water supplies in the state.</p>
<p>A general statewide investigation of the levels of contamination in streams, lakes, sediment, and biota would help pin point areas of concern to be further investigated.</p>	-	2012	<p>The Water Resources Division (WRD) in cooperation with DHHS conducted a statewide reconnaissance survey in 2013 and 2014 of PFAS concentrations in Michigan waters. During the survey water and fish were sampled at a subset of sites that had been sampled in 2001, and several Great Lakes fish populations were sampled. A report of the results of this survey is available. Results of the survey were also used to conduct follow up monitoring in 2016 and 2017 in waters having elevated concentrations of PFAS to learn more about the extent of the contamination and possible sources.</p>
<p>The state could direct and fund an effort to analyze consumer products for PFCs and other potential contaminants.</p>	-	2012	<p>This is not in DEQ's realm.</p>
<p>An annual conference of health advocacy groups, academia, social welfare, and environmental advocacy groups could be organized to discuss the impacts of environmental contaminants on human health and the environment.</p>	-	2012	<p>DEQ has not organized or participated in such a conference. However, the DHHS is leading an effort to share information about PFAS to the health community in January 2018.</p>
<p>Michigan should become a member state in the Center for Disease Control's Autism and Developmental Disabilities Network.</p>	-	2012	<p>DEQ has not sought membership.</p>

<p>Recognize that PFAS have emerged as ubiquitous human, wildlife, and environmental contaminants and take all necessary measures to assure adequate protection of Michigan residents and environmental resources from their adverse effects.</p>	-	2017	<p>DEQ is working to assure that public health and the environment are protected as we discover contamination. Safe drinking water is our first concern and work continues related to fish advisories as needed. We seek to be proactive where we have data to suggest a concern and to work with others, such as the military or industry, to investigate and take response actions swiftly. In Oscoda, Grayling, and Belmont, water supplies have been tested and interim drinking water sources provided as quickly as teams could mobilize after discovery.</p>
<p>Work towards the goal of identifying all sources of PFAS contributing to environmental contamination in Michigan</p>	-	2017	<p>The PFAS Multiagency Technical Workgroup is compiling a list of industries where PFAS may have been used and is determining where in our state those industries are or were located.</p>
<p>Continue to support all ongoing investigations of sites with known environmental PFAS contamination in Michigan.</p>	-	2017	<p>DEQ is spending significant resources to support ongoing investigations of PFAS contamination. We are also reviewing sites with other known contamination for potential PFAS to determine if more sampling is warranted. The FY2018 supplemental passed by the legislature in December 2017 Provides \$11.8 million GF/GP to address environmental contamination of perfluoroalkyl substances (PFAS). This funding will be expended as follows: \$7.8 million for response activities at 14 confirmed PFAS locations and \$4.0 million for additional remediation and response activities.</p>
<p>Initiate investigations into the source(s) of PFAS drinking water contamination in Michigan as identified from the third federal Unregulated Contaminant Monitoring Rule (UCMR3) or any other drinking water quality monitoring programs.</p>	-	2017	<p>None of the results in Michigan were above the EPA Lifetime Health Advisory. In one case, a Superfund site was suspected to be the source of the contamination in the water supply and follow up monitoring and investigation is being conducted by the liable party and the DEQ. The affected wells were taken out of the water supply system. In December 2017 the legislature approved 7.0 FTE positions and \$1.6 million GF/GP to address environmental contamination of PFAS in community water supply and sampling.</p>
<p>Continue to support the establishment of PFAS-based fish consumption advisories as well as identifying the underlying PFAS source(s) responsible for these advisories.</p>	-	2017	<p>WRD continues to provide information and data analysis to DHHS in support of its efforts to establish PFOS-based fish consumption advisories. Results of previous and ongoing monitoring being conducted by various DEQ divisions, federal and local governments, and businesses are used to help identify sources of PFAS responsible for the advisories.</p>
<p>Support the development of in-house MDEQ laboratory testing capabilities for PFAS in water and soil samples in order to improve access to and reduce costs associated with PFAS environmental media testing in Michigan.</p>	-	2017	<p>The FY2018 supplemental passed in December 2017 included \$1.5M for laboratory equipment and support related to PFAS remediation. A MOU is in process for MDHHS to begin analyzing environmental samples as soon as they have developed the SOP's as they have recently acquired equipment to run the PFAS analysis.</p>

<p>Initiate training of field staff on PFAS investigations in Michigan, including identification of known industrial sources of environmental contamination, appropriate environmental investigation practices for suspected PFAS contamination, and remedial best practices.</p>	-	2017	<p>Field staff acquire training as they are assigned to sites with PFAS. DEQ has brought in consultants to discuss sampling methodologies; managers are bringing information to staff as they receive it with respect to policies and guidance on addressing PFAS in the environment. Staff members have been sent to seminars and conferences. A PFAS Multiagency Workgroup has been established with the goal of identifying issues and resolutions regarding the way the DEQ addresses PFAS sites and disseminating that information to staff as quickly as possible.</p>
<p>Complete the promulgation of the draft Part 201 environmental remediation administrative rules inclusive of PFAS cleanup criteria.</p>	-	2017	<p>The proposed Part 201 Rule revisions ("cleanup criteria") which contain PFAS criteria, in addition to over 300 other contaminants are publically available for review. The formal public comment period has begun and public comment will be accepted until January 24, 2018. In a best case scenario, the criteria could become promulgated in early 2018. There is a 6-month grace period built in for complying with the criteria unless the Director determines a health threat is present. This rule package comes after lengthy and extensive stakeholder interaction. Based upon previous attempts and discussions that are ongoing with the regulated community, the criteria will face some opposition. At present, there are no enforceable criteria for PFAS, and other criteria in current rules no longer reflect best science because many advances have been made in the last 15 years since the criteria were promulgated.</p>

Report Title	Publication Date
<p>Perfluorinated Compounds in Michigan: Current State of Knowledge and Recommendations for Future Actions</p>	2011
<p>Michigan's Contaminant Induced Human Health Crisis: Addressing Michigan's Future By Facing the Challenge of the Evolving Nature of Environmental Contamination</p>	2012
<p>2017 Addendum for Per- and Polyfluoroalkyl Substances (PFAS) in Michigan: Current State of Knowledge and Recommendations for Future Actions</p>	2017

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Subject: 2012 PFAS Report
Date: Monday, January 08, 2018 6:25:15 PM

Dear Director Grether,

Thank you for taking the time to write to me. This has been a very awkward time for me because of the way things played out. After a 33 year career working for the Department, I kind of thought I would ride quietly off into retirement. I guess we live in extraordinary times. The report that I, and Dr. DeGrandchamp wrote in 2012 came from our understanding of the PFAS issue at that time and a deep concern for the health of our citizens and even our own families. By the time we had written that, I had been in frequent contact with the Office of the Secretary of Defense, EPA headquarters personnel and many regulators from the other states concerning these issues. There was relatively little being done on PFAS contamination at the time, so as I wrote to the Director, I knew I was bringing to him an issue with which he would be unfamiliar.

Not wanting to bring a big problem to upper management without some ideas on how to address it, as I said in the document, I was just brainstorming possible actions the Director and the State might take. Many of the ideas might be impractical or as you point out, not within the authority of DEQ. So I appreciate what you have said.

I want to say, I am so very impressed by the thoughtful approach the state agencies and the Governor's office have brought to the issue. I sit in our MPART meetings and am struck by how hard the management team works, how conscientious they are and how talented they are.

I am sure I am going to feel awkward around here until I retire. Up until now, I was really aggressive working with the other states, DoD and whoever would listen. I appreciate that this is now a full team effort and though my role has changed, I am pretty much at peace with the situation.

I still believe that America needs to ask why are many disease rates seemingly rising, and equally as important, why are some disease rates going down. I still believe that things like increasing infertility rates and other health issues, are significant threats to our country and to the stability of nations. (That is one of the things that I get to talk to DoD leadership about quite frequently).

Anyway, you have a lot of heavy responsibilities, so again, I really do appreciate your taking the time to write to me.

Bob

Robert Delaney

DSMOA Coordinator

Remediation and Redevelopment Division

Michigan Department of Environmental Quality

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From: Grether, Heidi (DEQ)
Sent: Friday, January 05, 2018 9:52 AM
To: Delaney, Robert (DEQ)
Cc: McClellan, Michael (DEQ); Epkey, Amy (DEQ); Leeming, Susan (DEQ); Shirey, Kathleen (DEQ); Zimmer, Nate (DEQ); Boeskool, Travis (DEQ); Kneale, Catherine (DEQ)
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work on per-and polyfluorinated alkyl substances. Your 2012 report to then Director Dan Wyant has been reviewed by this administration and the recommendations in it and other reports pertaining to PFAS contamination are summarized below, along with the status of each of those recommendations.

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Sincerely,

Heidi

C. Heidi Grether

Director

Michigan Department of Environmental Quality