PFAS Contamination in the Marinette Peshtigo Area

Listening Session 5
January 15th, 2020

Welcome and Agenda

• What To Expect From This Listening Session
• Addressing PFAS Contamination in Marinette Peshtigo Areas
  – Who’s Doing What
  – Status Of Investigation And Clean-Up
• Department of Health Services: Understanding PFAS Health Effects
• Upcoming Important Dates
• Listening Session
What is a Listening Session?

- **Open and ongoing communication** – ask questions, give feedback, let us know what topics you want to hear about.

- **Also – Email or Call**
  - Call (888-626-3244)
  - email DNRJCIPFAS@wisconsin.gov

- **FAQs:**
  [https://dnr.wi.gov/topic/Contaminants/Marinette.html](https://dnr.wi.gov/topic/Contaminants/Marinette.html)

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Roles and Responsibilities

<table>
<thead>
<tr>
<th>State Law</th>
<th>DNR’s Role</th>
<th>JCI/Tyco ChemDesign</th>
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</thead>
<tbody>
<tr>
<td>• Immediate Reporting</td>
<td>• Ensures compliance with the law</td>
<td>• Report contamination</td>
</tr>
<tr>
<td>• Restore the environment</td>
<td>• Technical Reviews</td>
<td>• Site investigation</td>
</tr>
<tr>
<td>• Road Map</td>
<td>• Public Participation and Notification</td>
<td>• Immediate, interim, and remedial actions</td>
</tr>
<tr>
<td>• ‘Self-Implementing’</td>
<td>• Work with – • Health agencies • Local govt • Other stakeholders</td>
<td>• Long term solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Long term obligations</td>
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</table>
Open Site Investigations

1) JCI/Tyco Fire Technology Center – Marinette, WI
2) JCI/Tyco - 1 Stanton St – Marinette, WI
3) ChemDesign - 2 Stanton St – Marinette, WI
4) City of Marinette Biosolids Landspreading Fields (JCI/Tyco RP) – several impacted communities

JCI/Tyco and ChemDesign must investigate and clean-up PFAS contamination in accordance with state law.

Each case based on a site or facility where a discharge of PFAS occurred – each in a different stage of the investigation.
Information and testing requested

1) City of Peshtigo Biosolids Landspreading Fields (PRP letter and request for testing)

2) JCI/Tyco Woleski Rd Warehouse/Test Facility – Marinette, WI (PRP letter issued)

3) JCI/Tyco Pine St Test Facility – Peshtigo, WI (PRP letter issued)

STATUS OF PFAS INVESTIGATIONS

- DNR has not approved the groundwater site investigation for the FTC

- JCI/Tyco has only evaluated groundwater as a potential pathway of PFAS contamination – **additional pathways must be evaluated to completely define the affected area (i.e. surface water and air)**

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Figure 1. Conceptual site model for fire training areas.

(Source: Adapted from figure by L. Trozzo; ITRC, used with permission)

Based on recent homeowner sampling data, and DNR evaluation of groundwater data, and other site investigation data:

- DNR is expanding groundwater study area associated with FTC
- Further private well sampling and groundwater monitoring is needed
- DNR will request JCI/TYCO do this work
NR 716.14 Sample Results Notification

NR 716.14 Sample Results Notification Requirements

Samples From Water Supply Wells And Other Media
• Responsible parties shall report all water supply well sampling results to the department and to the well owner - within 10 business days

• Also report cause and significance of any contaminant concentrations observed in the samples

Surface Water Treatment Systems
• DNR in receipt of Ditch A Treatment System Operations and Maintenance Report from JCI/Tyco in December 2019

• Ditch A Treatment System installed January 2019 just north of University Drive, just west of the County Jail

Ditch A Treatment System

Contaminated GW

Bag Filter
Granular Activated Carbon
Granular Activated Carbon
Granular Activated Carbon
### Understanding the Health Risk of PFAS

**Clara Jeong, Ph.D.**  
**Toxicologist**  
**Division of Public Health**  
**DNR Listening Session**  
**January 15, 2020**

#### Ditch A Treatment System Operations and Maintenance Report (Table 4)

<table>
<thead>
<tr>
<th>Date</th>
<th>PFOS in Influent (ng/L)</th>
<th>PFOS in Effluent (ng/L)</th>
<th>Efficiency (%)</th>
<th>PFOSA in Influent (ng/L)</th>
<th>PFOSA in Effluent (ng/L)</th>
<th>Efficiency (%)</th>
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<td>1/9/2019</td>
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<td>&lt; 0.64</td>
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<td>100.00</td>
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<td>100.00</td>
<td>1,630</td>
<td>&lt; 1.9</td>
<td>100.00</td>
</tr>
</tbody>
</table>

**Notes:**  
- * = Result is less than the method detection limit (MDL)  
- # = Result is less than the reporting limit (RL) and greater than the MDL. The result is estimated.  
- ng/L = Nanograms per liter  
- PFOSA = Perfluorooctanoic acid

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1/16/2020
DHS’ Work

- Evaluating literature to determine safe levels in water
- Identify exposure pathways at specific sites
- Make recommendations to prevent or reduce exposure
- Educate affected communities and local health professionals about site contamination and potential health effects

How we learn about adverse health effects

**Human Health Studies:**
Useful for detecting adverse health outcomes in exposed persons.

**Animal Studies:**
Useful for learning the mechanisms and for risk assessment.
An example of human studies:

The C8 Health Study

C8 Study Area

Map ©Joel Halverson
### Average PFOA level in drinking water

<table>
<thead>
<tr>
<th>Location</th>
<th>PFOA (ppt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Hocking, OH</td>
<td>3,400</td>
</tr>
<tr>
<td>Lubeck, WV</td>
<td>520</td>
</tr>
<tr>
<td>Tuppers Plains, OH</td>
<td>310</td>
</tr>
</tbody>
</table>

ppt = µg/L

[https://www.health.ny.gov/environmental/investigations/hoosick/docs/pfoa_blood_sampling_q_and_a_9_2_16.pdf](https://www.health.ny.gov/environmental/investigations/hoosick/docs/pfoa_blood_sampling_q_and_a_9_2_16.pdf)

### How was the health data collected?

- **69,000 participants**
- Gathered information through interviews and questionnaires
- Collected blood samples

[C8sciencepanel.org](http://C8sciencepanel.org)
Average PFOA level in blood (µg/L)

<table>
<thead>
<tr>
<th>Sample Description</th>
<th>PFOA Level (µg/L)</th>
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<tbody>
<tr>
<td>3M Workers, Decatur, AL</td>
<td>1,125</td>
</tr>
<tr>
<td>Dupont Workers, Parkersburg, WV</td>
<td>410</td>
</tr>
<tr>
<td>C8 Study: Little Hocking, OH</td>
<td>228</td>
</tr>
<tr>
<td>C8 Study: Lubeck, WV</td>
<td>92</td>
</tr>
<tr>
<td>C8 Study: Tuppers Plains, OH</td>
<td>42</td>
</tr>
<tr>
<td>Hoosick Falls Area, NY (All participants)</td>
<td>23.5*</td>
</tr>
<tr>
<td>C8 Study: Mason County, WV</td>
<td>16</td>
</tr>
<tr>
<td>U.S. Population</td>
<td>2</td>
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</tbody>
</table>

*The level shown for PFOA in blood for the Hoosick Falls area is the geometric mean and is based on test results for 2,081 participants including people using Village water, people using private wells, people who work in the area, and former residents. Geometric means are a way of calculating the middle level. They are used in science to prevent the highest and lowest values from distorting the average when rest of the data are close together.

Various studies were conducted from the C8 project.

https://www.health.ny.gov/environmental/investigations/hoosick/docs/pfoa_blood_sampling_q_and_a_9_2_16.pdf
What health effects did they look for?

- Respiratory Disease
- Osteoarthritis
- Heart Disease
- Cancer
- Preterm birth
- Preeclampsia
- Pregnancy-Induced Hypertension
- Thyroid Disease
- Diabetes
- Liver Disease
- Birth Defects
- Neurological disorders
- Infectious Disease
- Autoimmune Disease

Probable association were found between C8 (PFOA) exposure and:

- Respiratory Disease
- Osteoarthritis
- High Cholesterol
- Kidney/Testicular Cancer
- Preterm birth
- Preeclampsia
- Pregnancy-Induced Hypertension
- Thyroid Disease
- Diabetes
- Liver Disease
- Birth Defects
- Neurological disorders
- Infectious Disease
- Ulcerative Colitis
High levels of PFAS may

- Increase cholesterol
- Reduce antibody response
- Decrease fertility in women

PFAS and Cancer

Some evidence of increased risk of cancer of testis and kidney in highly exposed groups (PFOA).

No evidence of increase in breast, lung, bladder, liver, pancreas, colorectal, or overall cancer.

WHO considers human and animal evidence to be limited for PFOA and considers it possibly carcinogenic.
We do not know how much PFAS has to be in our blood to cause health effects.

We can be exposed to PFAS from food, dust, and drinking water.
Major exposure pathways to PFAS

Drinking contaminated water.
Eating fish caught from contaminated water (PFOS, in particular).
Accidentally swallowing contaminated soil or dust.
Eating food that was packaged in material that contains PFAS.

Contaminated Private well

Drinking

Cooking

Cleaning

Showering

Watering garden plants
Contaminated Surface Waters

Fishing
(Catch and Release)

Eating fish ➔
Swimming ➔

Interrupting PFAS exposure will reduce PFAS levels in our body.
Preventing further PFAS exposure is the priority to protect community health.
Q & As

Thank you!

Clara Jeong, Ph.D.
Toxicologist
Bureau of Environmental and Occupational Health
Division of Public Health

clara.jeong@wisconsin.gov
608-267-2949
Upcoming Important Dates

January -
1) Natural Resources Board – request to start rule making process (establish gw, sw, dw standards)
2) JCI/Tyco reports due
3) Jan – March: Deer Sampling Planned
4) DNR and JCI/TYCO meeting to discuss next steps

February –
1) JCI/Tyco begin sampling private wells in expanded study areas - FTC and Biosolids (or DNR if JCI/Tyco refuses)

Upcoming Important Meetings

February -
1) Wed Feb 19th – 6th Listening Session (last scheduled listening session – to be discussed during open forum)

March –
1) AOC meeting for Menominee River
   - Will email information via email subscriptions– sign up in back if you haven’t already
• **Format:**
  – Open Q/A Session

• **Ground Rules:**
  – Purpose of Listening Sessions
  – 3-mins per person → everyone has the opportunity to voice concerns
  – Keep comments constructive
  – Attack the problem not the person