Meeting Agenda

Introductions and Update

Presentations

- DEQ – PFAS Results
- EPA – Investigation Results
- DEQ & EPA – Next Steps
- EPA – Public Outreach

Questions & Answers
North Kent County PFAS Exposure Assessment

Purpose:
Measure amounts of PFAS in the blood of a group of people from North Kent County who have PFAS in their private drinking water wells

MDHHS is recruiting participants through spring 2019

Over 300 people have participated; the goal is 800

If you receive a letter or call from MDHHS inviting your household to participate, please call MDHHS to respond.
What has the DEQ done since the November 2017 Town Hall?

- DEQ and health agencies attended approximately 27 small neighborhood meetings
- Overseen the sampling of over 1700 private water wells, filter performance oversight, and continued coordination with local and state health agencies
- Responded to thousands of phone calls and emails from the community
- Investigation of over 110 alleged dumping sites from the community (24 of those sites referred to Wolverine for follow-up)
- Reviewing and overseeing Wolverine’s response actions and report submittals (field and technical data reviews)
- Directing and implementing a DEQ hydrogeologic investigation
DEQ Agenda

➢ Site Map Overview of Investigation Areas
➢ Basic Geology Concepts
➢ Residential Well PFAS Results
➢ Tannery PFAS Results
➢ House Street History & PFAS Results
➢ Wolven/Jewell History & PFAS Results
➢ DEQ Hydrogeologic Investigation
➢ Continued Work
Site Investigation Overview
Basic Geology Concepts

Lithology:
- Clay
- Silt
- Sand
- Till
- Gravel & Sand
- Bedrock

PFAS:
- Red

Water:
- Surface Water
- Groundwater
- Watertable
- Drinking Water Well
- Screen

Source Area from Historical Surficial Dumping

Aquifer
- Aquitard
- Pond
- River

DEQ
1708 wells sampled

PFOS + PFOA, ppt
- Non-Detect (923)
- >0 to 10 (457)
- >10 to 70 (204)
- > 70 (124)

FILTERS (maintained by Wolverine)
- 537 Whole-House Filters
- 234 Point-of-Use Filters
Wolverine Tannery –
Groundwater PFAS Results

Groundwater Sample Location
PFOS + PFOA, ppt

- Non-Detect
- >0 to 10
- >10 to 70
- >70 to 1,000
- >1,000 to 5,000
- >5,000 to 10,000
- >10,000 to 670,000

- Approx. Horizontal Extents of Hides & Leather Scrap
- Approx. Horizontal Extents of Leather Scrap
- Scrap Dispersed in Fill
- Groundwater Flow Direction

Rockford Dam near former Tannery
Wolverine Tannery – Soil PFAS Results

Legend
- Soil Sample Location

Approximate PFAS Extent
- < 100 μg/kg
- 100 - 500 μg/kg
- 501 - 1,000 μg/kg
- 1,001 - 4,503 μg/kg (MAX)

NOTES:
1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.
2. CONCENTRATION ISOPLETHS WERE DEVELOPED USING NATURAL NEIGHBOR INTERPOLATION IN ARCGIS. CONCENTRATIONS WERE NOT EXTRAPOLATED OUTSIDE OF THE AREA OF KNOWN CONCENTRATIONS.
3. NO REGULATORY CRITERIA FOR THIS CONSTITUENT.
4. MAX = MAXIMUM DETECTED CONCENTRATION IN THE SAMPLES.
House Street Area History

- 1930s/1940 – First reference to Wolverine disposal activities on House Street.
- 1964 – Wolverine purchases site
- 1966 – Licensed disposal facility
- 1970 – Disposal activities stop
- 2017 – Citizen group meets with DEQ

Drums and leather scraps on House Street

House Street Disposal Site Aerial: 1965 USGS
House Street – Waste & Soil Sampling

- 676 Soil Borings Installed
- 284 Soil Borings Contained Waste (PFAS concentrations as high as 220,000 ppb in the waste)
- 874 soil samples collected (PFAS concentrations as high as 81,000 ppb in the soil)

Soil Sample Locations on House Street Site – Figure from USEPA
Permanent Groundwater Monitoring Wells
- On-site: 14 wells in 7 locations
- Off-site: 34 wells at 13 locations
- 12 proposed locations
Wolven/Jewell History

- Gravel pit where disposal occurred is active in the 1950s but inactive by 1965
- Different waste stream then House Street
- Wolverine began well sampling Fall 2017
- DEQ and EPA conducted soil sampling Summer 2018
Wolven/Jewell PFAS Results

**Wolverine Monitoring Wells**
- 28 wells at 14 locations
- 3 proposed locations

**DEQ Monitoring Wells**
- 14 wells at 4 locations
- 5 proposed locations

**North Kent Landfill**
- Existing wells being sampled and monitored
- Lower PFAS levels detected at landfill in comparison to levels found in Wolven/Jewell study area.
DEQ Hydrogeologic Investigation

- During 2018, DEQ installed and sampled 24 permanent monitoring wells to aid in understanding the overall PFAS impact in northern Kent County.
- Additional DEQ investigation activities will continue in 2019.
DEQ Will Continue:

- Community Engagement
- Scrutiny and Review of Wolverine Data
- Oversight of Wolverine Activities under Part 201
- DEQ Hydrogeological Investigation & Conceptual Site Models
- Litigation Activities
Michigan Department of Environmental Quality

800-662-9278

www.michigan.gov/belmont
Wolverine World Wide Site Public Meeting

March 26, 2019
Jeff Kimble, EPA Region 5 OSC
Summary of Activities

- 2011 – EPA was asked to allow local/State entities to have jurisdiction over future activities at the tannery property
- December 2017 EPA became reengaged
  - Focus on CERCLA contamination, MDEQ PFAS focus
- EPA and MI took action in January 2018:
  - Federal CERCLA Section 106 UAO to address hazardous substances contamination at the Tannery and House Street Disposal location
  - State complaint against WWW filed in federal court under RCRA Section 7002, MI Part 201 and MI Part 31 that addresses PFAS contamination and provision of alternate drinking water
EPA/MDEQ team approach

- EPA and MDEQ work together to advance investigation at both properties
- EPA agreed to support MDEQ in the investigation into other sites
- EPA is the lead for CERCLA hazardous substances, MDEQ is the lead for PFAS
- Work plans for both sites were developed to satisfy the EPA order, and Wolverine agreed to co-locate samples for PFAS to satisfy the state complaint
- Goal is a comprehensive approach
EPA Order

- Tasked Wolverine World Wide, Inc.
  - Conduct investigation at Tannery and Former House Street Dump
    - Soil
    - Groundwater
    - Surface water
    - Soil Gas
  - EPA/MDEQ collected split samples
  - Based on the results determine next steps
    - In progress
Results

• Compare to generic action levels – in this process now
  – Assistance from ATSDR/MDHHS/Local Health for emergency decisions
  – EPA Removal Management Levels (RMLs)
  – MDEQ/State of Michigan Criteria
    • Direct Contact (residential)
    • Groundwater-surface water interface (GSI)
    • Drinking Water criteria (Part 201)
House street location

- Soil sampling
  - 676 soil boring locations
  - 999 soil samples
    - Majority of samples from “clean” soils
    - 254 boring locations with visual waste
      - 79 samples collected

- Soil gas sampling
  - 13 soil gas locations
  - 2 rounds
  - 93 total samples collected
House street location

Groundwater sampling

- 11 permanent groundwater monitoring well locations (deep) with 22 discrete intervals
  - 43 samples
- 54 temp wells (shallow) installed – “perched”
  - 81 perched GW samples collected
House St Soil Residential RML Exceedances - Metals

- Hex Chromium ≥ 30 (RMLs Res)
- Antimony ≥ 94 (RMLs Res)
- Arsenic ≥ 68 (RMLs Res)
- Iron ≥ 55000 (RMLs Res)
- Lead ≥ 400 (RMLs Res)
- Thallium ≥ 2.3 (RMLs Res)
House St Perched GW Residential Drinking Water Exceedances - Metals, VOCs, General Chemistry

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Groundwater Nitrate + Ammonia ≥ 10.000 (Res Drink)
Groundwater Sulfate ≥ 250.000 (Res Drink)
Groundwater Benzene ≥ 5.0 (Res Drink)
Groundwater Chlorobenzene ≥ 100 (Res Drink)
Groundwater Aluminum ≥ 50 (Res Drink)
Groundwater Arsenic ≥ 10 (Res Drink)
Groundwater Barium ≥ 2,000 (Res Drink)
Groundwater Beryllium ≥ 4.0 (Res Drink)
Groundwater Cadmium ≥ 5.0 (Res Drink)
Groundwater Cobalt ≥ 40 (Res Drink)
Groundwater Copper ≥ 1000 (Res Drink)
Groundwater Trivalent Chromium ≥ 100 (Res Drink)
Groundwater Iron ≥ 300 (Res Drink)
Groundwater Lead ≥ 4.0 (Res Drink)
Groundwater Magnesium ≥ 400,000 (Res Drink)
Groundwater Molybdenum ≥ 73 (Res Drink)
Groundwater Nickel ≥ 100 (Res Drink)
Groundwater Thallium ≥ 2.0 (Res Drink)
Groundwater Vanadium ≥ 4.5 (Res Drink)
Groundwater Zinc ≥ 2,400 (Res Drink)

House Street Parcels

House St Deep GW Residential Drinking Water Exceedances - Metals, General Chemistry

- Groundwater Acetic Acid ≥ 4200 (Res Drink)
- Groundwater Chloride ≥ 250,000 (Res Drink)
- Groundwater Nitrate-Nitrite + Ammonia ≥ 10,000 (Res Drink)
- Groundwater Sulfate ≥ 220,000 (Res Drink)
- Groundwater Aluminum ≥ 50 (Res Drink)
- Groundwater Iron ≥ 300 (Res Drink)
Tannery location

- Soil sampling
  - 113 boring locations
  - 244 soil samples
  - Screening showed:
    - 12 Locations with observed leather scraps

- Sediment Sampling
  - 10 Transects
  - 33 Sediment Cores
  - 91 sediment samples
Tannery location

• Groundwater sampling
  – 2 rounds of sampling
  – 56 Sampling Locations
  – 118 groundwater samples collected

• Surface Water Sampling
  – 2 rounds of sampling
  – 7 locations in Rogue River and Rum Creek
  – 16 surface water samples

• Soil Gas Sampling
  – 2 rounds of sampling
  – 10 soil gas well locations
  – 22 soil gas samples collected
Tannery Soil GSI Exceedances - Metals, VOCs, SVOCs, General Chemistry

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- Benzene ≥ 0.24 (GSI)
- Bromoform ≥ 0.1 (GSI)
- Phenol ≥ 0.26 (GSI)
- Tetrachloroethylene ≥ 0.22 (GSI)
- Trichloroethylene ≥ 0.69 (GSI)
- Xylenes (total) ≥ 0.98 (GSI)
- 1,2-Dichloroethane ≥ 0.12 (GSI)
- ibo2-Chloroethyl)ether ≥ 0.1 (GSI)
- Cellekzole ≥ 1.1 (GSI)
- Dibenzodioxin ≥ 1.1 (GSI)
- Dibenzo-furan ≥ 1.7 (GSI)
- Fluoranthene ≥ 5.5 (GSI)
- Fluorene ≥ 5.3 (GSI)
- Naphthalene ≥ 0.73 (GSI)
- Phenanthrene ≥ 2.1 (GSI)
- Anthracene ≥ 1.2 (GSI)
- Antimony ≥ 1.2 (GSI)
- Arsenic ≥ 4.5 (GSI)
- Barium ≥ 0.03 (GSI)
- Barium ≥ 80 (GSI)
- Cadmium ≥ 3 (GSI)
- Hex-Chromium ≥ 3.3 (GSI)
- Cobalt ≥ 2 (GSI)
- Copper ≥ 160 (GSI)
- Lead ≥ 2600 (GSI)
- Mercury ≥ 0.13 (GSI)
- Molybdenum ≥ 2.4 (GSI)
- Selenium ≥ 0.41 (GSI)
- Silver ≥ 1 (GSI)
- Thorium ≥ 1.4 (GSI)
- Zinc ≥ 230 (GSI)

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeraGDR, IGN, and the GIS User Community
Tannery Soil Residential Direct Contact Exceedances - Metals, SVOCs, General Chemistry

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- Chloride (Soluble) ≥ 500 (Res Direct)
- Benzo[a]anthracene ≥ 20 (Res Direct)
- Benzo(a)pyrene ≥ 2 (Res Direct)
- Benzo(b)fluoranthene ≥ 20 (Res Direct)
- Indeno(1,2,3-c,d)pyrene ≥ 20 (Res Direct)
- Arsenic ≥ 7.6 (Res Direct)
- Lead ≥ 400 (Res Direct)
- Soil Mercury ≥ 160 (Res Direct)

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, Aeronautical, IGN, and the GIS User Community

U.S. EPA Region 5

410 820 1,640 ft
0 125 250 500 m
Tannery Groundwater GSI Exceedances - Metals, SVOCs, VOCs

- Groundwater Vinyl Chloride ≥ 1.0 (GSI)
- Groundwater Phenanthrene ≥ 2 (GSI)
- Groundwater Antimony ≥ 2.0 (GSI)
- Groundwater Arsenic ≥ 10 (GSI)
- Groundwater Cadmium ≥ 2.5 (GSI)
- Groundwater Trivalent Chromium ≥ 120 (GSI)
- Groundwater Hexavalent Chromium ≥ 11 (GSI)
- Groundwater Copper ≥ 18 (GSI)
- Groundwater Manganese ≥ 1,300 (GSI)
- Groundwater Mercury ≥ 0.0013 (GSI)
- Groundwater Vanadium ≥ 27 (GSI)
- Groundwater Zinc ≥ 230 (GSI)
Next Steps (DEQ & EPA)

• Continued PFAS Plume Definition and Assessment
• Filter Oversight and Sampling
• Interim Remedial Actions
  • Proposed by Wolverine
  • Feasibility Analysis
• Determine Areas of Concern
• Human Health Consultations
  • House Street & Tannery Site
• Ecological Risk Assessment
  • Tannery
COMMUNITY ENGAGEMENT UPDATE
Engagement Activities

EPA, working with DEQ, conducting long-term engagement activities to best support community needs

- Community Involvement Plan
  - Interviews with community members
  - August – November
  - Approx. 50 people interviewed
  - Gauge interest in CAG
  - Draft expected to share this Spring
- Community Advisory Group (CAG)
  - Large interest
  - EPA providing resources for community members
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  • Community Engagement is Essential to the Success of Cleanups

• THE SITE
  • Site Location
  • Site History

• COMMUNITY CONCERNS AND QUESTIONS
  • What We Heard

• COMMUNITY INVOLVEMENT GOALS AND ACTIVITIES
  • Specific Community Involvement Activities
  • Status of Community Involvement Efforts

• THE COMMUNITY
  • Community Profile
  • Demographics

• APPENDICES

DRAFT available SPRING 2019
What is a Community Advisory Group?

CAGs are informal organizations designed to communicate between:

- diverse interests in a community
- potentially responsible parties
- EPA and DEQ at a hazardous waste site.
What is a CAG?

CAGs are helpful to:

• Provide community concerns and viewpoints
• Provide important feedback to inform the decision-making process.
**Basic CAG Facts**

**SIZE**
- generally 15 to 25 stakeholders

**FUNCTION**
- provide affected and interested parties in the community a voice and opportunity to participate in the Superfund process

**FREQUENCY**
- meet regularly over the course of the cleanup project, most CAGs meet monthly or bi-monthly.

**AFFILIATION**
- CAGs are independent community organizations, they are not formal “EPA” groups.

**SUPPORT**
- EPA may provide administrative and facilitation support to help convene and manage the CAG

**CAGs ADD TO EPA OUTREACH**
- CAGs do not replace the other EPA public information and outreach activities.
What does a CAG do?

- Hold regular, typically monthly, meetings.
- Meet with EPA and state to learn about the site and related issues.
- Provide recommendations and advice.
- Review technical information about site cleanup and other environmental problems.
- Work with EPA and state to solve problems.
- Create a strong connection to the community. Help to communicate issues to the broader community and ensure that public input reflects the full range of community interests and concerns.
Important Aspects of CAGs

Membership Must Be Balanced. Reflect all the interests and viewpoints in a community.

All Meetings Are Public. CAGs are transparent and all meetings are open to the public.

CAG Members Work at It. CAG members can spend 4 to 8 hours a month learning about the site, attending meetings, and working on crafting input.
Why a CAG?

**IMPROVED ACCESS**: People affected by Superfund sites have a right to know what the Agency is doing in their community and to have a say in the decision-making process.

**STRONGER VOICE**: An effective CAG is a very powerful way to give voice to the entire community.

**DEEPER UNDERSTANDING**: CAGs bring people together and promote understanding of a range of perspectives.

**BETTER INPUT**: CAGs provide EPA in-depth community understanding and input and

**COMMON GROUND**: CAGs help identify where the community holds common concerns and builds consensus community recommendations.
Near-term Activities

Spring
• CAG informational meeting(s)
• CAG starts organizing

Summer
• CAG starts meeting
• Open to the public

Fall
• CAG continues meeting and provide information
5 Minute Break

Followed by Questions & Answers
EPA & DEQ
Town Hall Meeting  Wolverine Update

Thank You!

For more information on MDEQ’s Wolverine House Street investigation visit the Michigan PFAS Action Response Team (MPART) website at www.michigan.gov/belmont.

Additional information on USEPA’s investigation can be found at: www.epa.gov/mi/wolverine-world-wide-tannery