THE WURTSMITH STORY: LOCAL PUBLIC HEALTH’S RESPONSE TO AN UNKNOWN EMERGING CONTAMINANT

PRESENTED BY:
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FORMER WURTSMITH AIR FORCE BASE

- LOCATED IN OSCODA - IOSCO COUNTY – LAKE HURON SHORELINE
- OPERATED FROM 1923-1993
- SUPERFUND SITE FOR DEQ
- GROUNDWATER CONTAMINATION RESULTING FROM FIRE FIGHTING FOAM
PFAS 101

• PER AND POLYFLUORINATED ALKYL SUBSTANCES (PFAS)
• USPEA DESIGNATED-NATIONAL EMERGING CONTAMINANT
• PFAS MAKES UP A FAMILY OF OVER 5000 CHEMICALS
• ONES WE KNOW THE MOST ABOUT ARE:
  • PFOA-PERFLUOROOCTANOIC ACID (TEFLON) WAS TO BE PHASED OUT BY 2015
  • PFOS-PERFLUOROOCTANESULFONIC ACID (SCOTCHGARD) DISCONTINUED IN 2002
PFAS 101: WHAT IS PFAS

• CHARACTERISTICS:
  
  VERY STABLE
  
  BREAK DOWN SLOWLY
  
  EASILY TRANSFERRED TO GROUND WATER
PFAS 101: WHERE IS PFAS FOUND?

• NON-STICK COOKWARE AND SMALL ELECTRICAL APPLIANCES
• PAINTS AND AGRICULTURAL COATINGS
• PROTECTIVE HEALTH GARMENTS
• PROTECTIVE FINISHES AND APPAREL AND TEXTILES
• FIRE FIGHTING FOAM
• AEROSPACE MATERIALS HYDRAULIC HOSES, CABLES AND WIRES
• SEMI CONDUCTOR MANUFACTURING
• PAPER PRODUCTS
EPIDEMIOLOGICAL STUDIES

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR) REPORTED ON OVER 400 EPI STUDIES DONE ON TOXICITY OF PFASs

STUDIES SUGGEST LINK BETWEEN PFAS EXPOSURE AND HEALTH OUTCOMES

*HEALTH EFFECTS ASSOCIATED WITH PFAS ARE NOT SPECIFIC AND CAN BE CAUSED BY MANY OTHER FACTORS*

ANIMAL STUDIES REVEAL:

LIVER DAMAGE
• ANIMALS: DECREASE IN SERUM LIPID LEVELS

IMMUNE EFFECTS
• SUGGEST DECREASED VACCINATION EFFICACY

REPRODUCTIVE TOXICITY
• DECREASE IN MAMMARY GLAND DEVELOPMENT, DID NOT AFFECT LACTATION

DEVELOPMENTAL TOXICITY
HUMAN STUDIES: C8 HEALTH PROJECT

PFOA CONTAMINATION FROM 1950-2002 NEAR PARKERSBURG, WEST VIRGINIA FROM DUPONT

69,030 PERSONS 18 YEARS OF AGE OR OLDER FOUND PROBABLE LINKS BETWEEN ELEVATED PFOA BLOOD LEVELS AND

- ULCERATIVE COLITIS
- HIGH CHOLESTEROL
- THYROID FUNCTION
- TESTICULAR CANCER
- KIDNEY CANCER
- PREECLAMPSIA

RESIDENTS IN THE AREA SHOWED A 500 PERCENT HIGHER PFOA-CONCENTRATIONS IN BLOOD COMPARED TO U.S. POPULATION
ENVIRONMENTAL PROTECTION AGENCY’S “LIFETIME HEALTH ADVISORY” LEVEL

• BASED ON REFERENCE DOSES (RFD) CALCULATED FROM DEVELOPMENTAL TOXICITY STUDY IN RATS

• LIFETIME HEALTH ADVISORY
  • PFOA + PFOS = 70 PPT
  • SHORT-TERM AND LONG-TERM EXPOSURE

• PROTECTIVE OF UNBORN BABY AGAINST DEVELOPMENTAL EFFECTS

• PROTECTIVE OF ALL AGAINST CANCER AND NONCANCER HEALTH EFFECTS
DATA : PFOS AND PFOA

### 2016-2017 Test Results

- **0-9.99**: 91%
- **10-19.99**: 1%
- **20-29.99**: 0%
- **30-39.99**: 0%
- **40-49.99**: 0%
- **50-59.99**: 0%
- **60-69.99**: 0%
- **70+**: 0%

### 2018 Test Results

- **0-9.99**: 66%
- **10-19.99**: 24%
- **20-29.99**: 5%
- **30-39.99**: 3%
- **40-49.99**: 3%
- **50-59.99**: 0%
- **60-69.99**: 0%
- **70+**: 0%
**PROLOGUE:**

1. In 2011 fish samples were collected from Clarks Marsh near the former Fire Training Area at the base.

2. In May of 2012 MDHHS issued a “Do not eat the fish” advisory for Clarks Marsh.

3. PFAS contamination exceeded consumption recommendations for PFOS.

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### Osco County Guidelines

<table>
<thead>
<tr>
<th>River Name</th>
<th>Type of Fish</th>
<th>Chemical of Concern</th>
<th>Size of Fish</th>
<th>M1 Servings per Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floyd Lake</td>
<td>Largemouth Bass</td>
<td>Mercury</td>
<td>Under 18”</td>
<td>6 Per Year</td>
</tr>
<tr>
<td></td>
<td>Smallmouth Bass</td>
<td>Mercury</td>
<td>Under 18”</td>
<td>6 Per Year</td>
</tr>
<tr>
<td>Tawas River</td>
<td>Black Crappie</td>
<td>Mercury</td>
<td>Any Size</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>White Crappie</td>
<td>Mercury</td>
<td>Any Size</td>
<td>2</td>
</tr>
</tbody>
</table>

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*Why aren't some fish safe to eat?*

The fish from Clark's Marsh have high amounts of PFOS in them and shouldn't be eaten at all. Some fish from the lower Au Sable River, Lake Huron, and Van Etten Lake have PFOS, PCBs, dioxins, and mercury. The guidelines in this brochure describe how often it's safe to eat them.
CHAPTER 1:

THE ADVISORIES
DECEMBER OF 2015 MDHHS/MDEQ CONDUCTED TESTS OF GROUND WATER WELLS NEAR THE AIR FORCE BASE.

BASED ON DISCUSSION OF TEST RESULTS WITH MDHHS TOXICOLOGISTS THE DHD2 HEALTH OFFICER ISSUED A HEALTH ADVISORY ON FEB 26, 2016

ADVISORY WAS TO SEEK ALTERNATE WATER.

AREA HAS SINCE EXPANDED TWICE AS A RESULT OF TESTING IN THE AREA.
CHAPTER 1: THE ADVISORIES

FOAM Samples

Sample Name - Sample Date
Total PFAS (PFOS | PFDA | PFABs | PFHxS)

- FOAM 1 - 12/17/2017
  CAS (3) 120 - ND

- FOAM 2 - 7/27/2017
  12020 (0.7) [12190] 82
  217625 (530) 110250 10320

- FOAM 3 - 7/27/2017
  12020 (25) [12190] 82
  47510 (470) 80060 840

- FOAM 4 - 7/27/2017
  51955 (513) 49500 720
  2403 (21) 2475 180

- FOAM 5 - 1/3/2017
  4053 (21) 2475 180
May 2012 – Do Not Eat the Fish Advisory for Clark’s Marsh

January 2015 – Original Residential Wells Tested

February 2016 – Original Health Advisory Issued – Approx. 24 properties

June 2016 – Affected Area Expansion – Approx. 50 properties

June 2016 – Alternate Water Funding

June 2016 – Affected Area Expansion – Approx. 50 properties

September 2016 – Affected Area Expansion Approx. 300-400 properties

September 2016 – Restoration Advisory Board (RAB)

January 2017 – SB 950 Signed

June/July 2017 – Door to Door Campaign

September 2017 – Foam Advisory

January 2018 – Michigan LHA 70 ppt

June 2018 – Brinks Bill Introduced

June 2018 – ATSDR Study Released

August 2018 – Colbath and Pinecrest Area Expansion
FUNDING

• FISCAL YEAR 2016
  • DHD2 RECEIVED $100,000 FOR PROGRAMMATIC WORK AND AN ADDITIONAL $100,000 WAS
    EARMARKED TO ASSIST RESIDENTS WHO QUALIFY, WITH MUNICIPAL HOOKUP

• FISCAL YEAR 2017
  • DHD2 RECEIVED $250,000 FOR PROGRAMMATIC WORK AND TO SUPPLY AFFECTED RESIDENTS WITH AN
    ALTERNATE WATER SUPPLY

• FISCAL YEAR 2018
  • DHD2 RECEIVED $150,000 IN FUNDING TO CONTINUE PROGRAMMATIC WORK AND TO CONTINUE
    SUPPLYING ALTERNATE WATER SOURCES TO RESIDENTS IN THE EXPANDING AFFECTED AREA
CHAPTER 2:

ALTERNATE WATER SUPPLY OPTIONS
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

WAIVERS

• AVAILABLE TO THE INITIAL 24 PROPERTIES WHO WERE ISSUED THE ADVISORY
• NO FUNDING AVAILABLE AT THE TIME OF INITIAL ADVISORY
• WAIVERS ALLOWED PROPERTY OWNERS TO PICK UP ONE 5-GALLON JUG AND FILL AT MUNICIPAL LOCATIONS ARRANGED WITH OSCODA TOWNSHIP
• NO LIMIT ON THE AMOUNT OF WATER A PROPERTY COULD GET
• VOUCHER WAS CODED IN A WAY SO WE COULD TRACK PROPERTIES AND THEIR WATER FILLS
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

FILTERS

CULLIGAN REVERSE OSMOSIS FILTER

- Initial filter system offered to property owners
- Properties would get up to $900 for installation
- Needs filters replaced every year
- NSF P473 certified

AQUASANA AQ5300+

- Filter system we offer now
- Property owners get installation and extra set of filters
- Filters need to be replaced about every 6 months or 800 gallons of water used
- NSF P473 certified
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS
IN-HOME WATER COOLER

• FACILITATED THROUGH CULLIGAN

• PROPERTY OWNERS COULD GET WATER COOLER AND THEN $900 PLACED ON ACCOUNT

• PROPERTY OWNER RESPONSIBLE FOR SETTING UP DELIVERY SCHEDULE

• ONCE FUNDS ON ACCOUNT RAN OUT, A WATER EXTENSION OF $900 WAS GRANTED

• THIS OPTION IS NO LONGER BEING OFFERED
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

MUNICIPAL HOOK-UP

- AVAILABLE TO PROPERTY OWNERS WHO HAD PRE-EXISTING WATER LINES ON THEIR STREET
- ELIGIBLE FOR UP TO $1,100 FOR THE TAP FEE TO HOOK TO MUNICIPAL LINE
- PROPERTY OWNER RESPONSIBLE FOR THE COST OF RUNNING PIPE FROM MUNICIPAL LINE TO HOUSE
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

ELIGIBILITY

• ONCE FUNDING BECAME AVAILABLE AND AREA EXPANDS.....

• VERIFICATION DONE BY ADDRESS

• PROPERTY HAS TO BE IN PRE-DETERMINED AREA

• FEW PROPERTIES IDENTIFIED OUT OF AREA BY RESULTS.
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

ELIGIBILITY

MOST RECENT EXPANSION

- IN AUGUST OF 2018 ADVISORY WAS EXPANDED
- COLBATH RD AREA, DUE TO FOREST FIRST ASSISTED BY THE AIR FORCE
- OSCODA SCHOOLS/PINECREST AREA, TIRE FIRE EXTINGUISHED WITH AFFF
- POSITIVE WELL TEST FOR PFAS
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

PROCESS TO OBTAIN

- Property owner calls HD who then verifies eligibility – Contact form completed.
- If eligible, packet of information sent to property owner:
  - Packet contains: letter, “AUR” fact sheets on system and PFAS, additional information sheets.
- “AUR” needs to be signed and returned to HD.
- Property available for only one alternate water supply.
- Once “AUR” received and verified, LHD sends request to appropriate vendor.
- Vendor and property owner arrange install/set up time.
# CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

## TRACKING

### ELECTRONIC TRACKING

<table>
<thead>
<tr>
<th>Address</th>
<th>Street</th>
<th>Property Owner's Name(s)</th>
<th>Owner's Mailing Address</th>
<th>Owner's Phone #</th>
<th>Rental?</th>
<th>Eligibility</th>
<th>Alternate Water Type</th>
<th>Installed</th>
<th>Vendor</th>
<th>Comments</th>
<th>Replacement/Extension Letters Dealt Sent</th>
<th>F/C or Ext</th>
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</thead>
<tbody>
<tr>
<td>300 Birch Street</td>
<td>Park &amp; Elaine Doe</td>
<td>same as well</td>
<td>503-967-7893</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>137 Elm Drive</td>
<td>John and Jane Doe</td>
<td>P.O. Box 123</td>
<td>Osceola MI 47070</td>
<td>503-967-7893</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 Elm Drive</td>
<td>Alex and Judy Doe</td>
<td>same as well</td>
<td>503-967-7893</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>101 Oak Street</td>
<td>Tom and Rita Doe</td>
<td>same as well</td>
<td>503-967-7893</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>property owner only uses well</td>
<td></td>
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</tr>
</tbody>
</table>

### PAPER TRACKING

![Image of file folders]
CHAPTER 2: ALTERNATE WATER SUPPLY OPTIONS

TOTALS – AS OF SEPTEMBER 26, 2018

DHD2 Weekly Report of Alternate Water Supply Units for 9/26/2018

- Filters Installed: 155
- In-Home Water Coolers: 50
- Municipal Hook-Ups: 21
- Filter Replacements: 88
- Water Cooler Extensions: 4
CHAPTER 3: COMMUNICATION

“THE SINGLE BIGGEST PROBLEM IN COMMUNICATION IS THE ILLUSION THAT IT HAS TAKEN PLACE”
GEORGE BERNARD SHAW
CHAPTER 3: COMMUNICATION
LETTERS AND PHONE CALLS

LETTERS
• USED IN PLACES WHERE PHONE NUMBERS MAY HAVE BEEN MISSING
• HAVE SENT CERTIFIED AND REGULAR
• NOT USED AS REGULARLY AS PHONE CALLS OR OTHER METHODS
• GOOD WAY TO DOCUMENT

PHONE CALLS
• OUR BEST RESOURCES FOR TWO-WAY COMMUNICATION
• ONE PHONE NUMBER ACTS AS MAIN NUMBER FOR INDIVIDUALS TO CALL
• THREE STAFF WHO ARE TRAINED TO ANSWER QUESTIONS/DETERMINE ELIGIBILITY/TAKE TESTING REQUESTS
• STAFF HAVE FIELDED HUNDRED OF PHONE CALLS SINCE INITIAL ADVISORY WAS ISSUED
• FIRST METHOD OF COMMUNICATION AFTER THE ADVISORY WAS ISSUED TO AFFECTED PROPERTY OWNERS
COMMUNICATION
PRESS RELEASES

• More general and wide reaching
• Use to announce events or significant changes in the situation
• Sent to two local papers in the area
CHAPTER 3: COMMUNICATION
WEBSITE

- WWW.DHD2.ORG/WURTSMITHACTIVITIES
- BEST SOURCE OF CONSTANT INFORMATION/COMMUNICATION
- CAPACITY TO UPDATE IN HOUSE
- INFORMATION ON:
  - MAPS
  - HAPPENINGS
  - PRESS RELEASES
  - UPCOMING EVENTS
  - CORRESPONDENCE
CHAPTER 3: COMMUNICATION
DOOR TO DOOR

- Conducted over the span of 5 weeks in June/July of 2017 – 281 properties
- Over 200 properties were visited during the campaign
- Packets of information were created to leave with property owners or if no one was home
- Procedures regarding safety and protocol were developed.

- Usually done in teams of two with a crew of four staff in the area at a time
- On July 7 – Senator Stamas and staff from MDHHS joined DHD2 staff to go door-to-door
- Two purposes – to share information with property owners and allowed staff to gather information on properties
CHAPTER 3: COMMUNICATION
DOOR TO DOOR
CHAPTER 3: COMMUNICATION
TOWN HALL MEETINGS/RAB

• SIX TOWN HALL MEETINGS HAVE TAKEN PLACE
  • TWO HOUR OPEN HOUSE WHICH ALLOWS FOR ATTENDEES TO SPEAK DIRECTLY TO AGENCIES IN ONE-ON-ONE CONVERSATIONS
  • TWO HOUR FORMAL MEETING WHERE RESPONDING AGENCIES PROVIDE UPDATES
  • QUESTION AND ANSWER SESSION AT THE CONCLUSION

• RESTORATION ADVISORY BOARD (RAB)
CHAPTER 4:
INTERNAL OPERATIONS
CHAPTER 4: INTERNAL OPERATIONS

WATCH MEETINGS: WEAPONS OF MASS DESTRUCTION & THREATS TO COMMUNITY HEALTH

• CALLED BY THE HEALTH OFFICER TO ADDRESS URGENT MATTERS OF PUBLIC HEALTH AND SAFETY

• HEALTH OFFICER SELECTS STAFF THAT ARE APPROPRIATE FOR THE RESPONSE EFFORT.

• COMMON ATTENDEES: EPC, PIO, COMMUNITY HEALTH DIRECTORS, EH DIRECTOR.

• MEETING HELD AS NEEDED.

• DISCUSSED: PREP FOR TOWNHALLS, REVIEW OF PUBLIC INFO, RESPONSE STRATEGIES, PUBLIC RELATIONS, PARTNERS RESPONSE.
CHAPTER 4: INTERNAL OPERATIONS

CONFIDENTIALITY

- DHD2 had treated individual status of residences as confidential. Including addresses, names and test results.

- Restricted access to information about residences in our office and on our computer network.

- Include in agreements with vendors and installers that all information is confidential.
EPILOGUE
EPILOGUE

LESSONS LEARNED

• TRAINING ON THE SPECTRUM OF PHONE CALLS
• SCOPE OF CONCERN IN RESIDENTS
• ADVOCACY GROUPS
• POLITICS
• IMPACT TO LPH STAFF TIME AND THE INVESTIGATION CONTINUED TO QUICKLY GROW

NEXT STEPS

• CONTINUE ADVOCACY EFFORTS
• PURSUE POSSIBLE EPI STUDIES
• MONITOR AND PREPARE FOR POSSIBLE IMPLEMENTATION OF NEW DISCOVERIES
QUESTIONS?

CONTACT INFORMATION

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THANK YOU!
CREDITS AND ACKNOWLEDGMENTS

• PFAS BASICS PRESENTATION: WILLIAM FARRELL TOXICOLOGIST TAR
  • HTTPS://WWW.EWG.ORG/INTERACTIVE-MAPS/2017_PFA/INDEX.PHP#.W6J5USHK1M8
  • HTTPS://WWW.ATSDR.CDC.GOV/PFAS/INDEX.HTML
  • HTTPS://WWW.DHD2.ORG/WURTSMITH-ACTIVITIES
  • HTTPS://WWW.MICHIGAN.GOV/PFASRESPONSE/0,9038,7-365-86511_82704_83952---.00.HTML