Presentation on Potential Water Risks - Based on Real World Data

By Scott Smith
Chief Technology Officer & Investigator
We Are There – The Real World is Our Laboratory
March 2013: ExxonMobil Pegasus Pipeline
Tar Sands Oil Spill Mayflower, AR
Cove Wetlands on April 2, 2013

Cove Wetlands April 23, 2013
California agency misses deadline on reporting oil-industry water use

Scott Smith of Water Defense conducts a test of water from a canal that carries water from oil production mixed with fresh water. (Brian van der Brug, Los Angeles Times)

By JULIE CART
Oil and water | An uneasy mix in farm fields of the Central Valley
Oil Wastewater Used to Irrigate Crops – Extreme Energy Extraction
Navajo Nation – Shiprock, New Mexico

Sediment, Crop, and Cumulative Water Testing
Crop Testing (Cytotoxicity) – Navajo Nation - Shiprock, NM
San Juan River – Pre-Animas Confluence Testing

Barium - 0.18 PPM
Beryllium - Non Detect
Iron - 5.2 – 320 PPM
Lead - 0.016 PPM
Manganese - 0.16-11 PPM
Vanadium - Non Detect
San Juan River – Post-Animas Confluence Testing & Shiprock

Barium - 9.6 - 250 PPM
Beryllium - 0.0029 PPM
Iron - 1.6 - 2800 PPM
Lead - 0.086 PPM
Manganese - 0.83 - 66 PPM
Vanadium - 0.057 - 9.4 PPM
### Sediment Testing Locations

**Baseline Sediment**
- Not Impacted - Contaminated Plume
  - **Indian Service Route 362**
  - **Shiprock, NM 87420**
  - Latitude: 36.746° N
  - Longitude: 108.538° W
  - Altitude: 5003 ft
  - Speed: 0 mph
  - Heading: Northwest

**Sediment**
- Impacted - Contaminated Plume
  - **Hogback Canal**
  - **Shiprock, NM 87420**
  - Latitude: 36.745° N
  - Longitude: 108.545° W
  - Altitude: 4998 ft
  - Speed: 2 mph
  - Heading: North
Sediment Testing

Note: Baseline Sediment Testing is on Left and Impacted Sediment Testing is on Right.

All Chemicals & Metals found substantially higher with Impacted Sediment – Baseline Sediment had non-detect for Beryllium & Nickel.

Appears that the Chemicals & Metals have Precipitated out of the Water Column and into the Sediment & Risks Re-Contamination of Water.

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Hog Back Canal Baseline</th>
<th>Hog Back Canal Headgate</th>
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<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>PPM</td>
<td>PPM</td>
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<tr>
<td>TPH C10-C20</td>
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<td></td>
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<td>TPH C20-C34</td>
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<td>160</td>
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<td>Metals</td>
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<td>Beryllium</td>
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<tr>
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<td>Zinc</td>
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</table>
Politics are far more contaminated than the water ever was or is in Flint:

- Taxpayer Dollars used to “Manage” the message and declare the water “safe”.
- Taxpayer Dollars used to fund public and backdoor defamation campaigns against anyone attempting to research what is in the water to get to the Truth and support the community of Flint.

Still no detailed lab reports other than Water Defense.

Taxpayer funds recently used to test 2 homes in Flint and declare Flint water “safe” for all homes.

**The Good News:** New Paradigm for Lawyers, Communities, and Truly Independent Experts to Gather Irrefutable & Comprehensive Water Tests that will hold up in Court and better Protect Affected Communities & Improve Social Justice.
Kathy Barks Hoffman, an award-winning public relations practitioner and journalist with a background in public affairs, has joined the public relations firm of Martin Waymire as a senior account executive.

Barks Hoffman most recently worked for Lambert, Edwards & Associates public relations firm in its Lansing office, where she was director of the public affairs practice. Previously, she covered Michigan and national politics for more than two decades as the head of The Associated Press’ Lansing bureau and as a reporter for The Detroit News and Lansing State Journal. She also spent many years as a panelist on public television’s “Off the Record” public affairs program.

Birmingham-based Brogan & Partners and Lansing-based Martin Waymire announced a business-sharing relationship in August. Brogan specializes in strategic services, media buying and marketing; Martin Waymire focuses on media relations, crisis communications, strategic communications consulting, ballot campaigns and public policy issue management, according to a statement. Both companies have expertise in digital and social media.

— Crain's staff report
“One of the greater dangers to mankind is trust in scientists. The fate of mankind rests as never before on scientists and engineers finding solutions to our problems. What is to become of us if we are untrustworthy. The public is turning away from us, in many cases for good reason.”

“We are too much looking out for ourselves, trying to get funding, skewing results in favor of a funding agency, whether it’s a federal agency or other entity.”

“…the idea that we were going to coat these pipes with orthophosphate and make the water safe to drink, it looks a little naïve in retrospect. And anybody who has looked at this problem now feels this way.”

Now, what do the examples of Thomas Edison, Steve Jobs, and Bill Gates have to do with this…
Independent Detailed Lab Reports to the Citizens & Residents of Flint- Only One Source as of 10-22-16
Exposure routes

Inhalation
(shower, swimming pool, etc.)
Volatile DBP
(e.g. THMs)

Ingestion
(water, coffee, tea, water-based food and beverages)
All disinfection by-products

Dermal absorption
(swimming pool, bath, etc.)
Permeable DBPs
(e.g. THMs, haloketones, ...)

TOTAL INTERNAL DOSE

Slide courtesy of Manolis Kogevinas, Centre for Research in Environmental Epidemiology/IMIM, Barcelona
Route of exposure is important....

- Can get 2X exposure from 10 min shower compared to drinking 2L of tap water (inhalation)

- Some DBPs dermally absorbed

Humans Don’t Bathe or Shower in Water for a Split Second

2. We Use Conventional Split Second Grab ("Scoop") Samples throughout the entire home.
3. Also, we test for Cumulative Exposure Over Time.
4. All Tests Done by Independent ALS Laboratories with EPA Protocols.
Test in Shower with Hot Water Running
I see your the water guy. have you guys found out whats in the water causing the rashes. The EPA and CDC have been less then helpful.
Citizen Science, Union Plumbers, & Water Defense
Flint 2016
Harold Harrington – UA Plumbers’ Union
Testing the Water as it Enters the Home – at the Water Meter
Testing the Water Heater
Implications from Flint & Navajo Nation

- Irrefutable data along with sound & independent science & toxicology studies to reach accurate conclusions.

- Legal support combined with experts on the ground bringing community together with unified communications / public relations campaign:
  - No proper toxicological studies: we cannot draw any Cause & Effect relationships between chemicals detected and reported health effects. For example recent initial cytotoxicity study on water.
  - Epidemiological studies are also critical to better understand the affected Flint residents and the serious gaps that currently exist (e.g., no showering / bathing standards)

- Ultimately, it is all about the integrity of the Data at Trial!!!
Principles in Flint That Made A Difference

1. Test Entire Premise for Full Spectrum of Chemicals & Bacteria – not just kitchen sink cold water – hot water can be different.

2. Test showers and bath tubs where human lungs and skin contacts water – especially hot water.

3. Test Water at Water Meter at Entrance of Premise – to understand state of water as it is delivered.

4. Use Independent Laboratories (ALS and QLABS) and EPA Protocols to evaluate samples.
Entire Premise Testing – Water Feed / Meter
Entire Premise Testing – Water Heater
Flint Michigan Much More Than Lead in Water
500,000 People without Water - Toledo OH – Aug 2014
Bermuda
Testing & Remediating Metals and PAH Contamination - Bermuda
Removing the Metals & PAH’s at the Source
Albany has become Houston on the Hudson

Big Oil, Big Rail, and weak Government regulations means it’s up to us.
What will happen to all that crude carried on railroads? Much of it will become gasoline, and the rest will turn into diesel, jet fuel and petroleum products. This image used the Backhoe icon designed by Jev Downer from the Noun Project.
Crude By Rail Routes
Railroads have become virtual pipelines carrying crude from North Dakota to the East, West and Gulf Coasts.

Weekly average number of crude-oil trains from the Bakken Shale in North Dakota that pass through each county

0 0.1 to 10 10.1 to 25 >25

States that did not disclose data

Millions of Americans live within the blast zone

Source: State Emergency Response Commissions
The Wall Street Journal
In the Bakken Oil Fields – North Dakota
Testing the Water
Administrator Cynthia Quartermar

- Administrator of the DOT Pipeline and Hazardous Materials Safety Administration (PHMSA)
- Directs National Program to Protect Against Risks in Transportation of Hazardous Materials, Liquids, Natural Gas, Petroleum, and other Products by Pipeline and Rail
- Former Director of DOI Minerals Management Service (MMS)
- Juris Doctor from Columbia University and Industrial Engineering degree from Northwestern University
The Problem & The Solution

◆ Aging and Obsolete Infrastructure & Our Political System is More Contaminated than Any Water:

◆ Unsustainable Growth & Risk
  ✓ 9,500 Rail Cars in 2008
  ✓ >400,000 in 2013
  ✓ >500,000 in 2014

◆ FRA, PHMSA, etc. are Revolving Doors for Lobbyist Influence.

◆ Systemic Failure of Elected Officials to Represent Their Constituents.

◆ Solution is Community Based:
  ✓ Education – 1 Person at a Time
  ✓ Action – 1 Person at a Time
  ✓ Clean Energy – 1 Person at a Time