



TELLING THE STORIES: HEALTH IMPACTS IN THE FORE RIVER BASIN

A project to document the toxicity of the Basin

Led by FRRACS (Fore River Residents Against the Compressor Station)

Funding supported by The Island Foundation

Why are we collecting stories?

- The Fore River Basin is home to to ten industrial facilities. These facilities release a variety of toxic pollutants, some of which are known to be carcinogenic.
- We are concerned about the impact that these facilities are having on the health of local residents.
- Enbridge, a fossil fuel company, is planning to build a 7700HP fracked gas compressor station in the Basin, adding yet another toxic facility to the Basin. We want to gather stories about existing health conditions to make it clear that the Basin cannot handle any further environmental degradation.



Compressor Station Health & Safety Risks

This proposed compressor station will create air, noise, and odor problems that will affect residents in Weymouth, Quincy, Braintree, and the South Shore.

Compressors pose a serious health risk, especially when in such close proximity to a dense residential area.

Normal operations will release 10 cancer causing chemicals into the air. During "blowdowns," millions of cubic feet of untreated natural gas will be emitted into our community.

There's also a history of catastrophic accidents at other stations that could paralyze traffic, devastate our waterfront, and put residents at serious risk.



Feb. 2019 explosion at a compressor in Armada, MI

A Brief History of the Fore River Basin

Residents in the Fore River Basin have been living in the shadow of pollution for decades.

- Edgar Power Plant (1923-1970)
 - Clinkers (small pieces of burned coal) can still be found on the beach along the Fore River.
 - Burner bricks (chimney lining) can be found on the beach.
 - Coal ash was dumped on the site of the proposed compressor station.

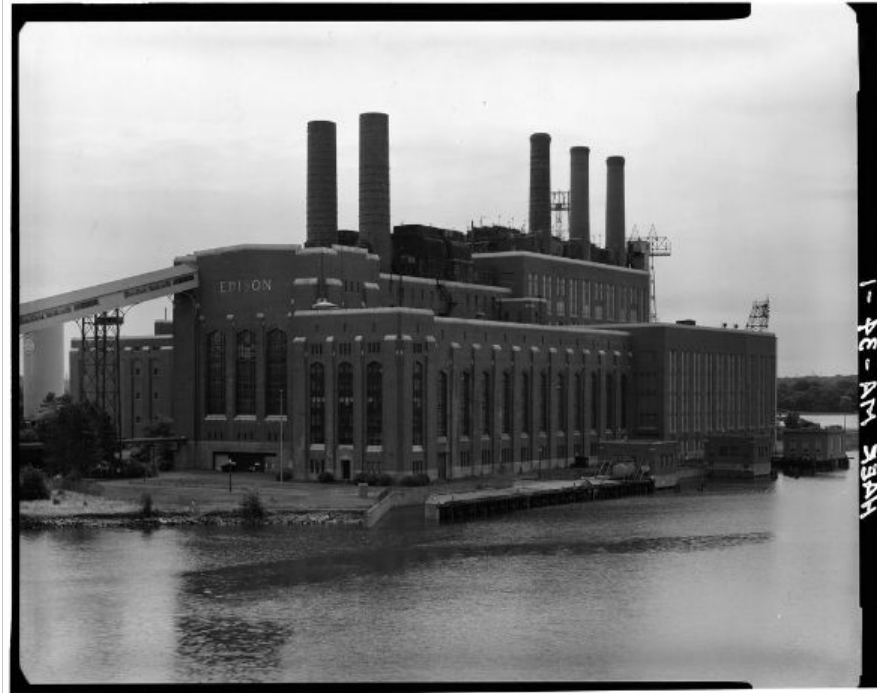


Image source: Library of Congress



Images taken during low tide at the shore side by the Kings Cove Walkway: all clinkers and burner bricks (yellow).



Photo credit: Margaret Bellafiore

A Brief History of the Fore River Basin cont'd

- Fore River Shipyard (1901-1986)
- General Dynamics (1963-1987)
- Procter & Gamble (1939/1940-1995)
- Sprague Terminal (1900s - present)
 - Had an 11 million gallon tank of #2 fuel oil and an additional above ground tank of 6,000 gallons of "multi component fuel additive." Both these tanks were removed in 2004/5.
 - These tanks were located at what is now the proposed compressor station site. There are records that show what happened to the 11 million gallons of oil. It's possible that the oil leaked into the ground.
 - FRRACS and the Town of Weymouth pursued an audit of the contamination. The Licensed Site Professional (LSP), who also works for Enbridge to build the compressor station, was recently cited for non-compliance by the DEP. More soil testing must be done by July 2019.



Image source: Wikipedia

An Overburdened Community

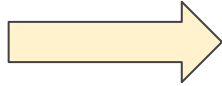
- The Fore River Basin is home to ten industrial facilities. These facilities are known to have caused high levels of pollution in the area.
- All are located within a 1-mile radius of the proposed site.





Air Quality in the Basin

- Community air quality testing in 2017 found 11 violations of MassDEP “TEL” 24 hour guideline:
 - Acetone
 - Benzene
 - Methylene chloride
 - 1,2 Dichloropropane
 - 2-hexanone
 - Total alkanes and hexane
 - Ethanol
 - 2-Butanone
 - Toluene
 - Total xylenes
 - Carbon disulfide



An incomplete list of possible health effects:

Neurologic: Headache, dizziness, numbness, weakness, confusion, tremors

- Respiratory: Asthma, lung damage, irritation of respiratory tract, cough
- Hematologic: Anemia, bleeding, weakened immunity, leukemia
- Gastrointestinal: Liver damage, liver cancer, nausea
- Reproductive: Irregular periods, abnormal ovaries, (low birth weight and damaged bone marrow in animals)

24-Hour Violations

VOC	Cotton Ave. (Braintree) (in ppb) ^{***}	Evans St. (Wey) (in ppb)	Bridge St. (Wey) (in ppb)	MassDEP 24 hour guideline (TEL) (in ppb)
Acetone	439	12.3	9.84	68.03
Benzene	0.883	0.57	0.43	0.2
Total alkanes ^{^^^}	326	9.11		95.24
Toluene	5.16	110.69	7.33	21.23
Total xylenes	1.65	4.47	1.91	2.72
Ethanol	46.3		5.85	24.21
Carbon disulfide			1.83	0.032
2-butanone (MEK)	151		3.51	67.82
1,2-dichloropropane	0.482			0.19
2-hexanone (MBK)	39.6			2.66
Methylene chloride	997			30

^{***} All values in parts per billion (ppb) except total alkanes, in micrograms per cubic meter to match units for the MassDEP TEL guideline

^{^^^} At Braintree, analysis included hexane and heptane only. In Weymouth, analysis included heptane only

24-Hour Fold Violations

VOC Measured	Fold-violation		
	Cotton	Evans	Bridge
Acetone	6.45		
Benzene	4.42	2.85	2.15
Total alkanes ^{AAA}	3.42		
Toluene		5.21	
Total xylenes		1.64	
Ethanol	1.91		
Carbon disulfide			57.2
2-butanone (MEK)	2.23		
1,2-dichloropropane	2.54		
2-hexanone (MBK)	14.9		
Methylene chloride	33.2		

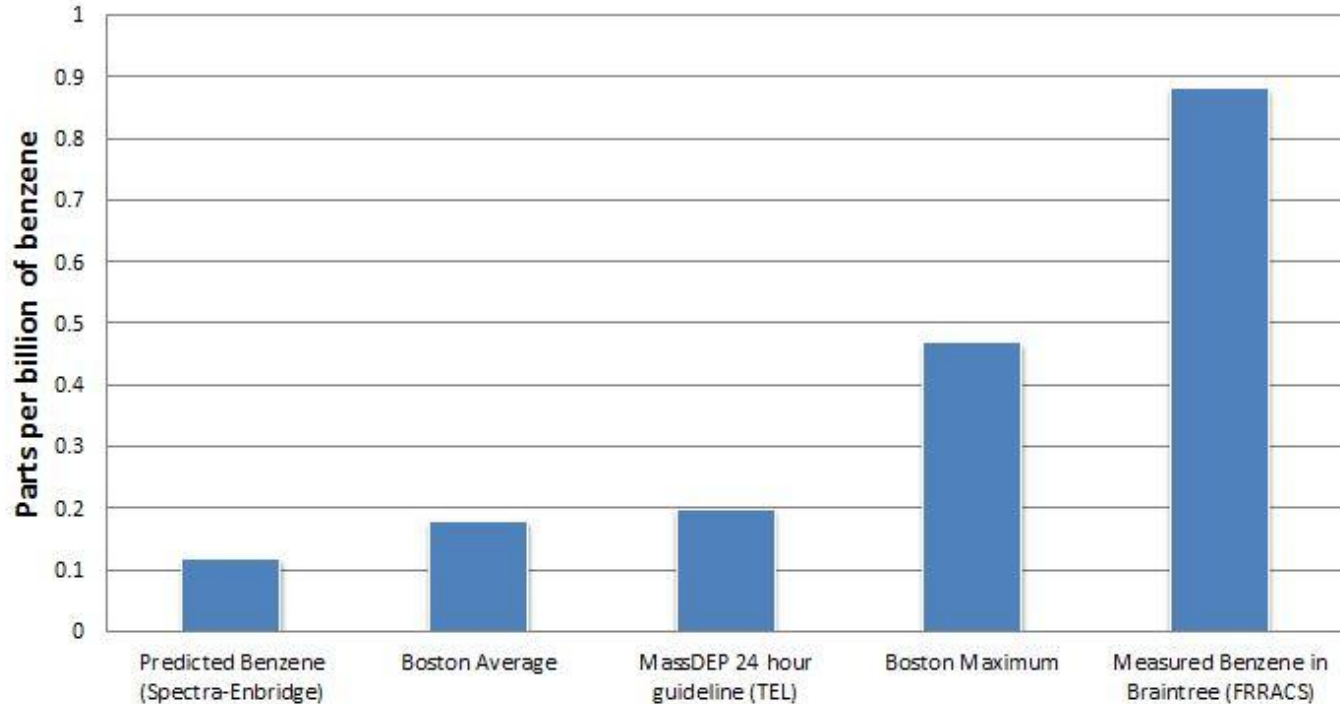


This chart indicates how many times a pollutant violated the MassDEP 24-hr guideline. For example, Acetone was 6.45x the MassDEP guideline in Braintree.

Some of the toxins were measured at levels nearly 2x to more than 57x the MassDEP 24-hour guideline.

Air Quality in the Basin - Benzene

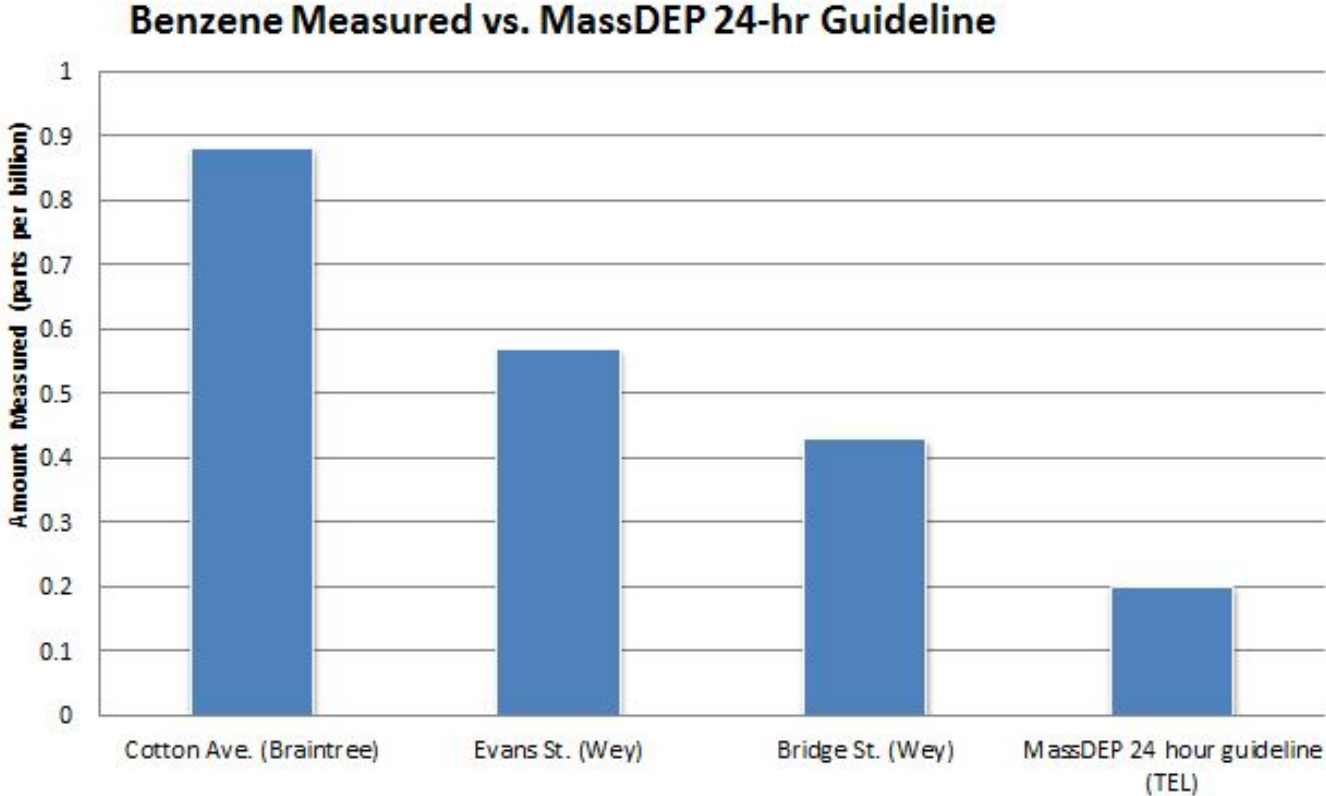
Benzene Comparisons



Benzene is a volatile organic compound (VOC) found in gasoline, oil, and natural gas, as well as exhaust from burning these fuels. It is known to be carcinogenic.

The AMA states that there are no safe levels of benzene.

Braintree and Weymouth Benzene Levels vs. 24-hr Guideline

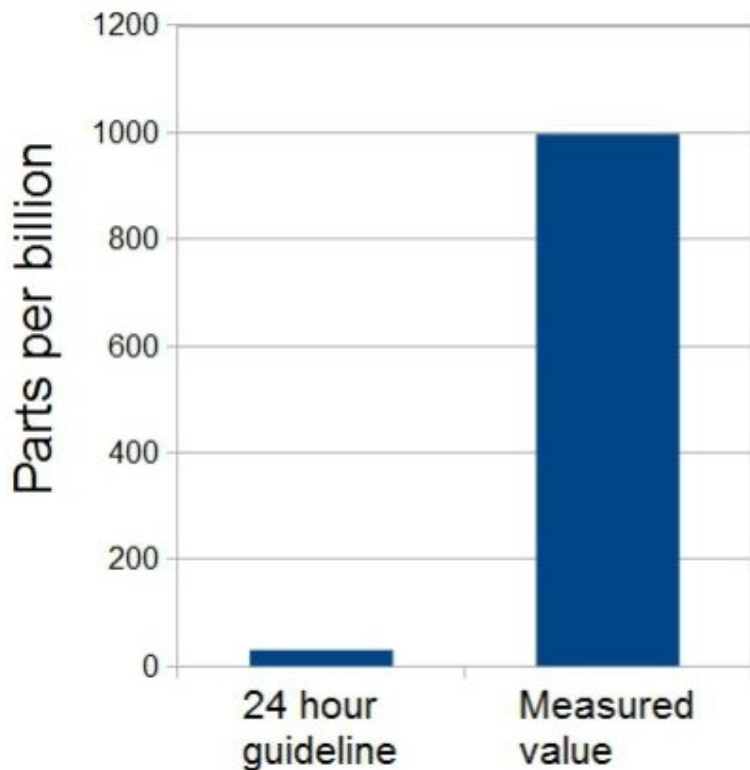


Benzene was found at levels that **violate MassDEP 24-hour guidelines at three sites.**

In a later testing, benzene levels violated guidelines at Prescott Terrace, Quincy (Germantown)

Can cause leukemia and aplastic anemia, among other conditions.

Methylene Chloride



Methylene chloride was **measured at levels more than 33 times the MassDEP 24-hour guidelines**, at the Cotton street location.

It's a colorless liquid with a mild, sweet odor. It's used as an industrial solvent and as a paint stripper. It may also be found in some aerosol and pesticide products and is used in the manufacture of photographic film.

Exposure to it can cause dizziness, nausea, redness of the skin, and more. OSHA classifies it as a potential carcinogen.

Existing Health Issues

Fore River basin residents have:

Higher than average rates of asthma

Higher than average rates of heart attacks

Elevated risk of lung cancer

3 cases of idiopathic pulmonary fibrosis

19 cases of aplastic anemia

*Source: Department of Health studies, John Snow
Research & Training Institute*

- Autoimmune disorders (i.e. lupus)
- Cardiovascular and respiratory diseases
- COPD
- Multiple types of cancer
 - Lung and Bronchus cancer
 - Brain

Graphic source: [The Patriot Ledger](#) - Legacy of pollution in Fore River basin could be making people sick, 9/21/2018

Health Impact Assessment (HIA)

- Gov. Baker mandated a Health Impact Assessment (HIA) of the Fore River Basin in July 2017, in response to public pressure to address the Weymouth compressor station proposal.
- The Department of Environmental Protection (DEP) and Department of Public Health (DPH) were responsible for overseeing the HIA. The Metropolitan Area Planning Council (MAPC) was hired to conduct the HIA.
- Air quality testing did not begin until July 2018, a year after Gov. Baker's mandate.
 - Their testing showed levels of benzene and formaldehyde were consistently above the Allowable Ambient Limit. The levels of formaldehyde in Weymouth were also periodically above the TEL.



The HIA is available online at ForeRiverHIA.com

HIA Flaws

The Health Impact Assessment (HIA) was not comprehensive and contained many flaws.

- The testing was very limited in time.
- MAPC ignored data that showed high levels of pollutants when making their final conclusion.
- MAPC relied on air quality modeling data from the project proponent (Enbridge).
- No testing for nitrogen oxides, ground ozone, or mobile source emissions.
- Did not assess the cumulative or interactive effects of air pollutants.
- Levels of benzene and formaldehyde were consistently above the Allowable Ambient Limit. The levels of formaldehyde in Weymouth were also periodically above the TEL.

Community members, public health experts, and politicians voiced their concerns related to the faulty HIA. After the release of the HIA, MassDEP conditionally approved Enbridge's air quality plan. Community members continued to speak out about their concerns.

Nearly a month after the release of their HIA, MAPC spoke out against the compressor station, citing concerns about climate resiliency and safety. That being said, they still supported the conclusions made in the HIA.

Air Quality Results Left out of HIA



DESMOG

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Exclusive: Air Permit OK'd After New Evidence of Carcinogens at Enbridge's Planned Gas Facility in Massachusetts Left out

By Itai Vardi • Thursday, April 18, 2019 - 16:23

Read time: 6 mins

An exclusive report from Desmog found that MassDEP submitted air samples to a lab in RI but did not include the results in the HIA, despite data showing the presence of several VOCs.

- **1,3 butadiene - found at levels above state guidelines**
 - It is a carcinogen and is associated with leukemia
- **Acrolein - also found at levels above state guidelines**
 - It is very toxic and dangerous to inhale

DEP Dumps More Data during AQ Hearing

- DEP approved Enbridge's air quality plan approval in January of 2019.
 - FRRACS immediately filed an appeal, as did the Towns of Weymouth, Braintree, and Hingham, the City of Quincy, and the Hingham residents group.
- The hearing was scheduled for May 15-May 17. In the evening of May 16, the night before the hearing was scheduled to conclude, the DEP released a new, 750+ page report of updated air quality data.
- Many pollutants were present in the new report that were missing from previous reports, including: 1,3-butadiene (carcinogen), chloromethane (possible carcinogen), 1,2,4-trimethylbenzene (associated w/respiratory problems), Freon-113, n-hexane, Trichlorofluoromethane, and Vinyl acetate.
- Greater Boston Physicians for Social Responsibility (GB PSR) found more than 9,000 insertions and deletions in the amended report, and the presence of previously unreported additional carcinogenic and hazardous compounds.

TELLING THE STORIES

HEALTH IMPACTS IN THE FORE RIVER BASIN

PROJECT TIMELINE AND OVERVIEW:

1



HOLD COMMUNITY MEETINGS IN
WEYMOUTH, QUINCY, AND BRAINTREE
APRIL - MAY



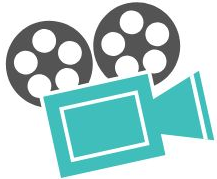
2



ASK PEOPLE TO FILL OUT A HEALTH QUESTIONNAIRE AT
THE MEETING (VOLUNTARY)

DATA COLLECTION AND INFORMAL ANALYSIS

3



SET UP INTERVIEWS FOR PEOPLE TO TELL THEIR OWN STORY
FILM DURING THE MONTH OF JUNE

4



PREMIERE THE DOCUMENTARY IN SEPTEMBER

Health Questionnaires



- Health questionnaires will be collected at community meetings and will remain anonymous, unless you indicate interest in sharing your story on camera. You can also fill it out online.
- Your data and questionnaire will not be shared with any other groups and will not be used beyond the scope of the project.
- FRRACS will store your questionnaire in a secure manner. We take your privacy seriously.
- A video release form will need to be signed if choose to be interviewed on camera.

Sample Questions

Background info:

- Age?
- Address?
- Occupation?



Health information:

- Do you have a history of illness in your family?
- Do you have any illnesses unrelated to family genetics?
- What health conditions are you living with?

6. Do you have any of the following? Check the box if yes.

Asthma

Aplastic Anemia

Autoimmune Disorder

Cancer
What type? _____

Idiopathic Pulmonary Fibrosis

Leukemia

Glioblastoma

Sarcoidosis

Severe stress

Other: _____

Next Steps:

1. Fill out a questionnaire.

- You can fill it out online here:

<https://form.jotform.com/91247290384157>



2. If you are okay with being filmed, let us know by filling out the last portion of the questionnaire.

- After we review the forms, we will contact you to set up an interview time.



3. Spread the word!

Questions, comments, or concerns? Contact us at frracshealth@gmail.com

More info: NoCompressor.com

THANK YOU!