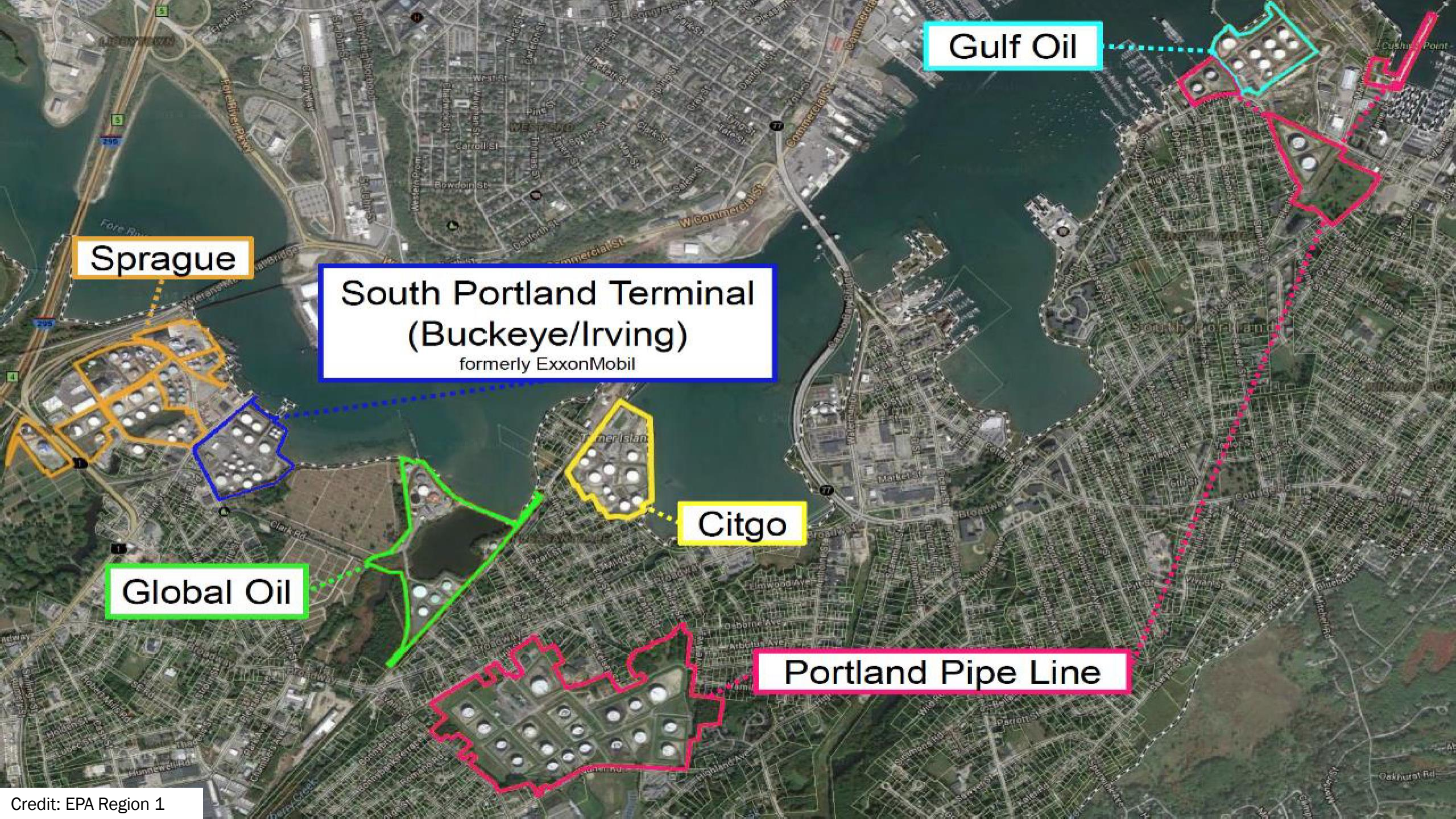




Preliminary South Portland Fence Line Study

EPA METHOD 325

PRESENTER: TOM MIKULKA



Gulf Oil

Sprague

South Portland Terminal
(Buckeye/Irving)
formerly ExxonMobil

Global Oil

Citgo

Portland Pipe Line

Kayler Elementary School





Beacon
Environmental
Sample Kit

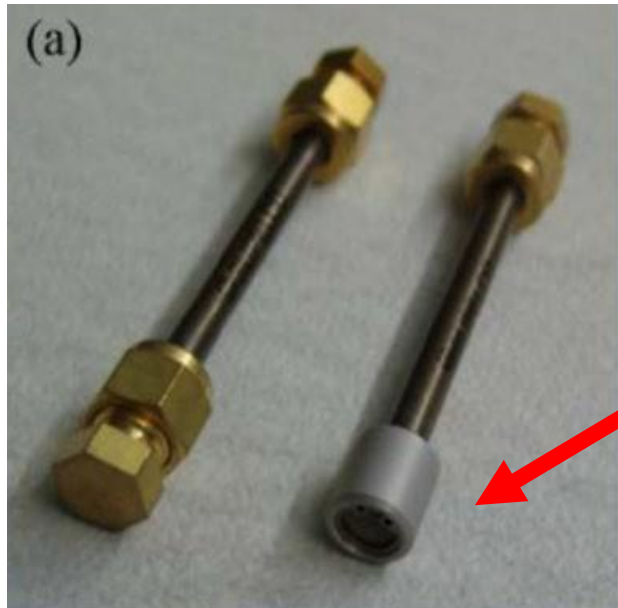


Beacon Environmental Sample Kit

Passive Diffusion Tubes

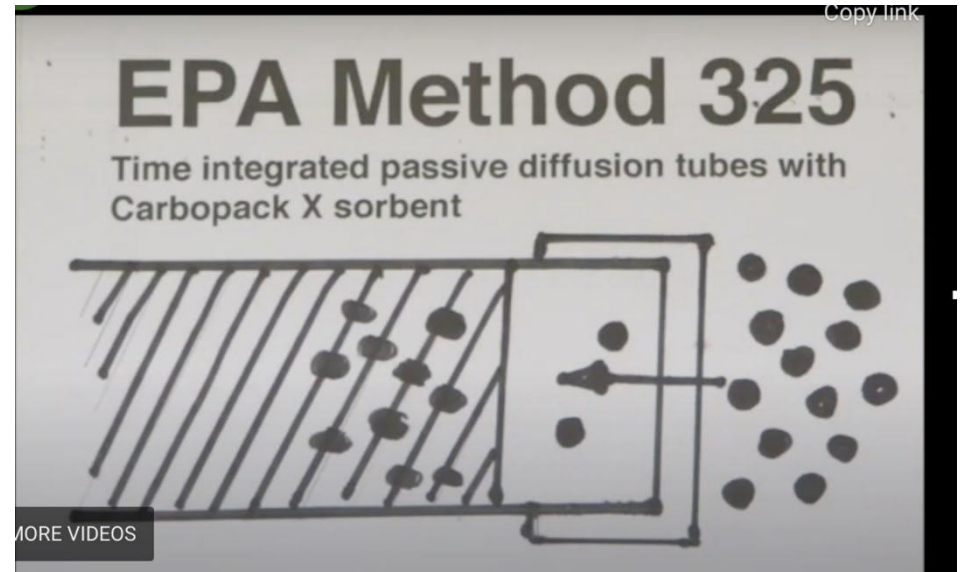


Swagelok fitting



Diffusion Screen

How it works:
Fick's Law of Diffusion



Commercial protective cover

Cost: \$100



DIY protective cover

Cost: \$5





High-tech tool
for hanging
samples



Video: Citizen
monitoring of
ambient benzene



Quality Control

- When handling the tubes use clean cotton or disposable nitrile gloves
- Walk to the site location and activate the monitor there
- For every 10 samples include a field blank
- For every 10 samples include a duplicate
- Complete a chain of custody form

Chain of Custody

76

BEACON ENVIRONMENTAL

2203A Commerce Rd, Suite 1
Forest Hill, MD 21050, USA
1-410-638-8760
800-878-5510 Toll Free

PASSIVE AIR SAMPLING SURVEY CHAIN-OF-CUSTODY

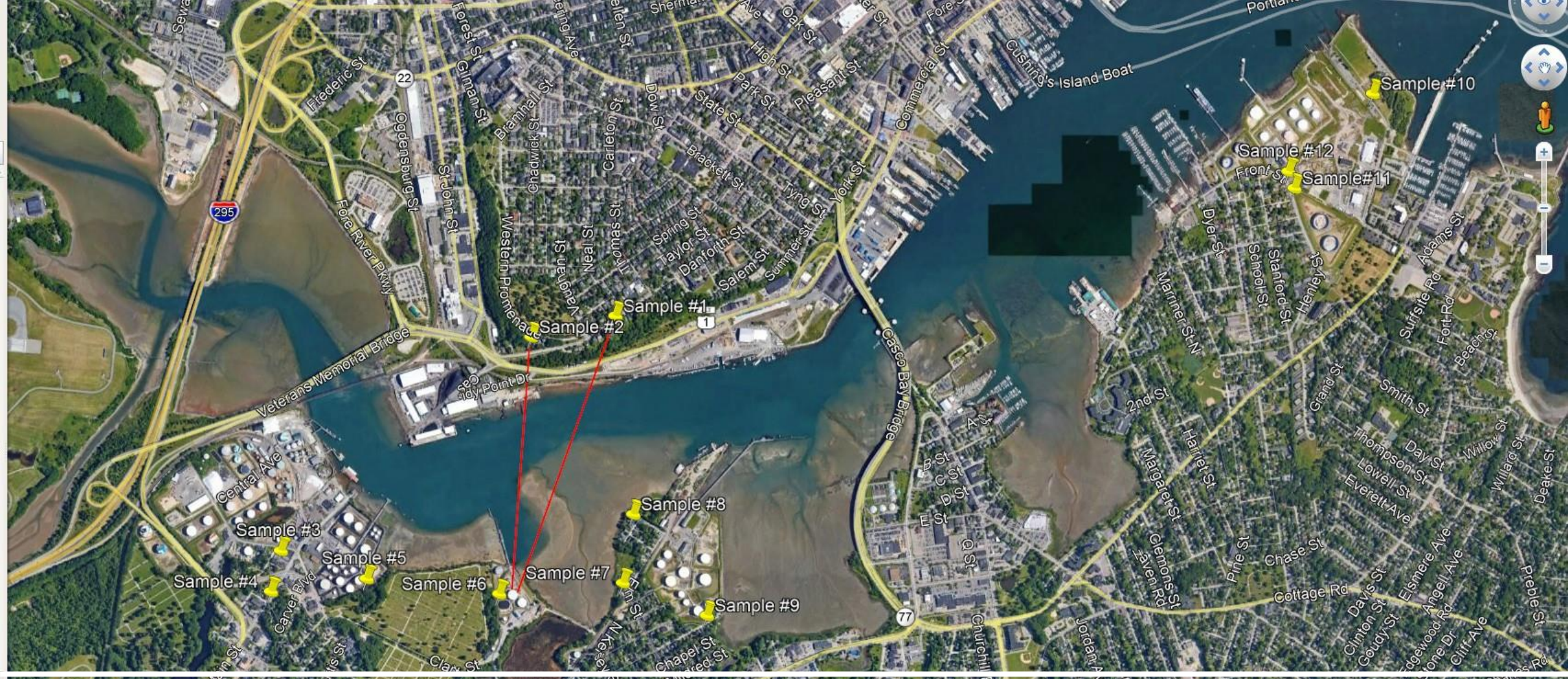
Client Information		Project Manager: TOM MIKULKA		Client PO:	
Company: TOM MIKULKA		Phone: 207-899-4123		Turn around time (check one): <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush (specify) ___ days	
Address: 6 ARROW POINT RD		Project Name: TANK FACTORY FENCE LINE		Analysis: <input type="checkbox"/> Method TO-17 <input checked="" type="checkbox"/> Method 325	
City / State / Zip: CAPE ELIZ, ME 04107		Location: SOUTH PORTLAND / PORTLAND			
Phone: (207) 899-4123		Sampler's Name: TOM MIKULKA			

Location ID	Sampler ID	Start Date	Start Time	Stop Date	Stop Time	Aver Temp (C)	Notes			
MAIN ST	1093144	10/6/20	3:46 PM	10/20	3:35 PM	12.2	TRIP BLANK #1	✓		
MAIN ST	1094105	10/6/20	3:49 PM	10/20	3:35 PM	12.2	ROOF TOP #11	✓		
25 BALCAD	1094970	10/7/20	10:13 AM	10/21	10:21 AM	12.2	#16	✓		
6 ARROW PT	1095074	"	9:10 AM	10/21	9:14 AM	"	#13	✓		
DANFORTH-B	1093218	"	9:25 AM	"	9:35 AM	"	#2	✓		
DANFORTH-M	1095331	"	9:35 AM	"	9:40 AM	"	#10	✓		
RIDGECAND	1094967	"	10:38 AM	"	10:35 AM	"	#8	✓		
CENERARY-G	1094245	"	10:56 AM	"	10:43 AM	"	#9 #7	✓		
CENERARY-SP	1094751	"	11:05 AM	"	10:48 AM	"	#8 #9	✓		
ELM ST	1094252	"	11:27 AM	"	11:15 AM	"	#5	✓		
PEARL ST *	1094129	"	11:42 AM	"	11:18 AM	"	#6	✓		
BUG LIGHT MUSEUM	1094364	"	12:13 AM	"	11:48 AM	"	#12A	✓		
BUG LIGHT	1094535	"	12:14 AM	"	11:47 AM	"	#12B	✓		
KAMEN/STEFF	1094654	"	12:27 AM	"	12:02 AM	"	#4	✓		
WATER CO.	1094155	"	12:35 AM	"	12:08 AM	"	#3	✓		

Special Notes / Instructions:
SAMPLE KIT SEAL BROKEN 10/05/20 (TM) CONTENT INTEGRITY OK ✓ ATTACH SEAL 1PM 10/21/2020

Relinquished by (signature): TOM MIKULKA	Date / Time: 10/21/2020 1:00 PM	Received by (signature): Allison Zeman	Date / Time: 10/21/2020 1:30
Relinquished by (signature):	Date / Time:	Received by (signature):	Date / Time:

For Lab Use Only		Beacon Job No: 5422	
Courier Name: FedEx	Shipment Condition: Good	Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a	Custody Seal No: 3389102



Sample Sites





Cape Elizabeth
Control Site

Method 325
0.21ppb (J) benzene



Danforth Street Street Portland

Method 325:
0.21 ppb benzene

Method TO-15: 0.12
ppb benzene



Bug Light Park

Method 325:

0.27 ppb benzene

0.30 ppb benzene (duplicate)

Method TO-15:

0.28 ppb benzene
(park entrance)



Main St and Lincoln St.

Method 325:
0.30 ppb benzene
0.33 ppb benzene (duplicate)

Field blank:
Non detect

Preble St

Method 325:
0.34 ppb benzene





Elm St

Method 325:
0.38 ppb benzene



Pearl St

Method 325:
0.38 ppb benzene



Forest City
Cemetery, East

Method 325:
0.34 ppb benzene



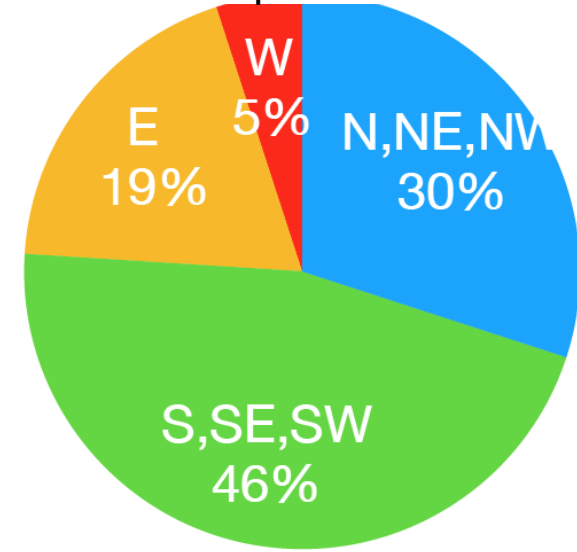
Forest City
Cemetery, West

Method 325:
0.94 ppb benzene

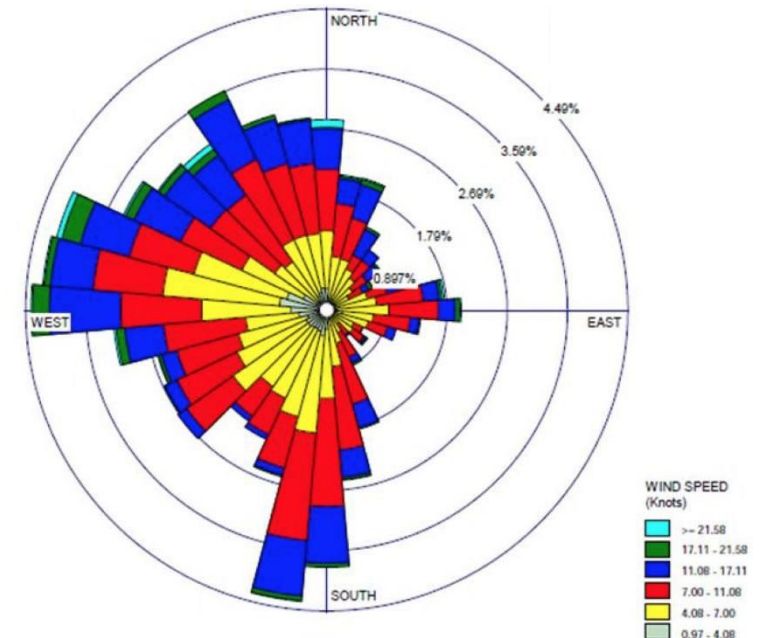
Discussion

- Only one site exceeded the EPA ambient air guideline (AAG) for benzene of 0.4 ppb
- However, wind data is critical for interpretation
- Wind direction during study was predominantly from southerly direction which is favorable for South Portland air quality

Study Wind Data
2020 Sept 23 – Oct 21



2013 Wind Rose; Portland Jetport



Conclusions

- Method 325 is ideal for citizen scientists:
Simple, Sensitive, Powerful, and inexpensive
- Better for assessing health risks than Method TO-15
- Year-long study necessary

Outcome

- First in the nation legislation mandating fence line monitoring for tank farms using Method 325



TOTAL POLITICS

MAINE LEGISLATURE APPROVING BILL TO REQUIRE TESTING OF SOUTH PORTLAND OIL TANK EMISSIONS

