

**Continuous Monitoring of VOCs
in the St. Clair River by the
Sarnia Lambton Environmental Association**





Sarnia ♦ Lambton Environmental Association

Industries Working Together

Basell Canada Inc.

BP Canada Energy Company

Canada Commercial Chemicals

Cabot Canada Ltd.

Clean Harbors Canada, Inc.

Dow Chemical Canada Inc.

Ethyl Canada Inc.

Fibrex Insulations Inc.

H. C. Starck

Imperial Oil Limited

INEOS-NOVA Ltd.

LANXESS Inc.

NOVA Chemicals Corporation

Ontario Power Generation

Praxair Canada Inc.

Royal Polymers Co.

Shell Canada Products

Suncor Energy Products Inc.

Suncor Energy St. Clair Ethanol Plant

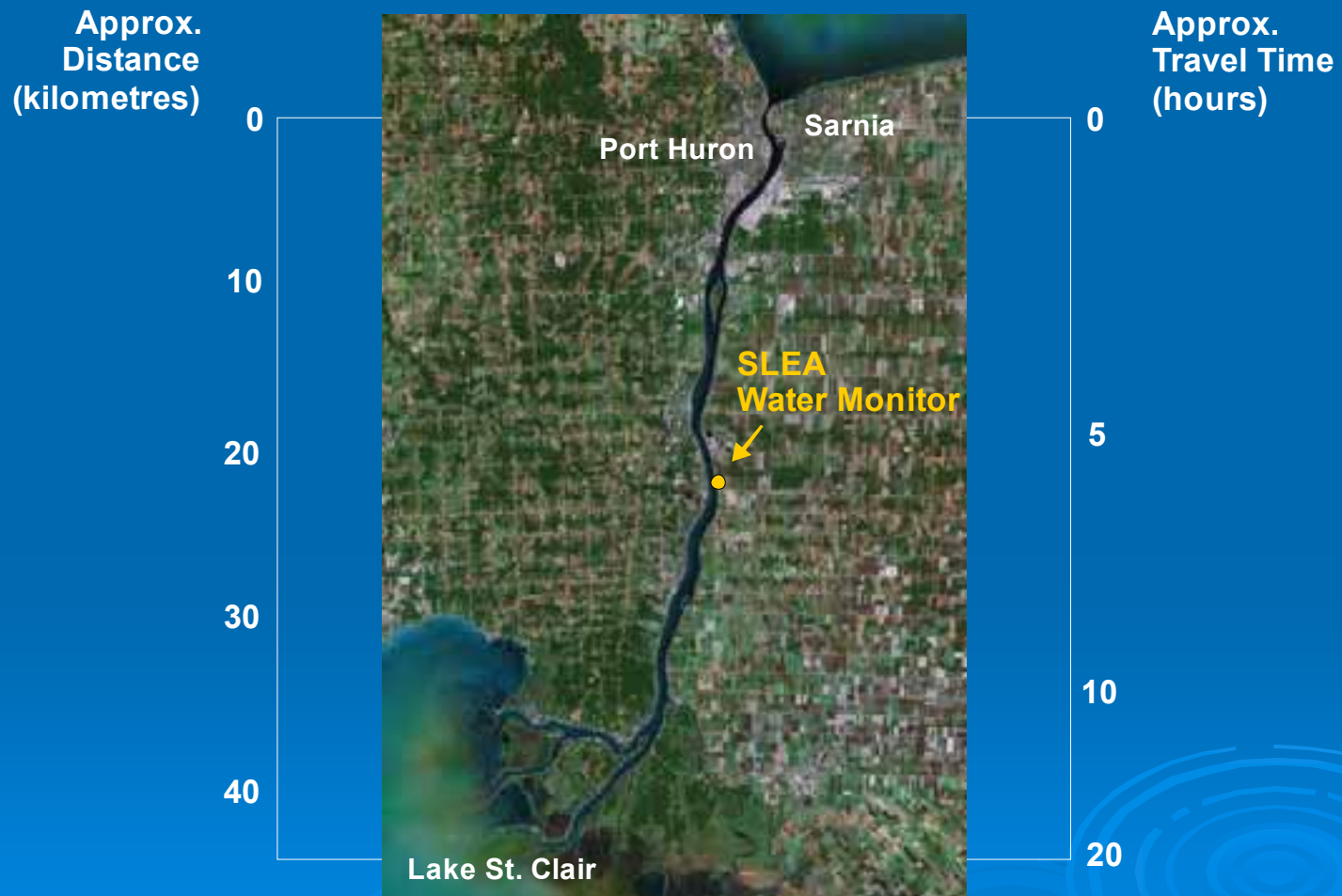
Terra International (Canada)

TODA Advanced Materials

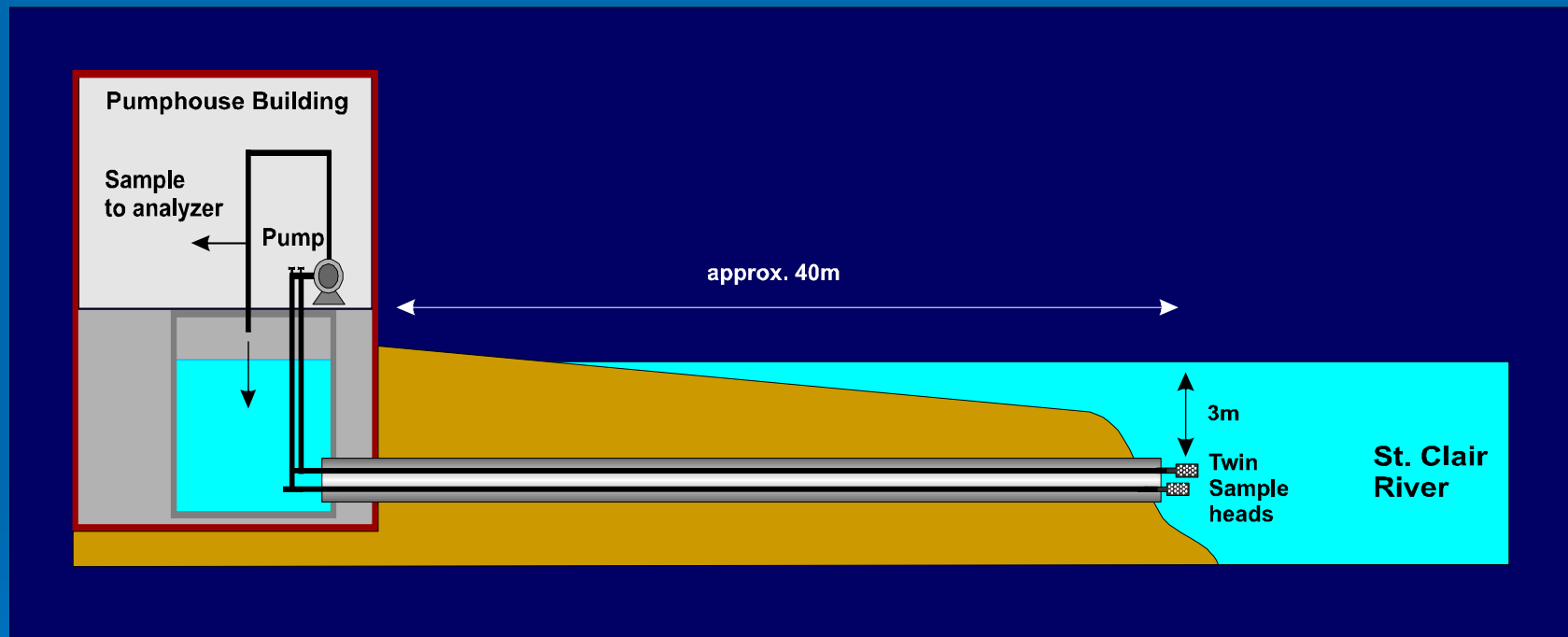
TransAlta Energy Corporation

Waste Management of Canada

Location of the Continuous Water Monitor



Location of Sampling Point



Two Intake Heads (pre-repair work)



Stainless Steel Intake Heads






Contaminants Currently Analyzed

minimum detection limits in micrograms per litre (ppb)

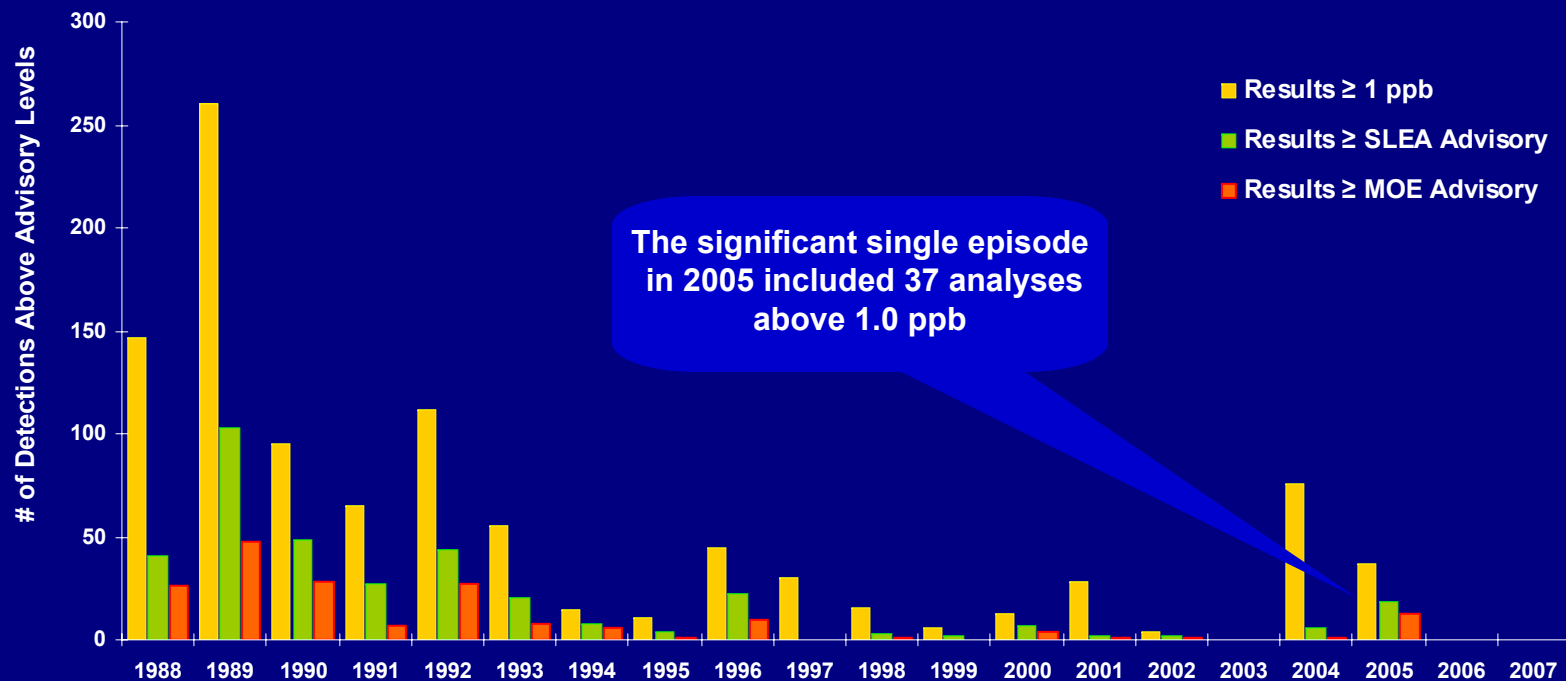
➤ methyl-t-butyl ether	0.10	➤ toluene	0.08
➤ hexane	0.10	➤ perchloroethylene	0.08
➤ chloroform	0.13	➤ ethylbenzene	0.08
➤ cyclohexane	0.04	➤ m+p-xylene	0.16
➤ carbon tetrachloride	0.13	➤ o-xylene / styrene	0.16
➤ benzene	0.05	➤ 1,3-dichlorobenzene	0.09
➤ 1,2-dichloroethane	2.90	➤ 1,3-diethylbenzene	0.12
➤ trichloroethylene	0.05	➤ 1,2-diethylbenzene	0.09
➤ 1,2-dichloropropane	0.09	➤ tetraethyl lead	0.27

Quality Control / Quality Assurance

- Weekly calibration
 - Calibrations control-charted per MOE
 - Calibrations cross-checked in lab - GC/MS
 - Internal standard injected into each sample
 - Inter-laboratory comparisons with certified reference standards
 - Grab sampling can be remotely initiated for laboratory confirmation
 - Close agreement with laboratory analysis of river grab samples during incidents
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SLEA CM Results Since 1988

Historical Review of Results ≥ 1 ppb and Advisory Levels



An episode is recorded when one or more contaminants exceeds 1.0 ppb for a limited timeframe. The use of 1.0 ppb merely provides a convenient reference to track change.

Continuous Monitor Results for all Detected Compounds in 2007



8,677 samples —————> 173,540 analyses

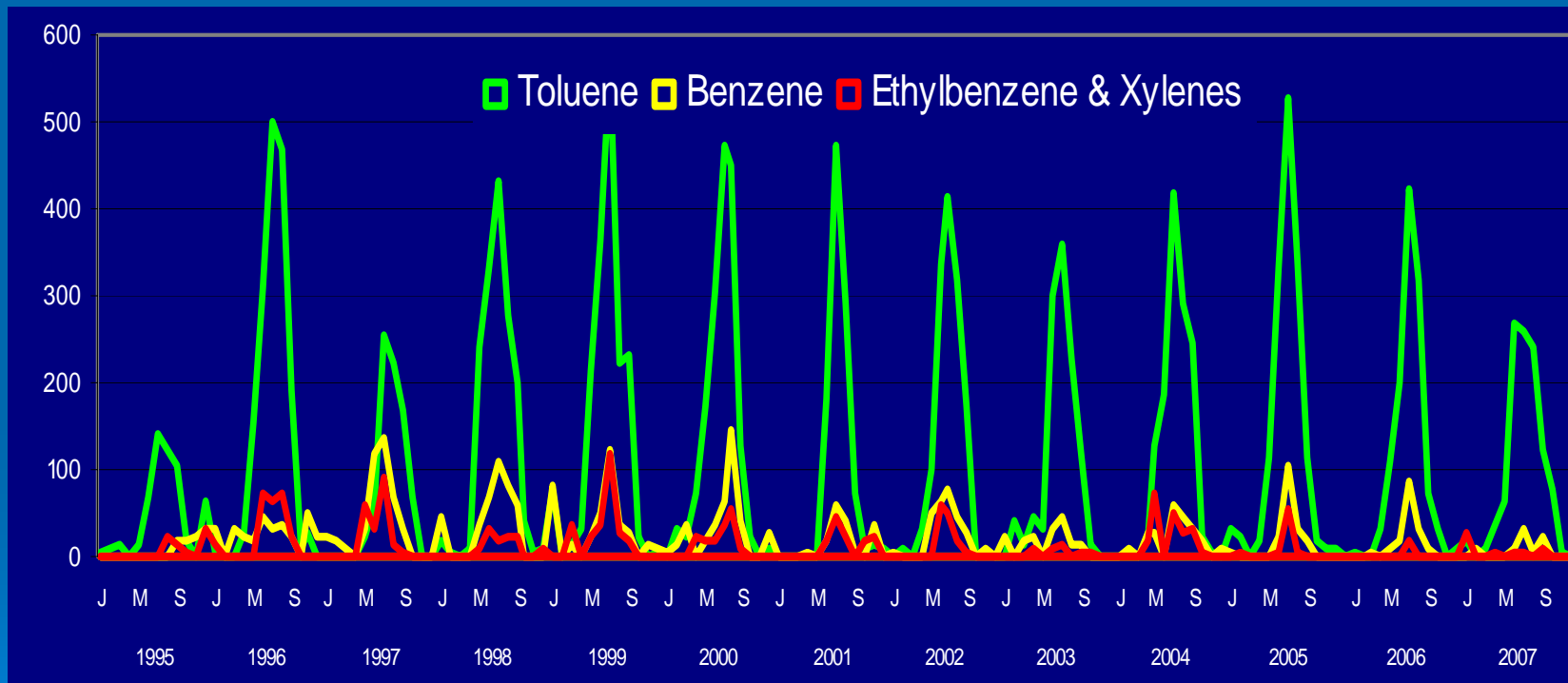
12 of the 20 VOCs not detected

99.28 % of analyses were below detection limits

Reliability: on-line time of 99.8 %

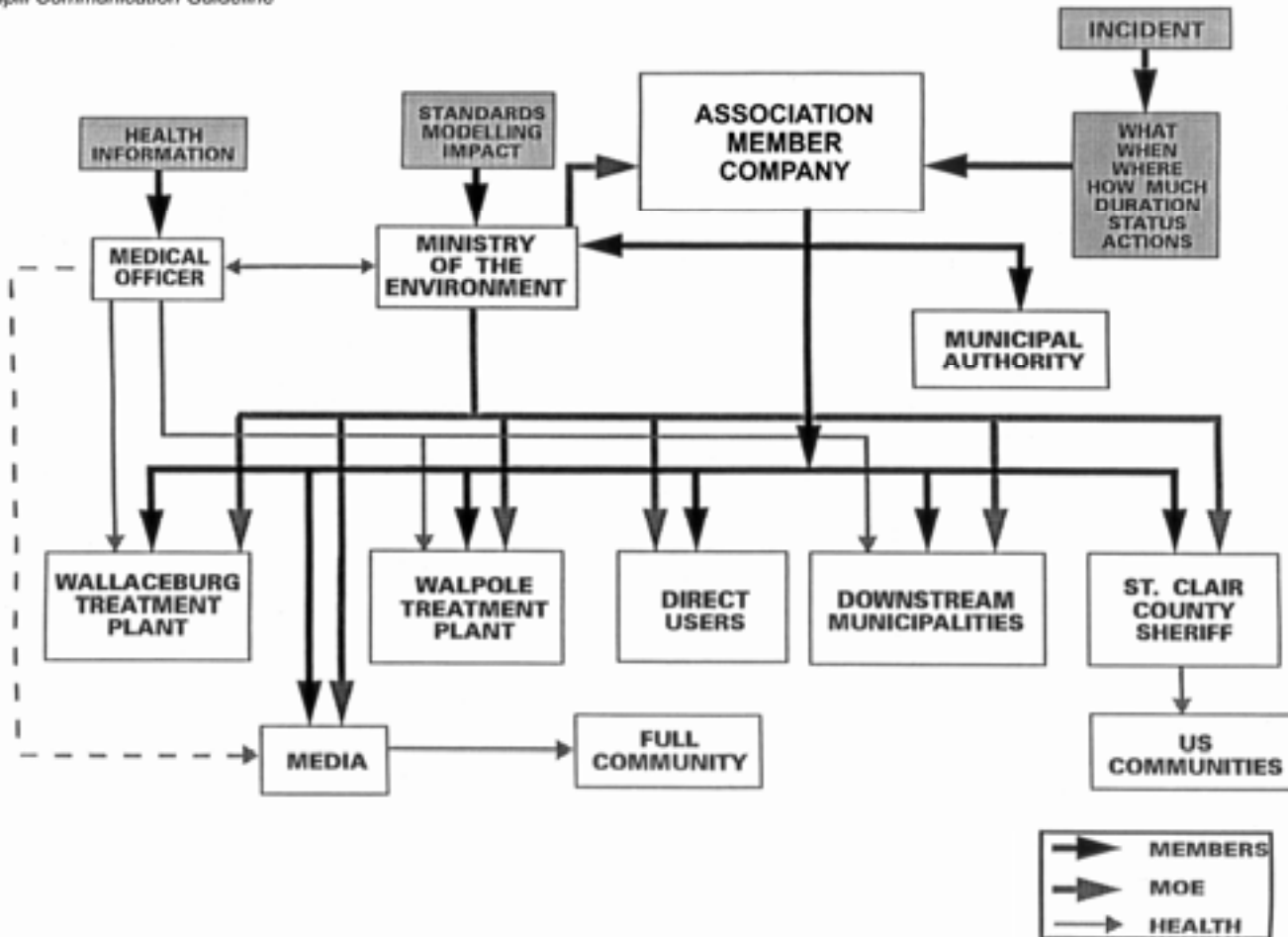
Compound	Detection Limit (mdl) (ppb)	Frequency of Detection (%)	Number of Analyses	Average (ppb)	Min (ppb)	Max (ppb)
Cyclohexane	0.04	0.2	21	< mdl	< mdl	0.30
Benzene	0.05	0.9	79	< mdl	< mdl	0.07
Toluene	0.08	12.7	1101	< mdl	< mdl	0.40
Ethylbenzene	0.08	0.1	13	< mdl	< mdl	0.15
m+p-Xylene	0.16	0.4	35	< mdl	< mdl	0.34
o-Xylene/Styrene	0.16	0.01	1	< mdl	< mdl	0.16
1,2-Diethylbenzene	0.09	0.07	6	< mdl	< mdl	0.10

Seasonal Toluene Response (Detections per Month - 1995 to 2007)



SLEA Notification Procedures

Appendix E
Sarnia-Lambton Environmental Association
Spill Communication Guideline



Costs

- Capital costs to replace equipment based on 2008 dollars is approximately \$90K or \$818 per Sustaining Member share.
- Annual operating costs is approximately \$75K or \$681 per Sustaining Member share.
- There are 110 Sustaining Member shares allocated to sustaining members based on number of employees and an assessment of environmental footprint.