TRC Investigation, Monitoring, and Remediation Status Report

City of New Bedford
Department of Environmental Stewardship

September 11, 2008

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THE SCIENCE COLLABORATIVE
NORTH SHORE

Agenda

- Investigation Program Snapshot
- Walsh Field Soil Investigation/Arsenic Issue
- New Bedford High School (NBHS) Soil and Groundwater Investigation
- NBHS Interior (Source/Sink Investigation)
- Keith Middle School (KMS) Long-Term Monitoring
- Project Timeline
- Questions & Answers

Investigation Program Snapshot

Soil and Groundwater Data Collection

- Scope
  - Environmental Investigation (soil borings)
  - Data Validation and Usability Review
  - Summary Reporting
- Work Performed by TRC
  - 379 soil borings
  - 1,027 soil samples
  - 5 groundwater wells/samples
  - Primary analysis for PAHs, PCBs, and Metals

Walsh Field

Soil Data Gaps/Delineation

- Scope
  - Environmental Investigation (soil borings)
  - Data Validation and Usability Review
  - Summary Reporting
- Work Performed by TRC
  - 65 soil borings
  - 116 soil samples
  - Analysis for PAHs, PCBs, and Metals

Walsh Field

Soil Data Gaps/Delineation (continued)

- Preliminary Findings
  - Primarily PAH and metals contamination
  - Non-detect or low-concentration PCBs
- Varsity and Jr. Varsity Fields
  - Arsenic concentrations in two ball fields triggered potential Imminent Hazard reporting and evaluation under the MCP
  - Other fields O.K.

Walsh Field

Soil Data Gaps/Delineation (continued)

- Potential Imminent Hazard Evaluation
  - Reported to MassDEP (2-hour notice)
  - Immediate Response Action (IRA)
  - Orally-approved “assessment only” IRA
  - Supplemental soil sampling and risk evaluation performed ASAP
- Risk evaluation results
  - No Imminent Hazard at Jr. Varsity Field
  - Calculations exceed Imminent Hazard thresholds at Varsity Field

Walsh Field

Soil Data Gaps/Delineation (continued)

Walsh Field

Soil Data Gaps/Delineation (continued)

- Response Actions
  - Varsity Field athletic field activities suspended (fenced and locked, No Tresspassing signs)
  - Currently evaluating expedited remedial solutions for Varsity Field
- Planning for comprehensive remedy for Walsh Field also underway
- Arsenic and lead contamination driving cleanup decisions

New Bedford High School

Soil and Groundwater Data Collection

Exterior Soil and Groundwater

- Preliminary Findings
  - Soil results generally consistent with past work by BETA
  - Groundwater to be collected
- Athletic Fields/Marching Grounds
  - Precautionary surface soil data collection following Walsh Arsenic discovery
  - No Imminent Hazard concerns at NBHS campus athletic/band fields

New Bedford High School

Soil and Groundwater Data Collection

Sub-Slab Soil and Groundwater

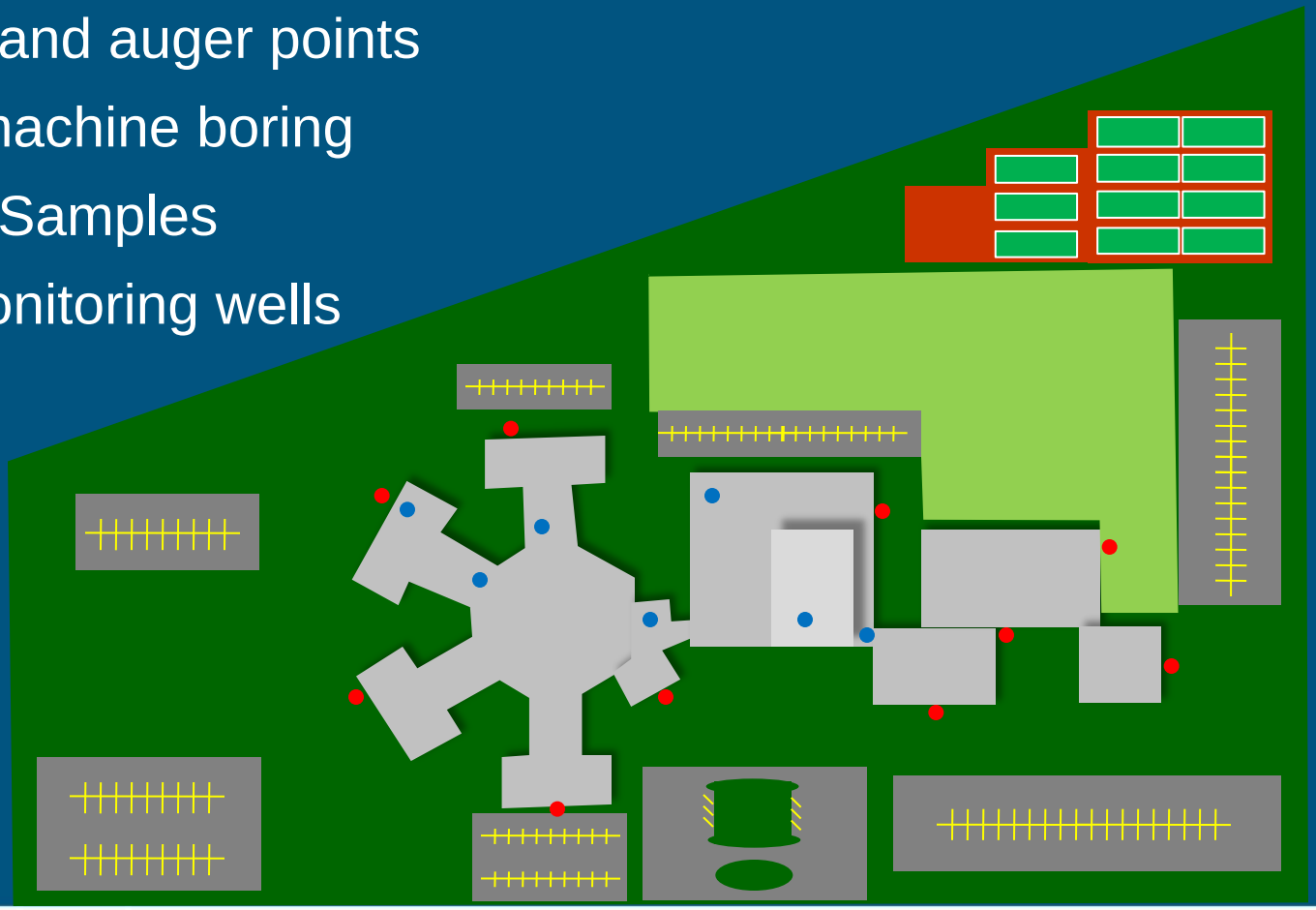
- Soil Analysis Findings
  - 8 sub-slab soil borings
  - Low Concentration PCBs
  - Sporadic metals above standards
  - One PAH detect above standard
- Groundwater Findings
  - 3 sub-slab wells
  - Only exceed in one well due to turbidity (boiler room)
  - Filtered result OK
  - Exterior wells to be sampled

New Bedford High School

Soil and Groundwater Data Collection

Investigation Locations

- 41 hand auger points
- 47 machine boring
- 242 Samples
- 5 Monitoring wells



NBHS Interior (Source/Sink Investigation)

Recent Accomplishments

- Remediation Initiated
  - July 2007
- Remediation Completed
  - August 2007
- HVAC Repairs/Balancing
  - February 2008
- PCB Air Sampling
  - February 2008

NBHS Interior

Notes on Process

Response	Status
Visual Inspection (sources)	**Done**
Re-sampling	**Done**
Verbal Report to City	**Done**
Interviews with personnel	**Done**
Consultation with laboratory	**Done**
Supplemental Assessment Plan	***Initiated July 2008***

NBHS Source/Sink

Scope and Accomplishments

Completed

- ✓ Visual Assessment/Materials Quantification
- ✓ Sample Uncharacterized Materials
- ✓ Further Evaluation of Concentration Trend
- ✓ 63 bulk samples, 8 wipe samples

In Progress

- ✓ Quasi-Random Sampling Plan

NBHS Source/Sink

Findings

- Additional PCB-containing building materials (e.g., adhesives, gaskets)
- Numerous low-concentration building materials serve as sources of indoor air PCBs
- Higher PCB air concentrations trend with higher aggregate PCB building material concentrations

NBHS Source/Sink

Findings (continued)

- New Bulk Building Material PCB Results
  - PCBs detected in 57 out of 63 building material samples
  - Concentration range: 0.16 ppm to 230 ppm (Total PCBs)
- New PCB Wipe Sampling Results
  - PCBs detected in 5 out of 8 wipe samples
  - Results range: 1.5 ug/100 cm^2 to 7.1 ug/100 cm^2

NBHS Interior - Possible Data Trend

2007/2008 Bulk and Air Results

Medium	B-240	A-114-3	High Conc. Correlation
Floor Tile Mastic	10.1 ppm	0.2 ppm	B-240
Window Glazing	14.9 ppm	2.1 ppm	B-240
Baseboard Mastic	4.5 ppm	2.0 ppm	B-240
Old Paint	0.2 ppm	8.3 ppm	
Recent Paint	2.9 ppm	1.6 ppm	B-240
Steel Beam Paint	6.4 ppm	4.3 ppm	B-240
Vinyl Cove Base	7.8 ppm	3.7 ppm	B-240
Vinyl Floor Tile	2.6 ppm	0.18 ppm	B-240
Floor Tile Mastic	10 ppm	0.69 ppm	B-240
Push-pin Board	7.5 ppm	2.97 ppm	B-240
Laminate Adhesive	230 ppm	1.31 ppm	B-240
Air Result 2007	0.32/0.044 ug/m^3	0.08/0.040 ug/m^3	B-240

Concentration Units:

Bulk results in mg/Kg (ppm)

Air Results in ug/m3

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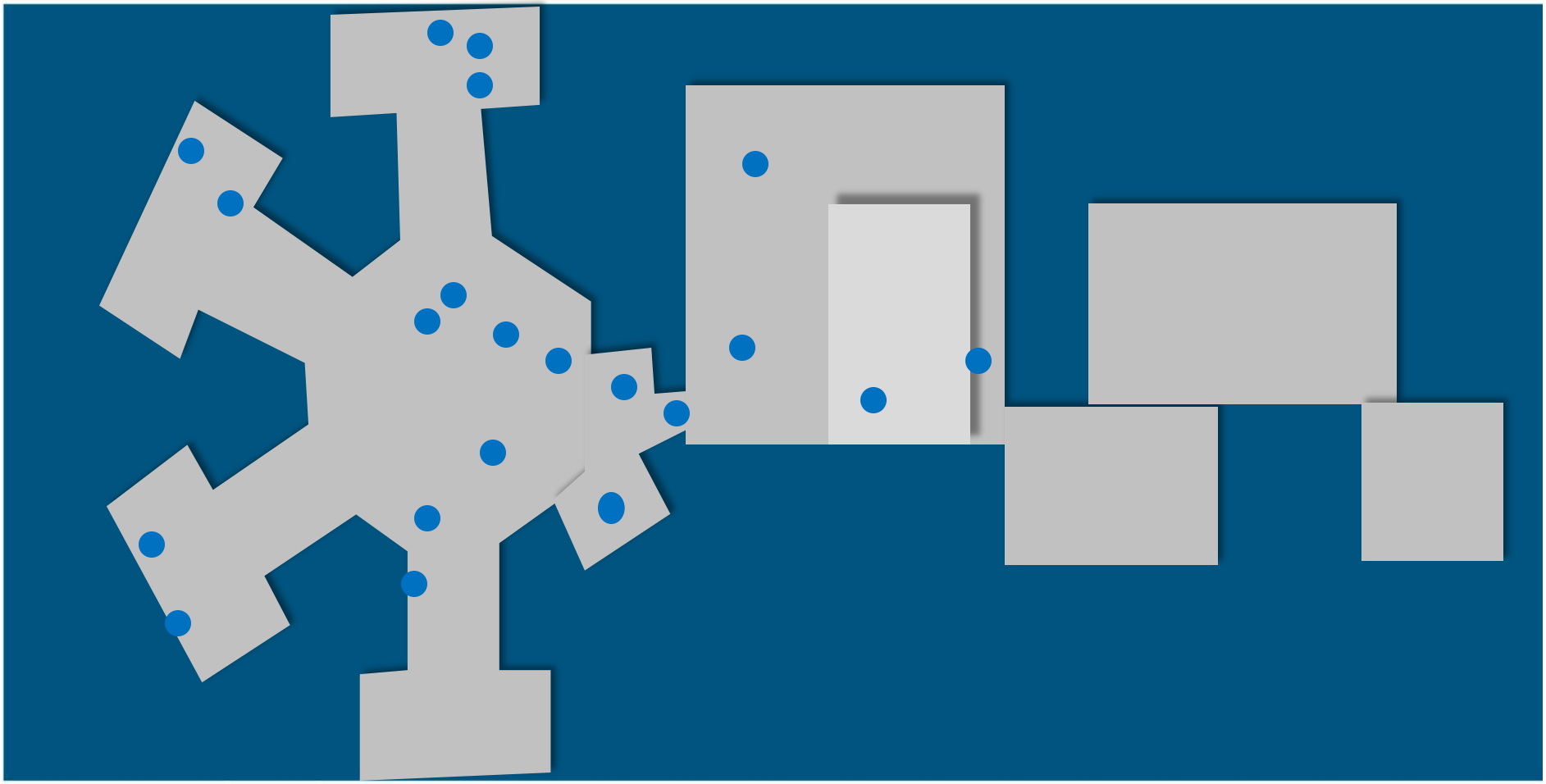
Source/Sink Sampling



NBHS Interior

Next Steps Lead up to Remediation

- Quasi-random sampling program
  - 240 samples over 30 locations
  - Seeking EPA approval for plan
  - Implement Sept/Oct. 2008
- Remedial Planning/Specification Prep.
  - Prepare during Fall/Winter 2008
  - Solicit Bids Spring 2009
  - Initiate Remedy Summer 2009
- Targeted Pre-/Post-PCB Air Monitoring
  - Bracket remedial effort

Keith Middle School

Long-Term Monitoring Program

- Scope and Accomplishments
  - Groundwater Monitoring – Done!
  - Cap Inspection – Done!
  - Wetland Inspection – Done!
  - Sediment Monitoring – Ongoing Evaluation
  - Annual Update Training – Done!
  - KMS Indoor Air & Vent Sampling –Done!

Keith Middle School

Groundwater Monitoring

- Analysis of Samples from 3 Wells
  - Volatile Organic Compounds (VOCs)
  - Polychlorinated Biphenyls (PCBs)
  - Metals
- Results
  - VOCs: All Non-Detect (except MTBE, below standards)
  - PCBs: All Non-Detect
  - Metals: No detections above standards

Keith Middle School

Groundwater Monitoring Well Locations

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Cap Inspection - LTMMIP

- Conducted Three Times/Year
- Inspection Scope
  - Walking traverse of entire site
  - Visual observations of entire cap
    - First floor concrete slab
    - Interior courtyard
    - All asphalt and landscaped surfaces

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Cap Inspection (continued)

- Inspection Findings
  - Concrete slab in acceptable condition
  - Exterior pavement and concrete surfaces in acceptable condition
  - Courtyard surfaces in acceptable condition
  - Exterior landscaped areas are acceptable except as follows:
    - Sparse vegetation - southern slope
    - Area of slope failure - previously reported
    - Sloughing rip-rap - west side/storm drain
    - Minor erosion - northwest corner

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Cap Inspection (continued)

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Wetland Inspection - LTMMIP

- Conducted in Spring 2008
- Inspection Scope
  - Walking traverse of entire top and toe of slope
  - Look for unacceptable conditions:
    - Excessive sedimentation
    - Conditions that could cause excessive sedimentation
    - Vegetation conditions

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Wetland Inspection (continued)

- Inspection Findings
  - Generally well vegetated slope
    - Exploring vegetation/animal control options
  - Similar erosion issues as noted in cap inspection
  - Temporary repair still viable with some localized soil migration around the lower hay bales

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Wetland Inspection (continued)

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Wetland Sediment Monitoring - LTMMIP

- Long-Term Monitoring and Maintenance Implementation Plan (LTMMIP)
- Conducted in Spring 2008
- Monitoring scope
  - Four randomly collected sediment samples (base of slope)
  - Analyze samples for PCB Aroclors (Method 8082)

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Wetland Sediment Monitoring (continued)

- Monitoring Findings
  - Three out of four samples non-detect
  - One sample detected PCBs (16.6 mg/kg)
  - Triggered potential Imminent Hazard reporting and evaluation under the MCP (reported to MassDEP)
  - Preliminary calculations indicate an Imminent Hazard exists (TRC's calculations slightly exceed the Imminent Hazard criteria set forth in the MCP under 310 CMR 40.0955)
  - *Delineation and evaluation ongoing*

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Wetland Sediment Monitoring (continued)

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Annual Update Training

- KMS Remedy Related Worker Training
  - Location of impacted soil at the site
  - Purpose of the AUL
  - Work allowed under the AUL
  - When to contact the LSP
  - Required Inspections
  - Summary of monitoring findings
- Performed by City in April 2008

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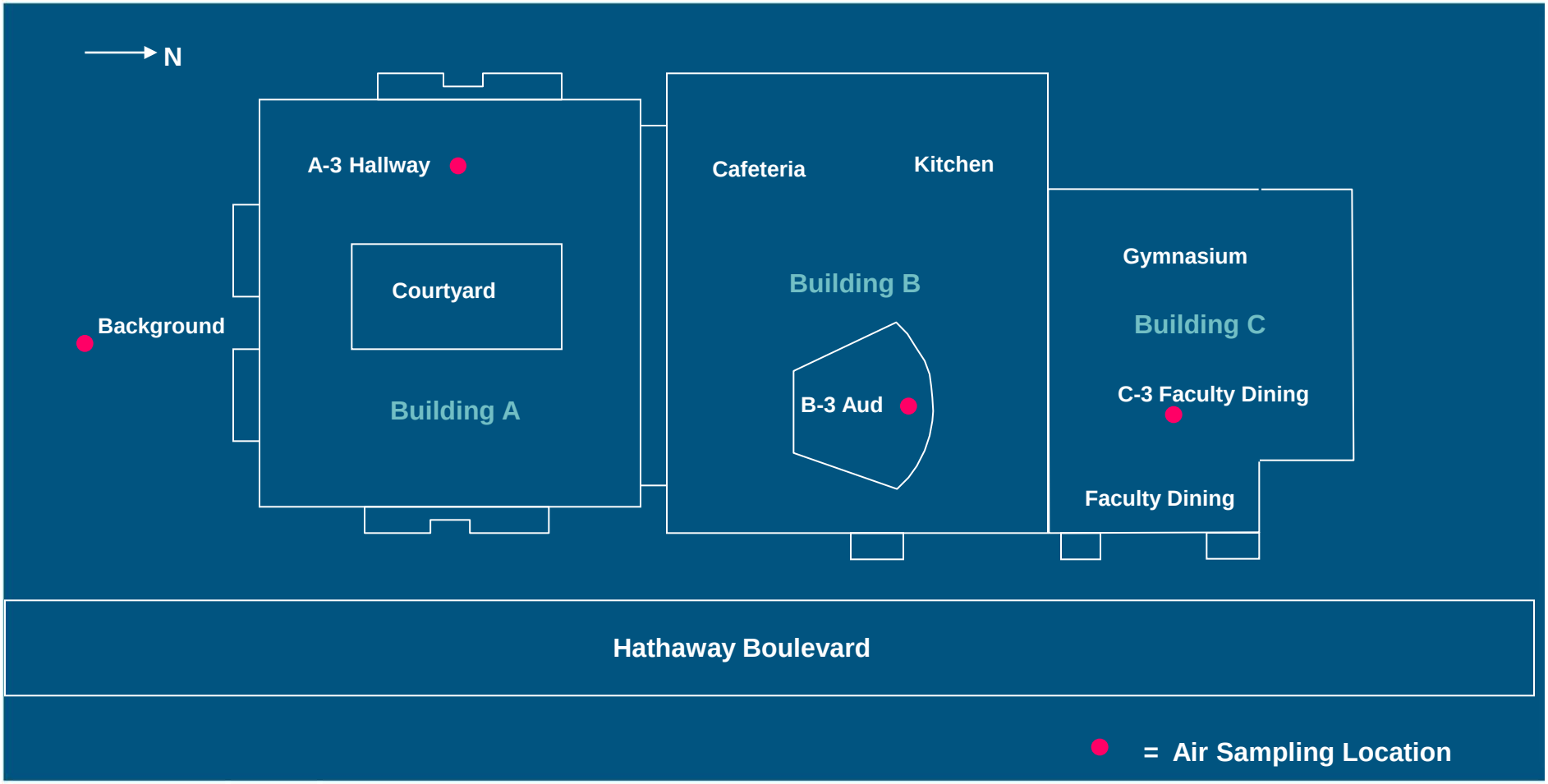
Indoor Air & Vent Monitoring Update

- TRC Monitoring since March 2007
- PCBs – Indoor Air/Vents
- VOCs – Indoor Air/Vents

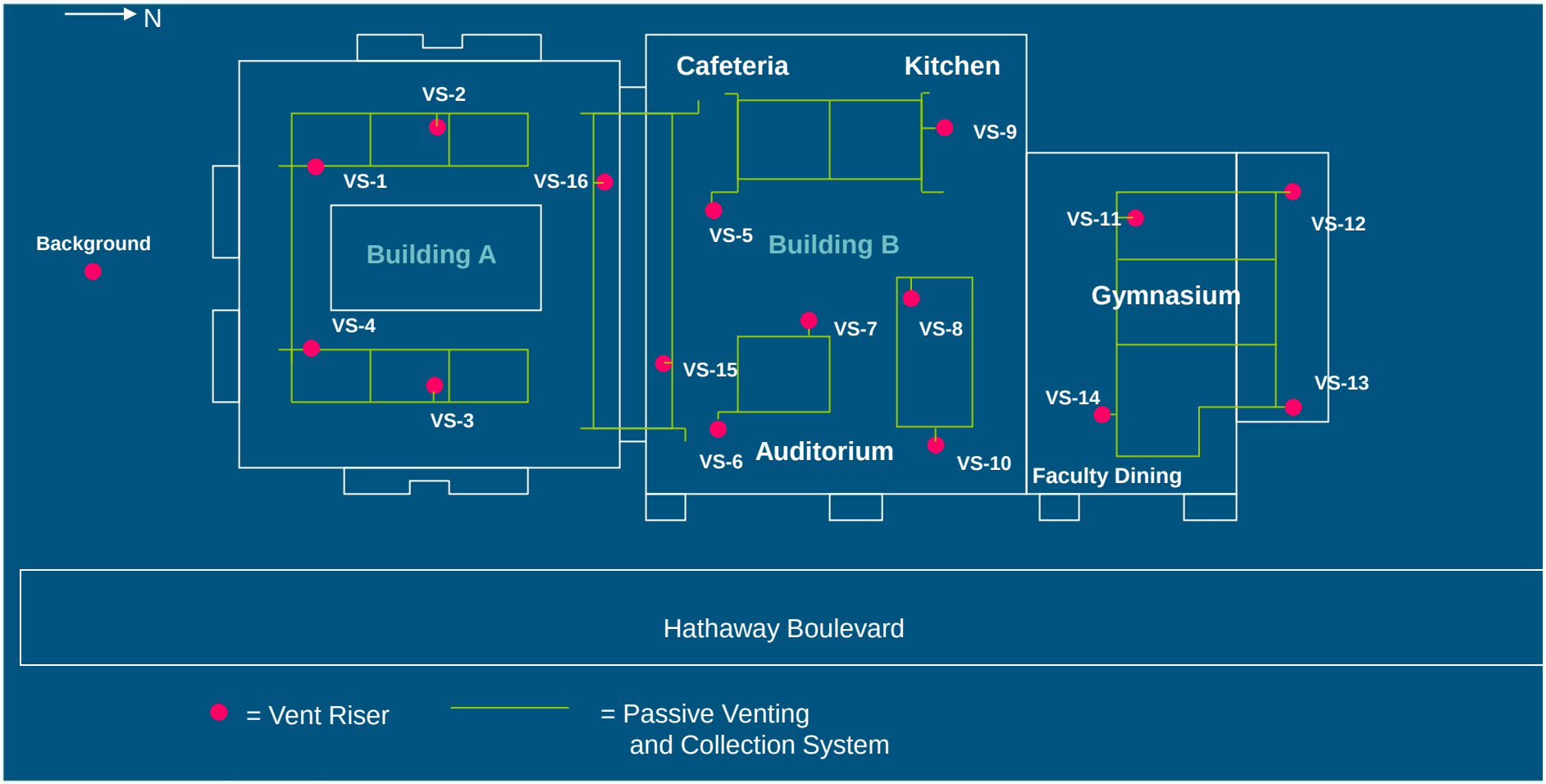
KMS Indoor Air Sampling - Locations



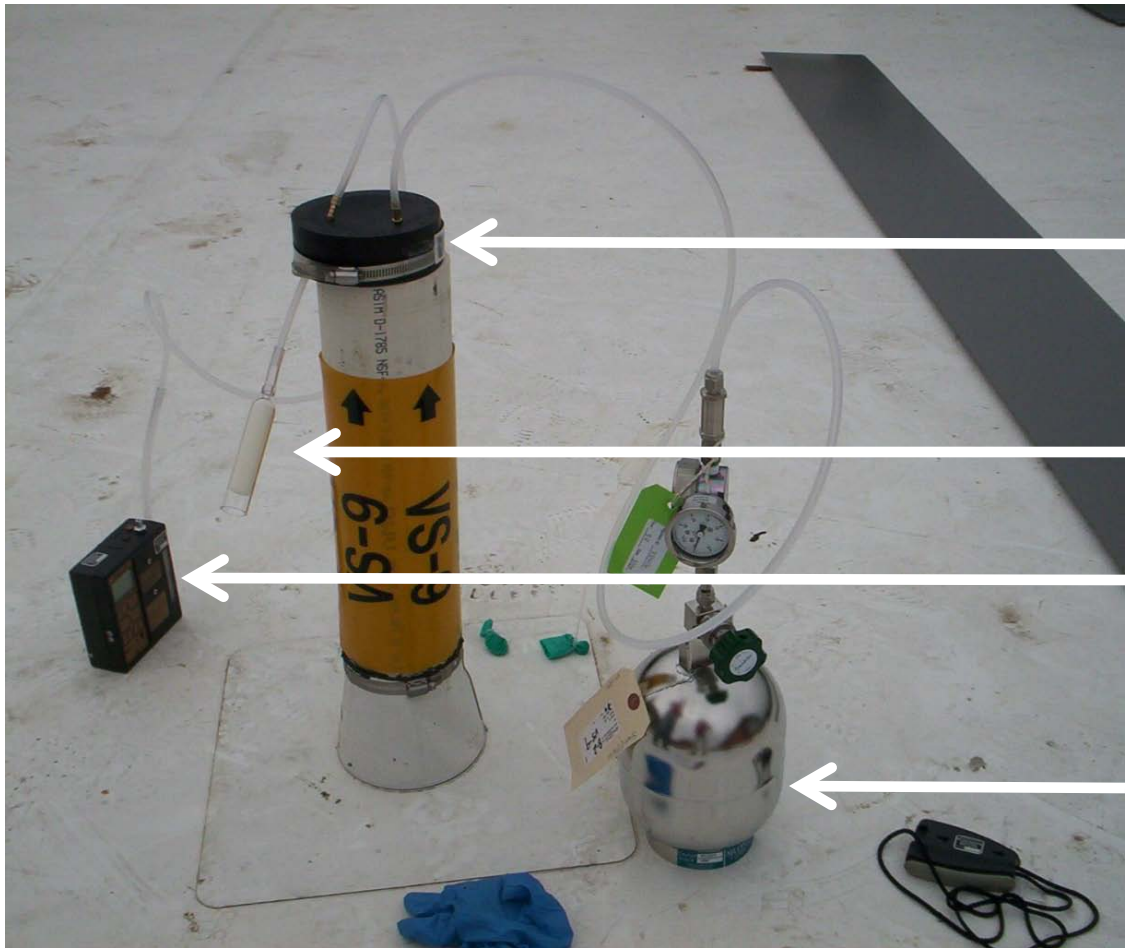
Background Sampling In Progress

Hi-Vol
Sampling Unit

Foundation Vent Stack Sampling Locations



Vent Sampling In Progress



Passive Vent Stack

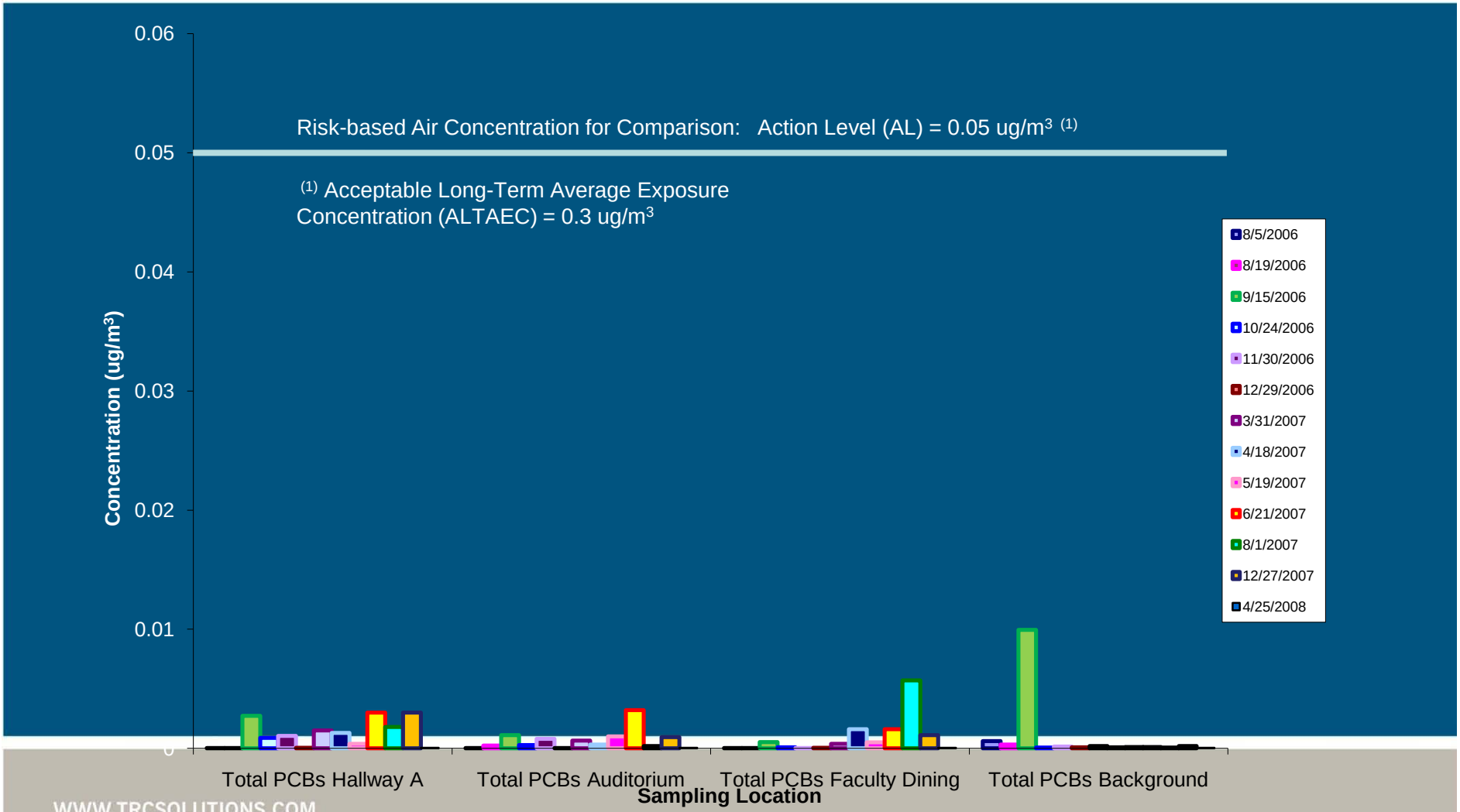
“PUF” Media

Low-Vol
Sampling Pump (PCBs)

SUMMA Canister (VOCs)

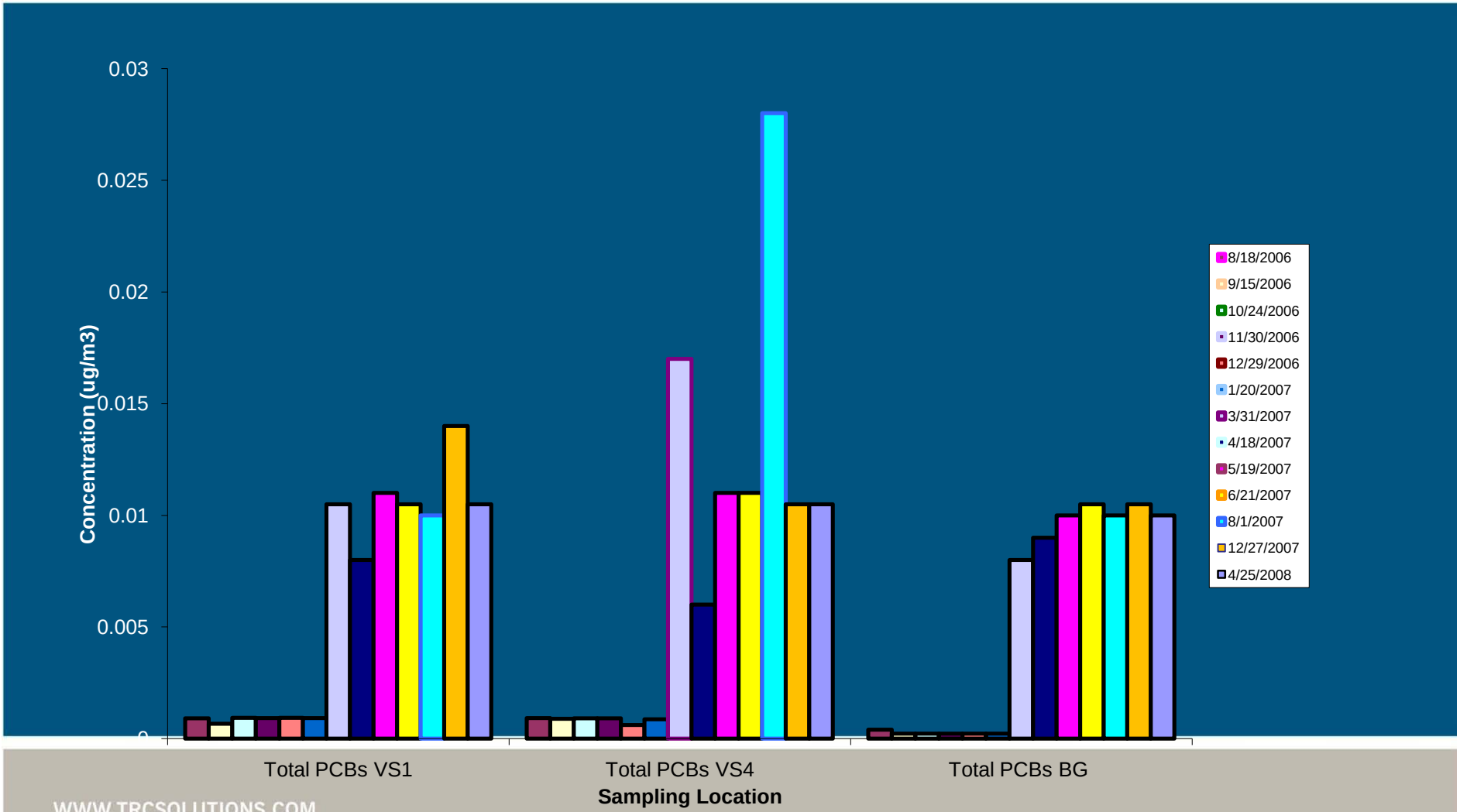
Total PCBs in Indoor Air Trends

August 2006 - April 2008



Vent Stack - PCBs Trends

August 2006 – April 2008



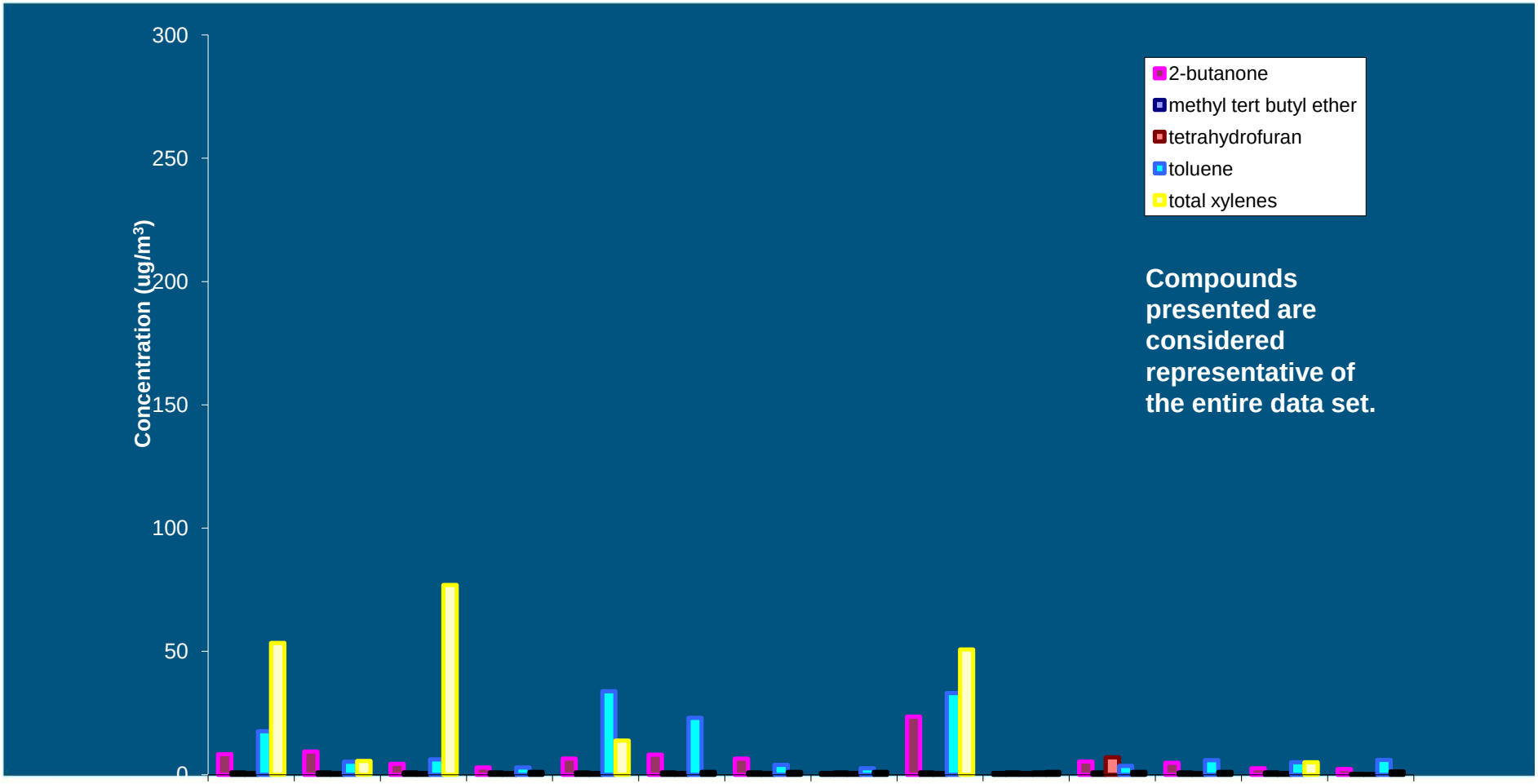
KMS Air Monitoring

PCBs

- PCBs KMS indoor air equivalent or less than background air
- PCBs well below EPA Action Level (0.050 ug/m3)
- PCBs Present in Vent Samples Periodically (Background)

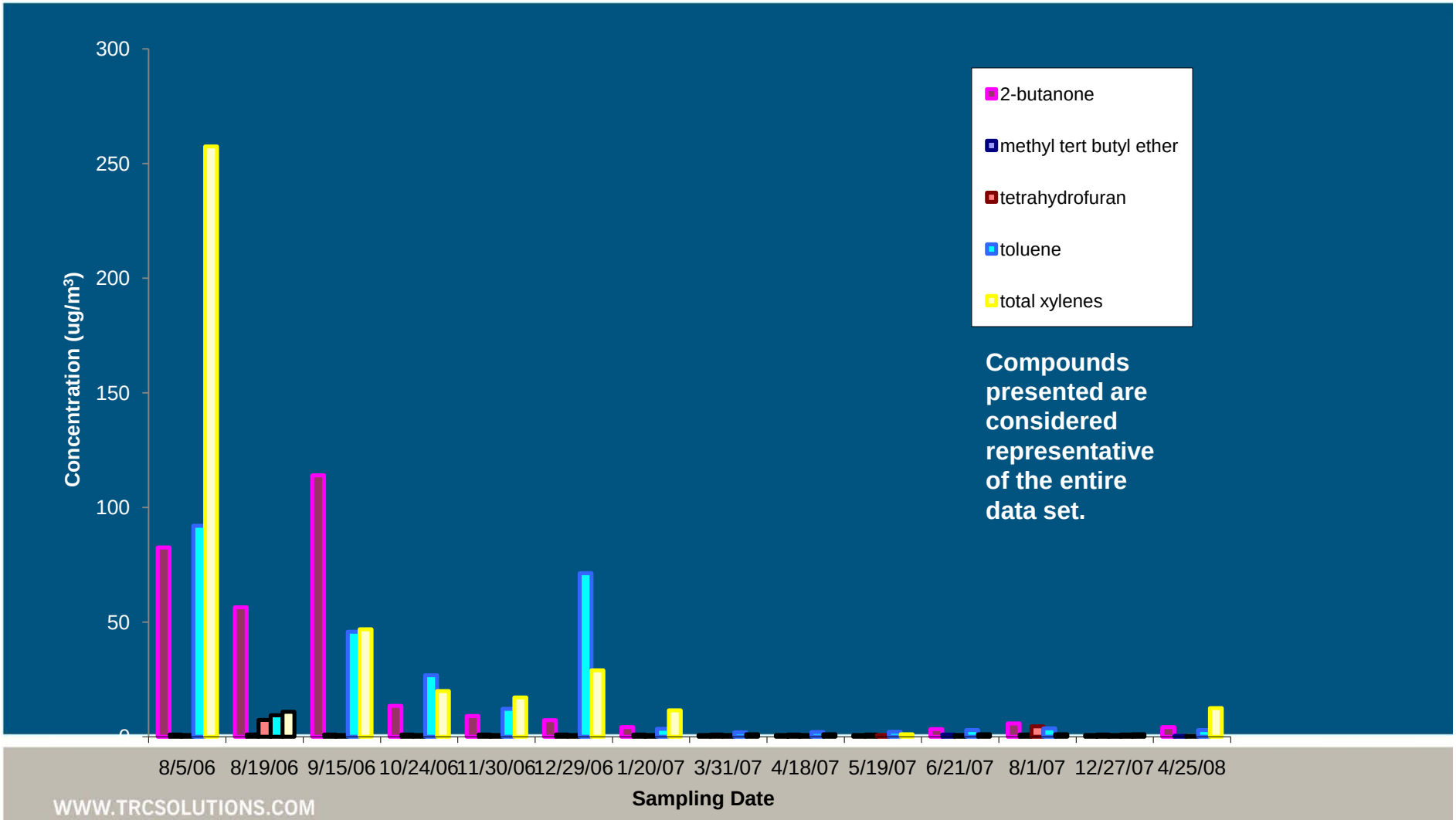
VOCs in Building A Indoor Air Trends

August 2006 – April 2008



VOCs in Building B Indoor Air Trends

August 2006 – April 2008



VOCs in Building C Indoor Air Trends

August 2006 – April 2008

Risk Evaluation for Indoor Air

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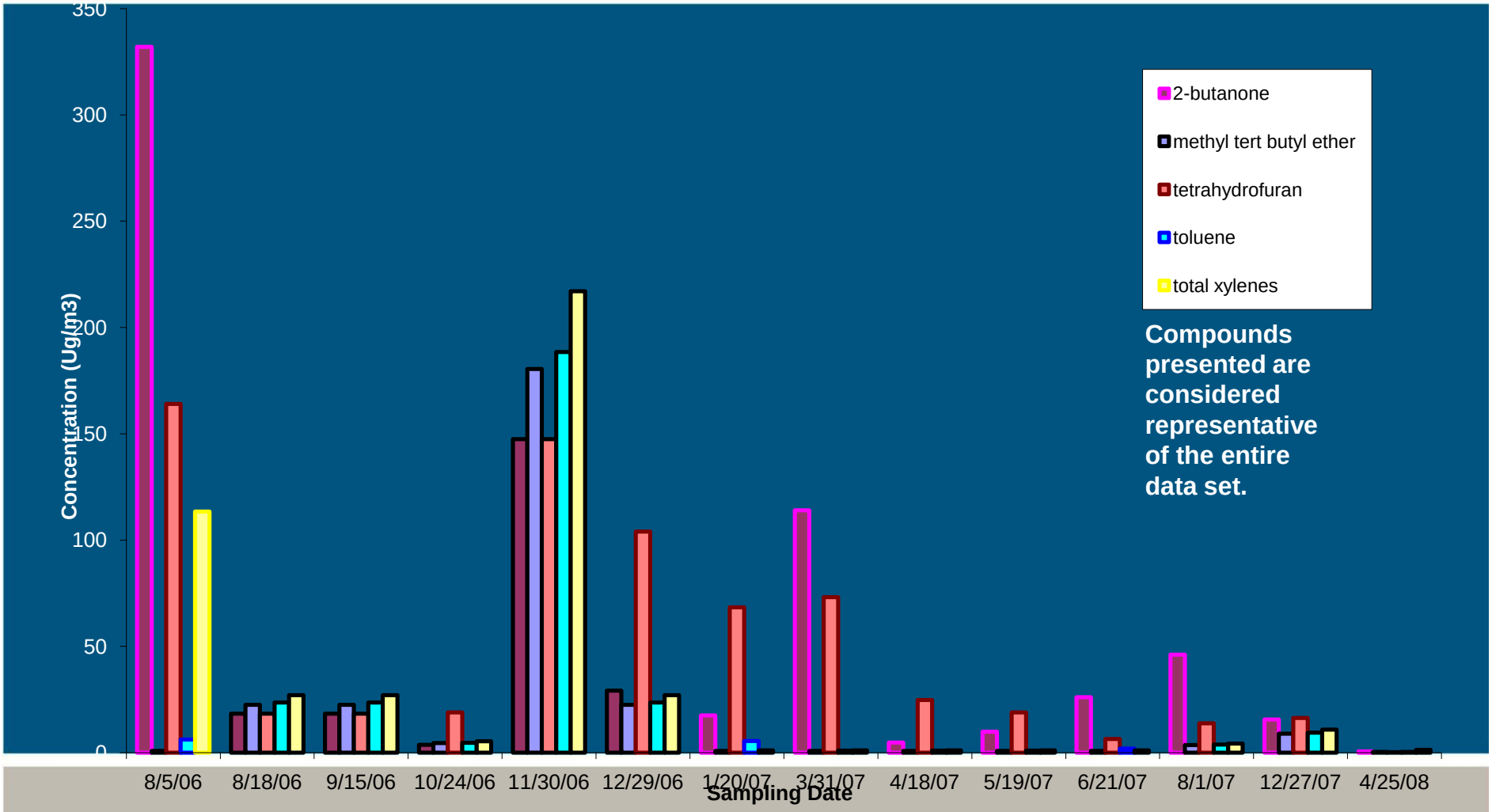
- Some compounds detected above AAL/TELs*
- AAL/TELs are outdated
- Risk evaluation shows no risk above MassDEP criteria
- TRC has recommend and is using updated comparison criteria based on more current toxicology

*AAL – Allowable Ambient Limit
TEL – Threshold Effect Exposure Limit

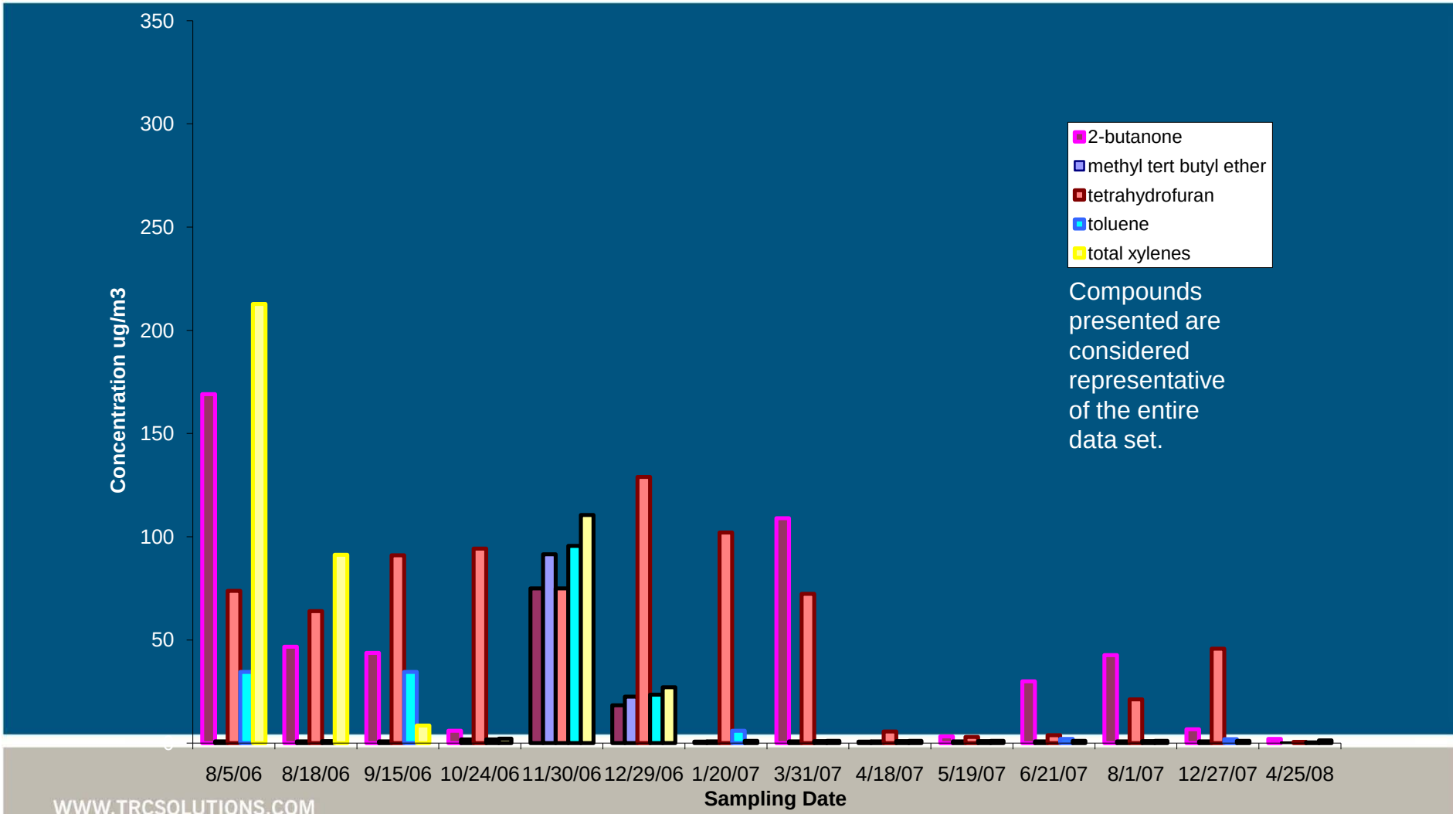
VOC Vent Stack Trends (VS-1)

August 2006 – April 2008



VOC Vent Stack Trends (VS-4)

August 2006 – April 2008



VOC Measurements Summary of Findings

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- VOCs Present in Vents Consistently
- VOCs in Vents
  - Generally decreasing in concentration over time
  - Also reflects compounds in soil gas (indicates system performing as designed)
- VOCs KMS Indoor Air
  - Background concentrations (off-gassing of building materials)
  - Also attributable to maintenance activities

Project Time Line

- Data Collection & Remedial Planning – 2008
- Prepare for/Initiate Public Bidding 2008/2009
- Initiate Targeted Remedies 2008/2009 (sooner if possible)
- Continue Long-Term Monitoring Schedule at KMS

Thank You for Coming!

Questions are Welcome!