

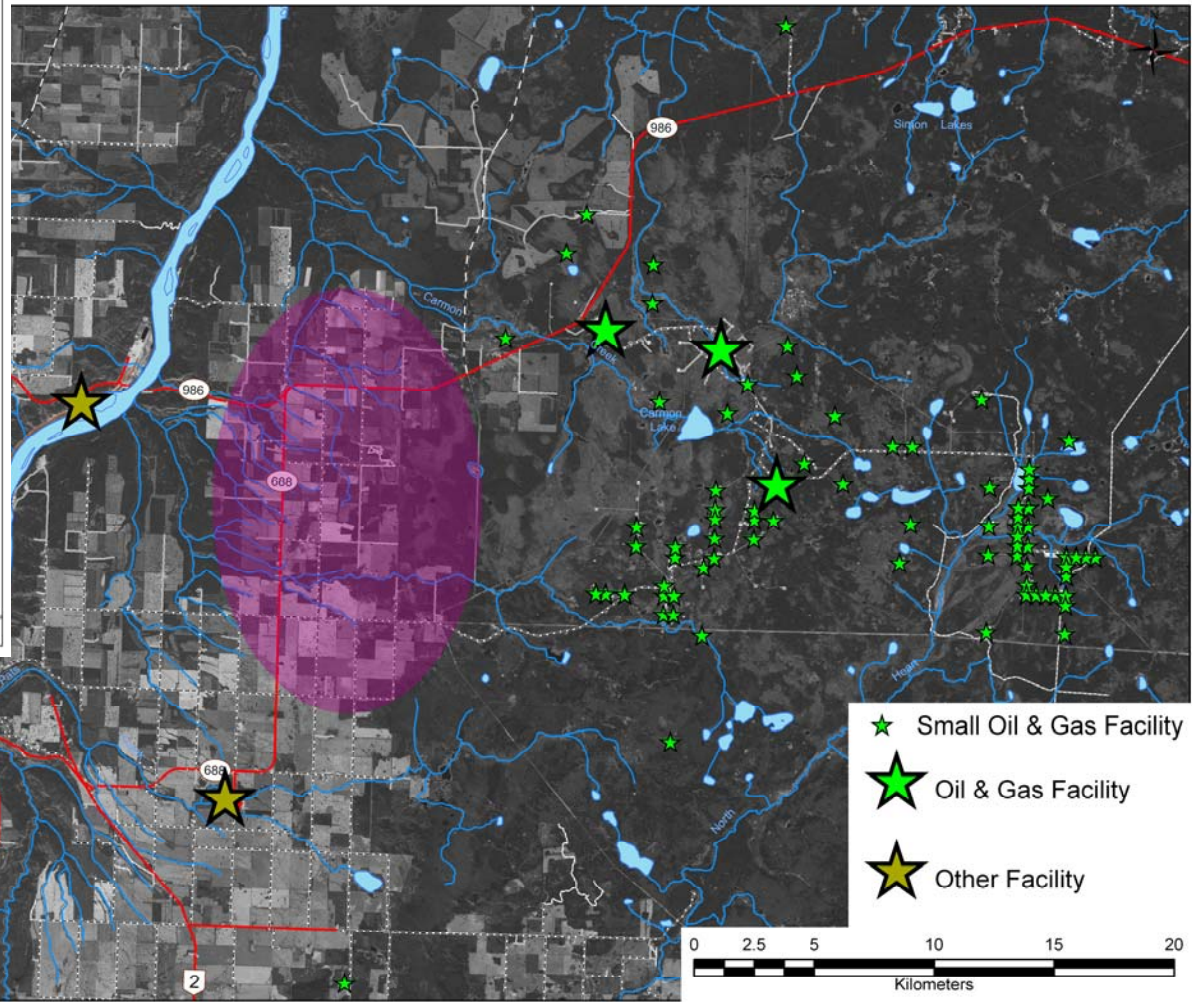
# Odour and Emissions Management – a case study

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# Outline

- What happened
- What we did first
- What we did right
- Lessons Learned (so far)

# Three Creeks



# Three Creeks

- East of Peace River, in Northern Sunrise County
- Existing farming area (100+ years)
- Some acreages
- Expansion of cold heavy oil, in situ activity in last five years

# Three Creeks – What happened

- Complaints received about hydrocarbon odours (Feb 2010)
- Concerns about health impacts to people, cattle and crops
- Residents involved the media and local MLA
- Little trust of Government, Industry

# What we did first

- Community meetings
- Odour Protocol initiated (ERCB) to identify operational issues
- Industry began reducing venting, fugitive emissions
- Monitoring and sampling program undertaken
- Government-wide approach: Alberta Health and Wellness, Alberta Health Services Alberta Agriculture, Food and Rural Development, Alberta Energy engaged

# Emissions Reduction



# What we did first

- Communications messages focused on assurance:
  - “No exceedances of Ambient Air Quality objectives”
  - “No operational issues identified”

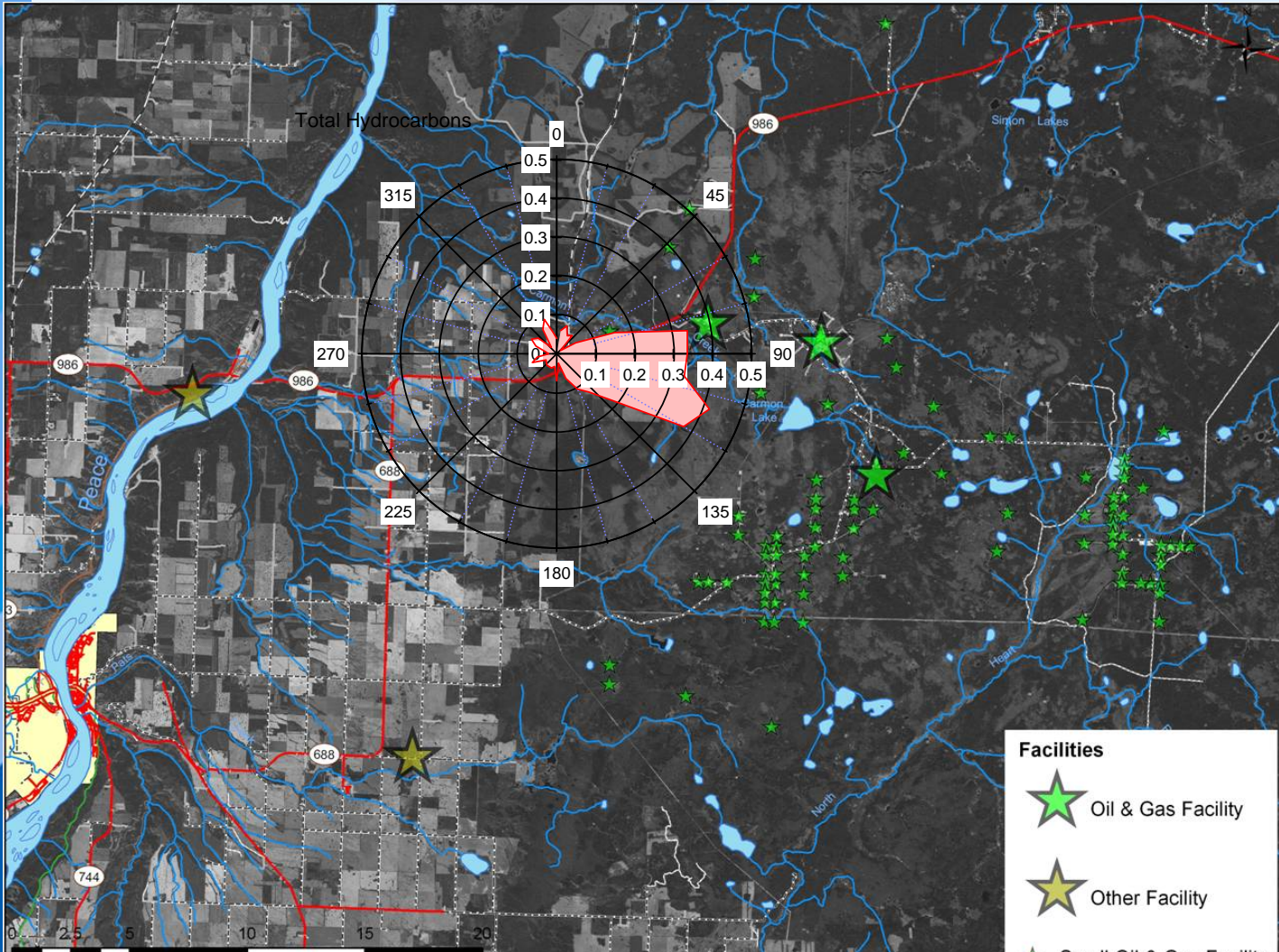


# Monitoring and Sampling Program

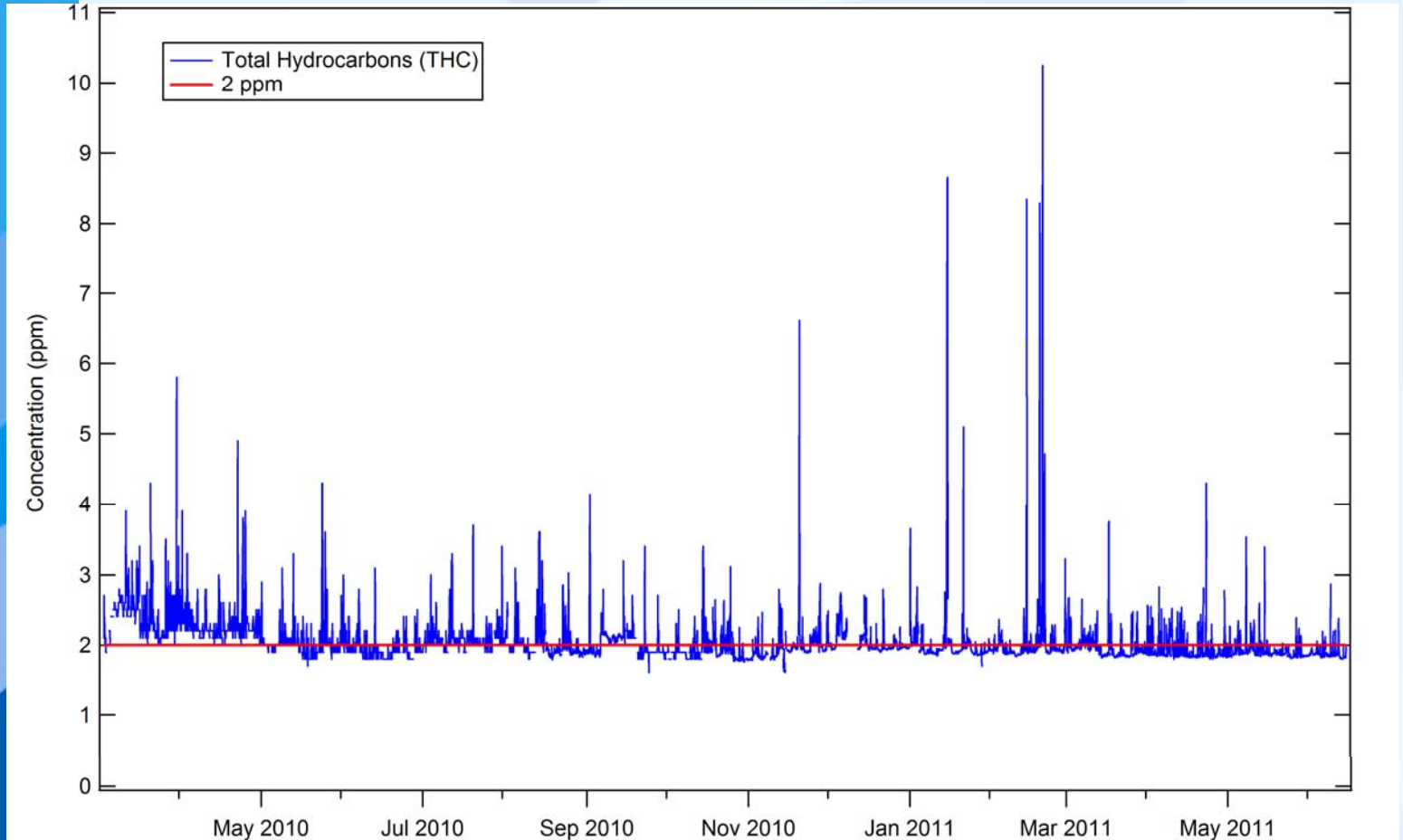
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- Continuous Monitoring Station  
– THC, SO<sub>2</sub>, TRS, and VOC
- Mobile Air Monitoring Laboratory (MAML)
- Residence Grab Samples (VOC)
- Polycyclic Aromatic Hydrocarbon (PAH) Sampling

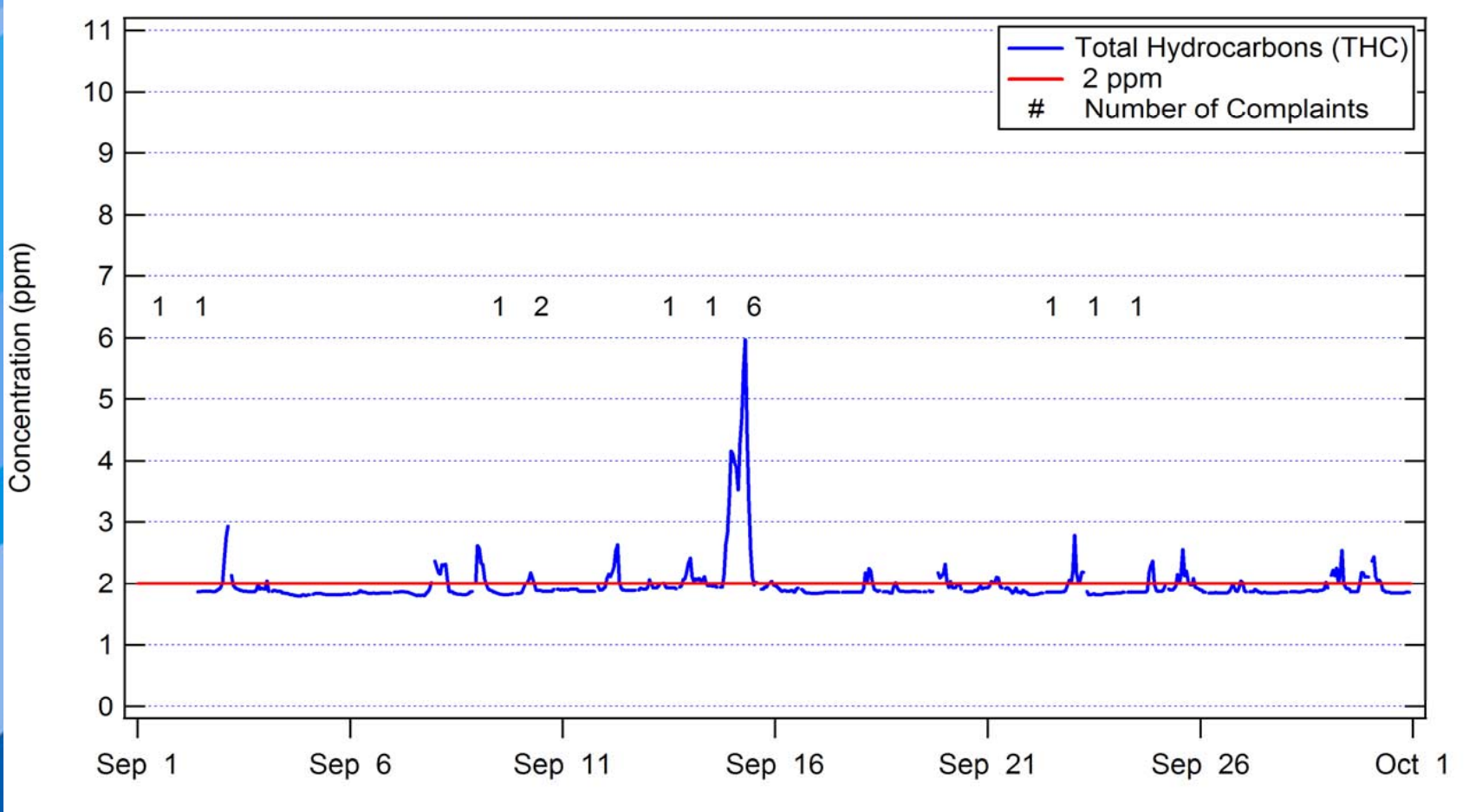
# THC Continuous Monitoring



# Three Creeks Monitoring Continuous Monitoring Data



# What we found

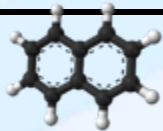
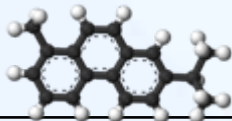
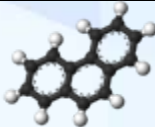


# Three Creeks Monitoring Summary of Triggered VOC

Compound Name	Three Creek Avg (ppb)
Acetone	55.62
Isopentane	2.66
Decane	2.28
2-Methylpentane	2.18
Pentane	2.18
Hexane	2.10
Toluene	2.03
Methylcyclohexane	1.77
Methylcyclopentane	1.40
Cyclohexane	1.30

# Three Creeks Monitoring Summary of PAH

- Six sites were sampled
- The three most prominent:

		
<b>Napthalene</b> <i>AVG = 5.27 ng/m<sup>3</sup></i> Present in oil production and some natural occurrences.	<b>Phenanthrene</b> <i>AVG = 2.18 ng/m<sup>3</sup></i> Wood combustion, vehicle emission, coal/oil burning.	<b>Retene</b> <i>AVG = 4.24 ng/m<sup>3</sup></i> Wood combustion, vehicle emission, coal/oil burning.

# What we did right (so far)

- Multi-faceted response
  - Science (study the impacts)
  - Technology (reduce the emissions)
  - Use Regulatory tools to ensure full compliance
  - Relationship building (facilitated process)

# Lessons Learned

- Take complaints seriously
- Numbers don't tell the whole story
- Multi-faceted approach needed
- Importance of good process
- “Social license” to operate valuable commodity