

A Local Poor Air Quality Notification System for Hamilton

**Ministry of the Environment
West Central Region
Technical Support Section**

**Presentation to Clean Air Hamilton
September 14, 2009**

Protecting our environment.



Ontario

Historical - API

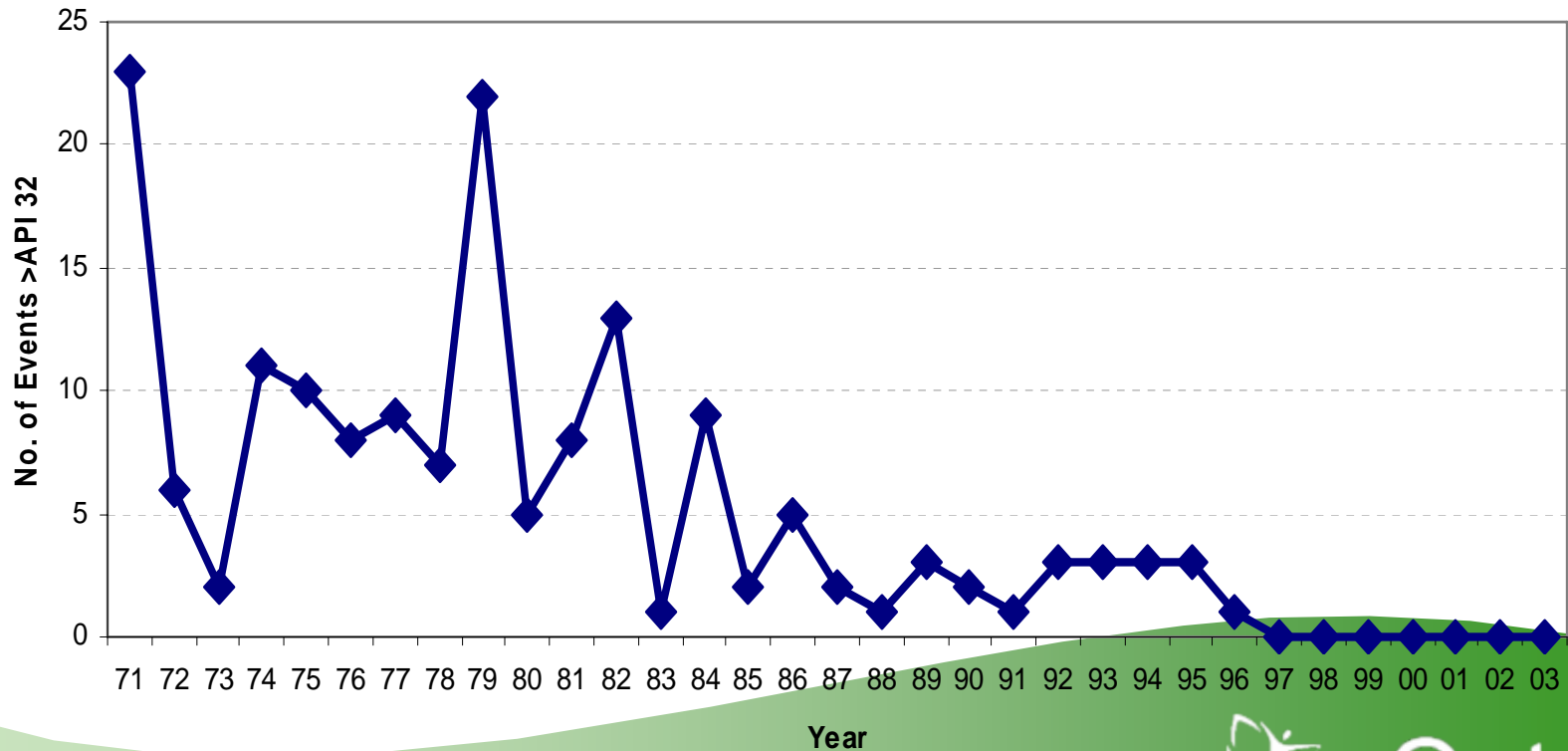
- During 1970 – 2003 an industry call-up procedure involved Stelco, Dofasco, Columbian, SWARU, Proctor & Gamble, Carron, Hocketts and Domtar
- Companies notified at API 32 when meteorological conditions expected to continue for at least 6 hours
- Companies asked to voluntarily implement previously negotiated actions on processes or production cuts.
- At API 50 actions became mandatory (occurred twice)



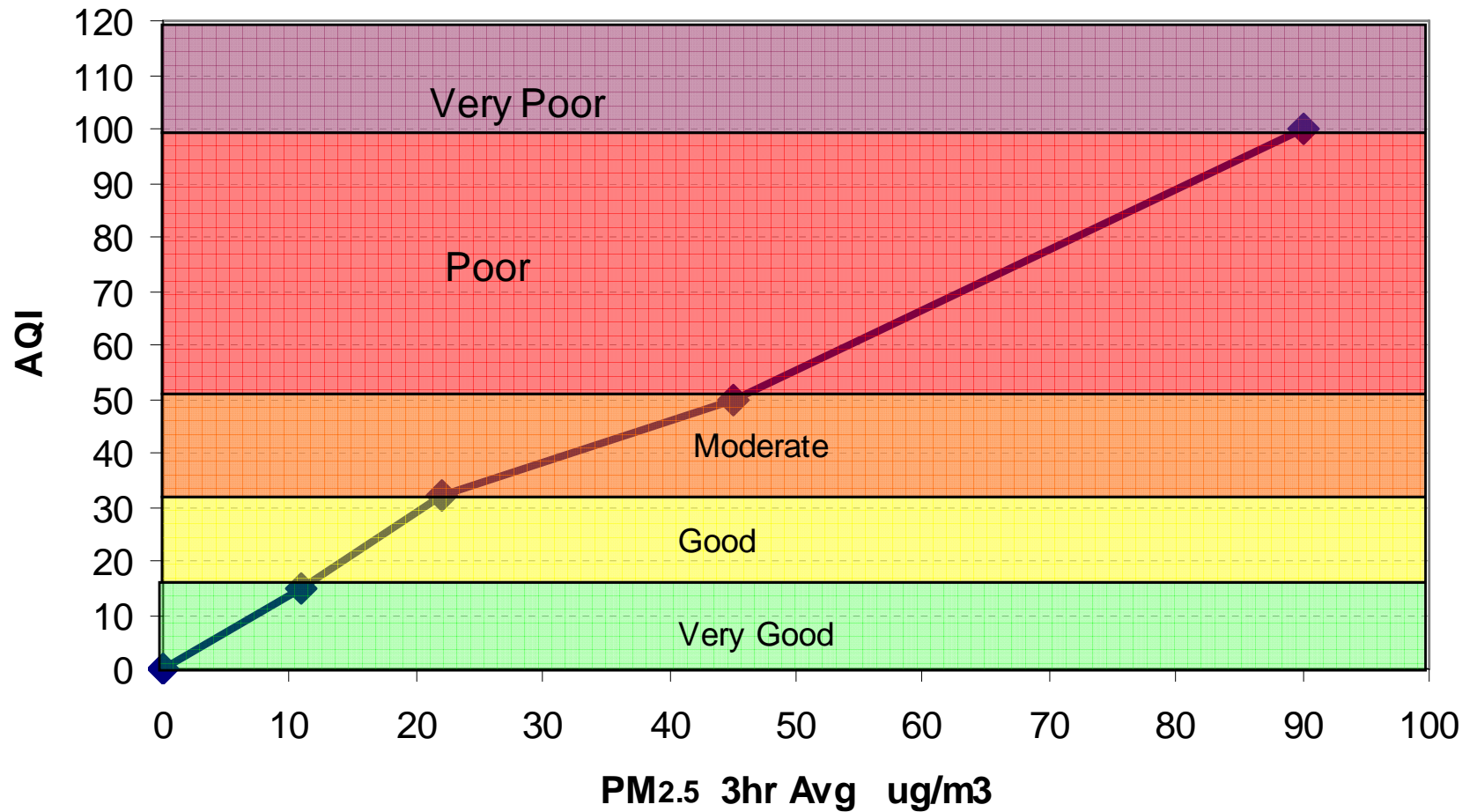
API

- API was a combination of running 24 hour averages of SO₂ and COH (soiling index)
- Last notification was 1996 and API terminated in 2003

API Incident Trend 1971- 2003
Industrial Actions Implemented



AQI Breakpoints - PM_{2.5} Sub-Index

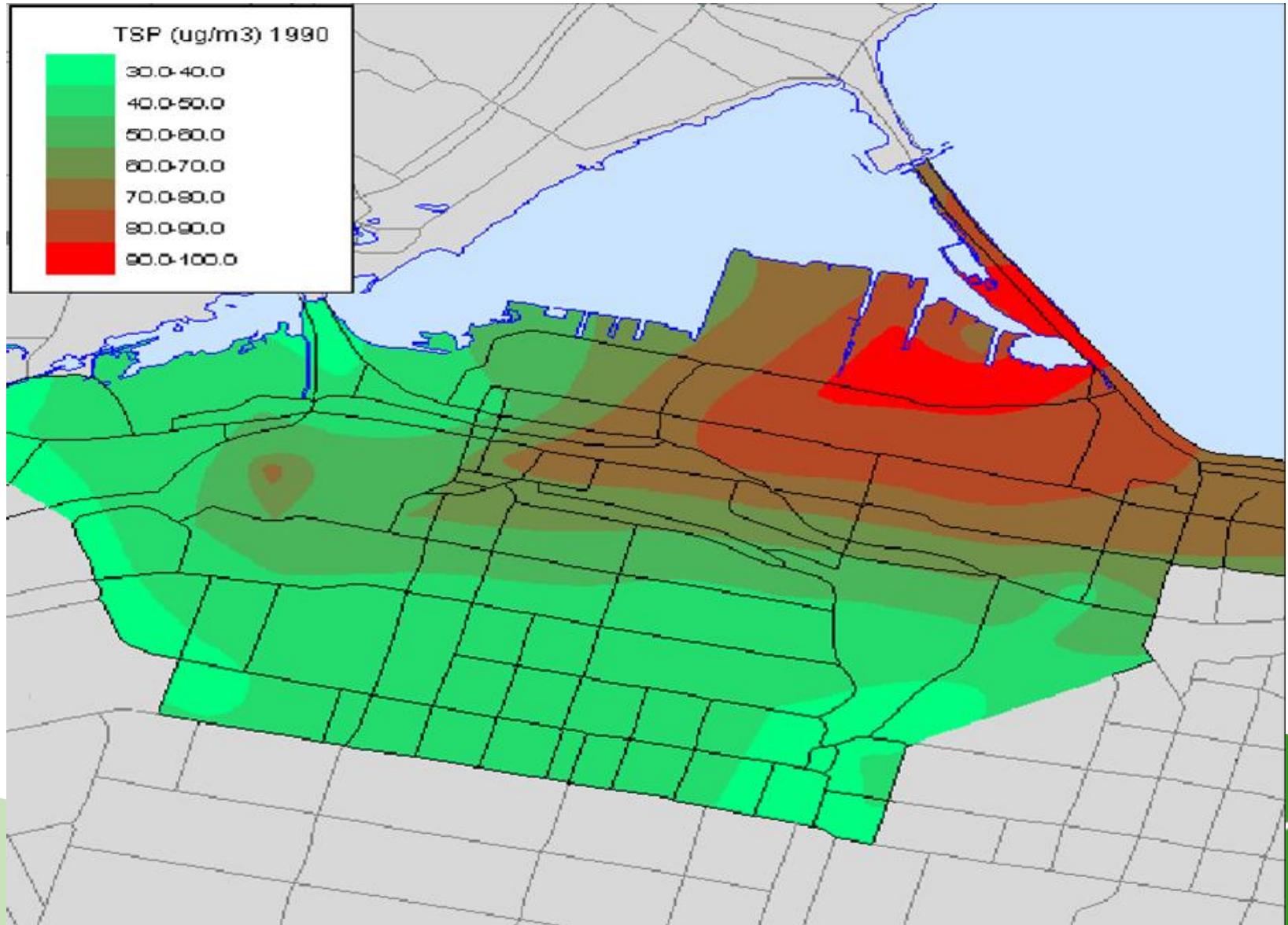


AQI stations

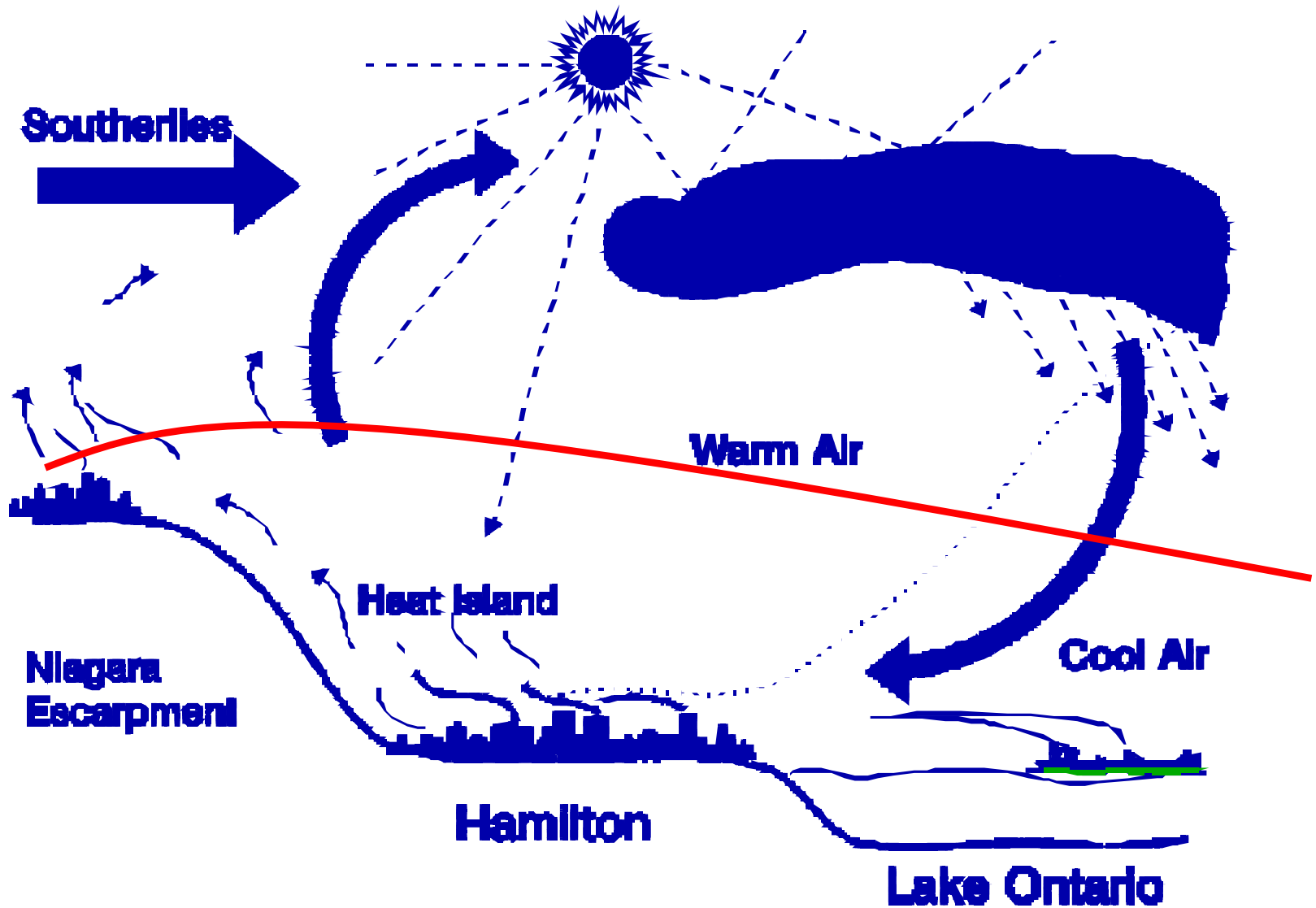


Due to proximity to industrial zone, downtown station usually shows highest particulate levels and would trigger notifications

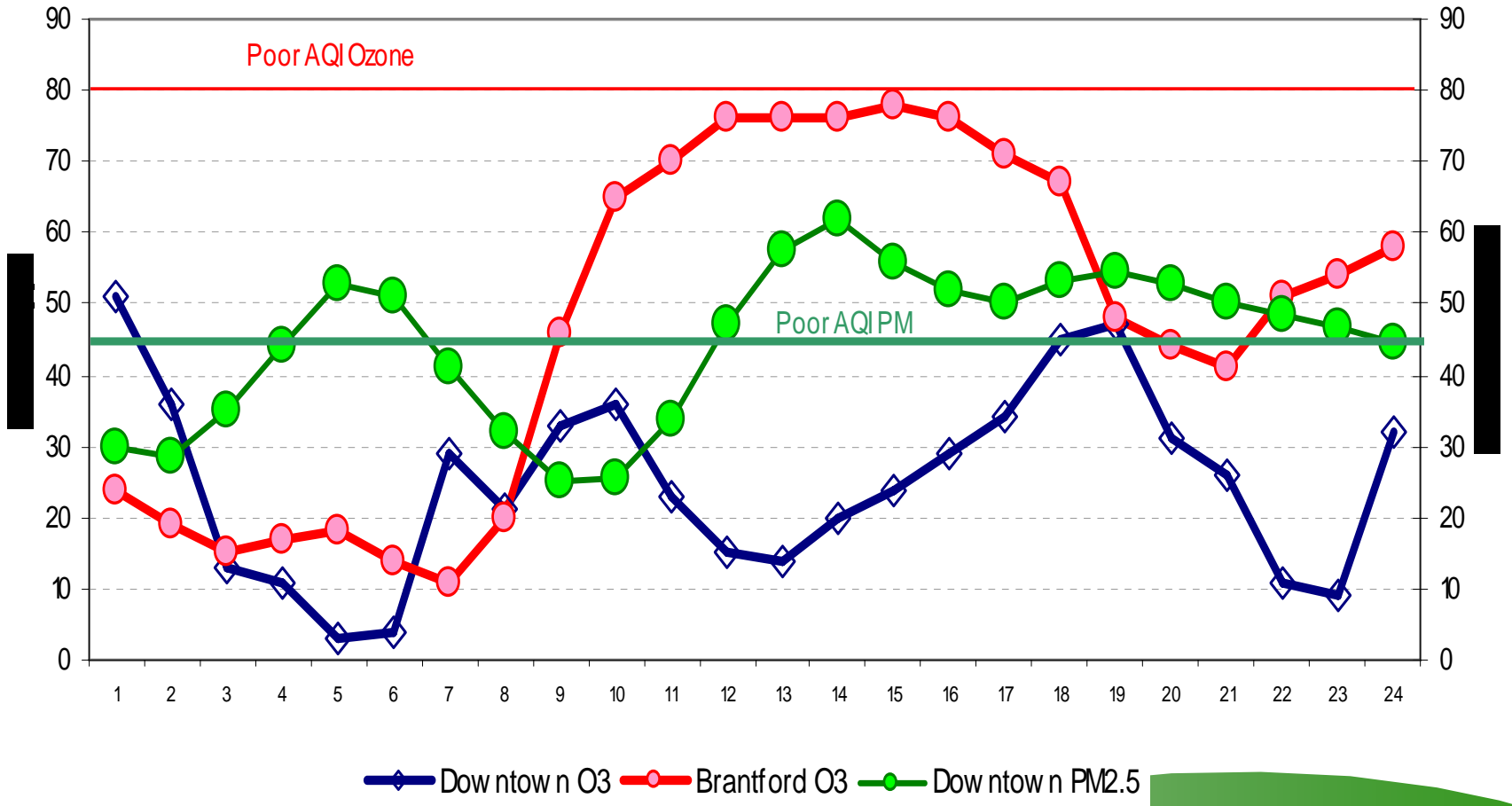
Normal patterns of particulate



Temperature Inversion



May 9, 2007 Inversion/Regional Advisory



How Often Would AQI PM Trigger Local Notification?

- 2008- Apr 19*, Sep 25, Nov 6
- 2007- May 9*, Oct 4-5*
- 2006- None
- 2005- May 9*, June 9*, June 13*, Oct 2-4
- 2004- May 12-14*, Sep 4*

* Province-wide advisory



Maximum AQI Due to PM Downtown

- 2008 - 85 Sep 25
- 2007 - 73 Sep 21
- 2006 - 82 May 31 (inversion portion of event too short for notification)
- 2005 - 76 June 9
- 2004 - 103 Oct 26 (Ontario record)

All during temperature inversion conditions



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Why are We Here Today ?

- Hamilton periodically experiences **local poor air quality events** due in part to its geography and as well to its high concentration of industries and other emitters.
- The ministry's existing province-wide air quality alert system does not always adequately address local issues.
- Hamilton has not had a local alert system since 2003.
- This is an opportunity – measures needed to mitigate the impacts of poor air quality events can be simple and inexpensive – the benefits of many companies doing a few simple things would significantly improve quality of life during these events.



A Local Poor Air Quality Notification System for Hamilton

What It Is -- What's In

- A system whereby local industries would be asked to voluntarily undertake measures to reduce releases of particulate matter during local poor air quality events.
- Based on PM_{2.5} (particulate matter with diameter < 2.5 microns).
- Focus is on fugitive (non-stack) releases; any voluntary reductions in stack emissions would also be helpful.
- Localized poor air quality events are relatively infrequent, typically 1 or 2 per year, in some years there may be none.
- Local poor air quality events are typically caused by temperature inversions and are linked to Hamilton's unique geography.

A Local Poor Air Quality Notification System for Hamilton

What It Is Not -- What's Out

- **Not compliance-driven**; companies are being asked to undertake measures voluntarily.
- **Not intended to impede legitimate / approved economic activity** – this is about on-the-job control measures.
- **Not driven by a complex set of multiple air pollutants** (e.g. smog) – only dealing with locally-generated particulate matter (e.g. dust, fallout, opacity, etc.).
- **Not a frequent occurrence**. Hamilton typically experiences 1 or 2 local poor air quality events per year, each typically lasting 1 or 2 days (an event longer than 2 days would be considered exceptional).
- **Short duration events would not trigger notifications** (i.e. no action for events lasting only a few hours).

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Some Background

- A call-up procedure involving a core group of companies was in place in Hamilton from 1970 to 2003.
- Was based on SO_2 and “*co-efficient of haze*” (CoH), a defunct measure of visibility interference due to particulate matter.
- Current legislation (O.Reg. 419 s.39) empowers the Minister to require curtailment of operations during air pollution alerts.
- The proposed notification system is based on the O.Reg. 419/05 s.39 *concept* - but it is voluntary, based only on $\text{PM}_{2.5}$, and decisions and actions are taken locally.

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Why is the Ministry Doing This ?

- Fine particulate matter causes adverse health effects, especially for more sensitive segments of the population (e.g. children, the elderly, people with lung / heart conditions).
- Hamilton's unique geography leads to periodic episodes known as "temperature inversions" during which air pollution can remain trapped at ground level.
- Since the discontinuation of the earlier local notification system for Hamilton in 2003, there has been no local mechanism used to mitigate impacts to air quality during poor air quality events.

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How We Propose to Implement

- Target implementation date is September 1, 2009 – in time for any potential fall inversions.
- We will ask each company present here today to prepare a plan by end of June which you can enact during local poor air quality events.
- These can be sent to me by email. We are available at any time to discuss your plans with you and how best to implement them within your company.
- We are asking for two email addresses (a principal and a backup) who would receive notifications during local poor air quality events.



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How Events Would be Managed

- Where $PM_{2.5}$ reaches the poor range and where forecasts predict this to continue for at least 6 hours, we would send out emails to participants declaring an event and asking you to implement your plans.
- Updates would be provided if events are expected to last more than a day, *and you will be advised when conditions are expected to improve and the event can be called off.*
- Notifications of the start or end of an event can occur any day of the week. A weekend / after-hours contact (if applicable) would be helpful.

Status as of 2009/09/14

	#	%
Plan Submitted	18	56
Plan Under Preparation	7	22
<i>(Submitted or Will Submit)</i>	25	78
Not significant sources of PM	4	13
Unsure / Attempting to Contact	3	9
Total # Companies Approached	32	

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Communication

- Today's session involves industries and agencies only.
- Going forward, once a plan has been implemented, there may be a benefit to communicating to a broader audience about the plan and who is doing what.
- Opportunity to show the community how industries and agencies can work together to improve the quality of life in Hamilton.
- Any ideas or suggestions you may have would be welcome.

