

# Fall 2010 Blood Lead Results

**Participation Rates**

**Results**

**Environmental Conditions**



# Age Groups Targeted

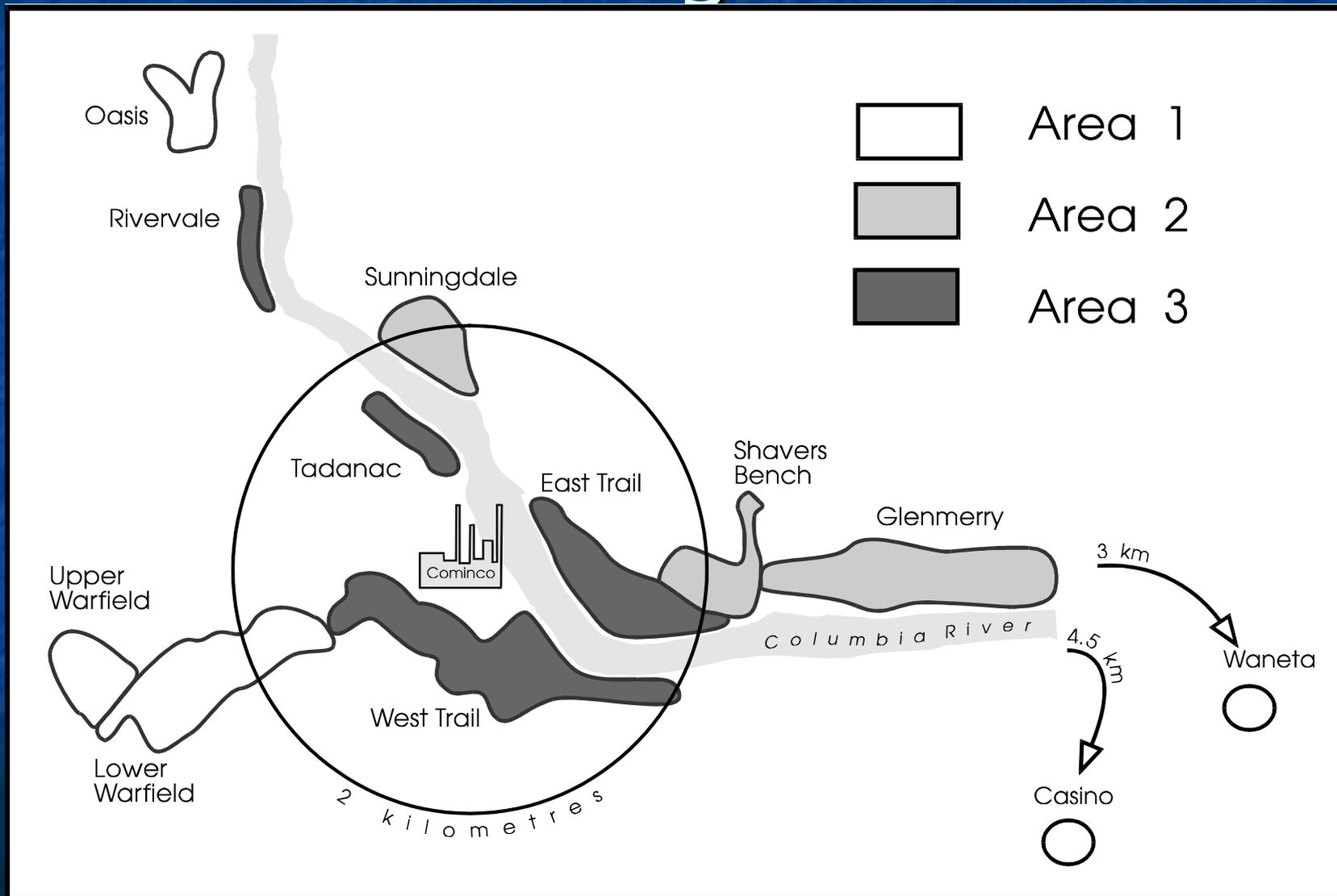
- 1991-2000: age 6-60 months
- 2001-2005: age 6-36 months
- 2006-2008: age 6-60 months
- 2009-2010: age 6-36 months



# Who Was Tested in 2010?

- Target group:
  - Children aged 6-36 months, living in City of Trail or Rivervale (Area 2/3)
- Also:
  - New to area, up to age 5 yrs (60 mos)
  - Previous case management for follow-up

# "Areas" & Neighbourhoods





# Fall 2010

## Participation By Neighbourhood

Participation for 2010 ( <b>Children under 3 years</b> )				2009
Breakdown by Neighborhoods	# Children Contacted	# Children Participating	% Children Participating	% (No.) Participating
<b>AREA 3 (Children &lt;3 years)</b>				<b>(&lt;3 years)</b>
East Trail	32	23	72%	84% (26)
West Trail	51	32	63%	83% (39)
Tadanac	2	1	50%	50% (1)
Rivervale	4	1	25%	100% (1)
<b>AREA 3 TOTAL</b>	<b>89</b>	<b>57</b>	<b>64%</b>	<b>83% (67)</b>
<b>AREA 2 (Children &lt; 3 years)</b>				<b>(&lt; 3 years)</b>
Glenmerry	36	18	50%	59% (19)
Shavers Bench	9	4	44%	73% (8)
Sunningdale	19	12	63%	56% (9)
<b>AREA 2 TOTAL</b>	<b>64</b>	<b>34</b>	<b>53%</b>	<b>61% (36)</b>
<b>AREA 2 &amp; 3</b>	<b>153</b>	<b>91</b>	<b>59%</b>	<b>74% (103)</b>

# Changes since 2001:

## Where do Kids Live and Who Participates? (6-36 months)

	2010	2001
<b>Overall</b>	<b>91 of 153 (59%)</b>	<b>90 of 119 (76%)</b>
<b>Area 2</b> (further out)	<b>34 of 64 (53%)</b>	<b>48 of 62 (77%)</b>
<b>Area 3</b> (closer to smelter)	<b>57 of 89 (64%)</b>	<b>42 of 57 (74%)</b>

# Participation Rates Fall 2010

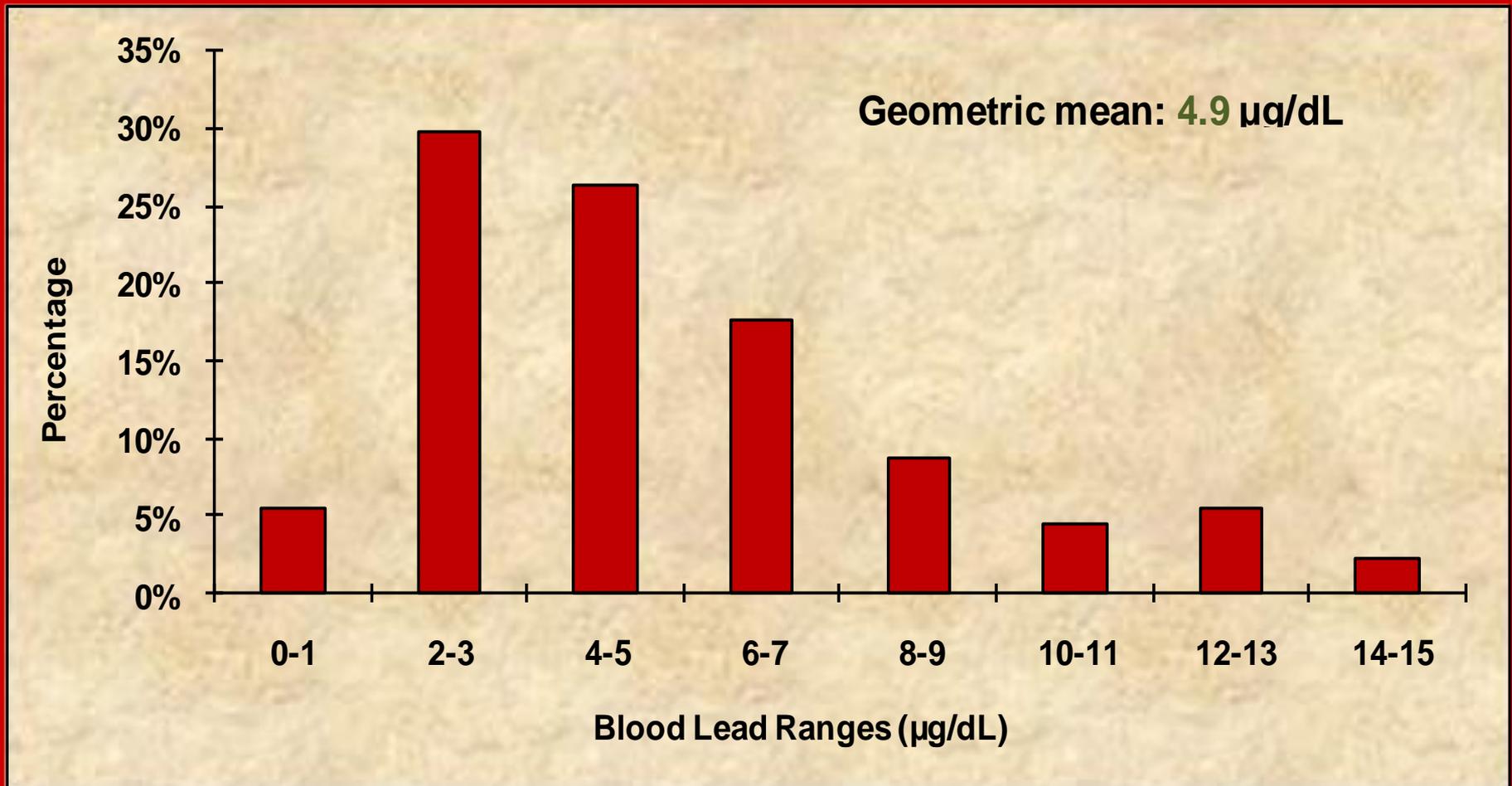
*(cont'd)*

Area 2/3

<b>Group</b>	<b>Participation Rate (2010)</b>	<b>Participation Rate (2009)</b>
<b>Infants 6-12 months not tested before</b>	<b>71%</b> (24 of 34)	<b>76%</b> (28 of 37)
<b>Case Management</b> (identified in previous clinics and eligible to come back)	<b>74%</b> (23 of 31)	<b>100%</b> (19 of 19)

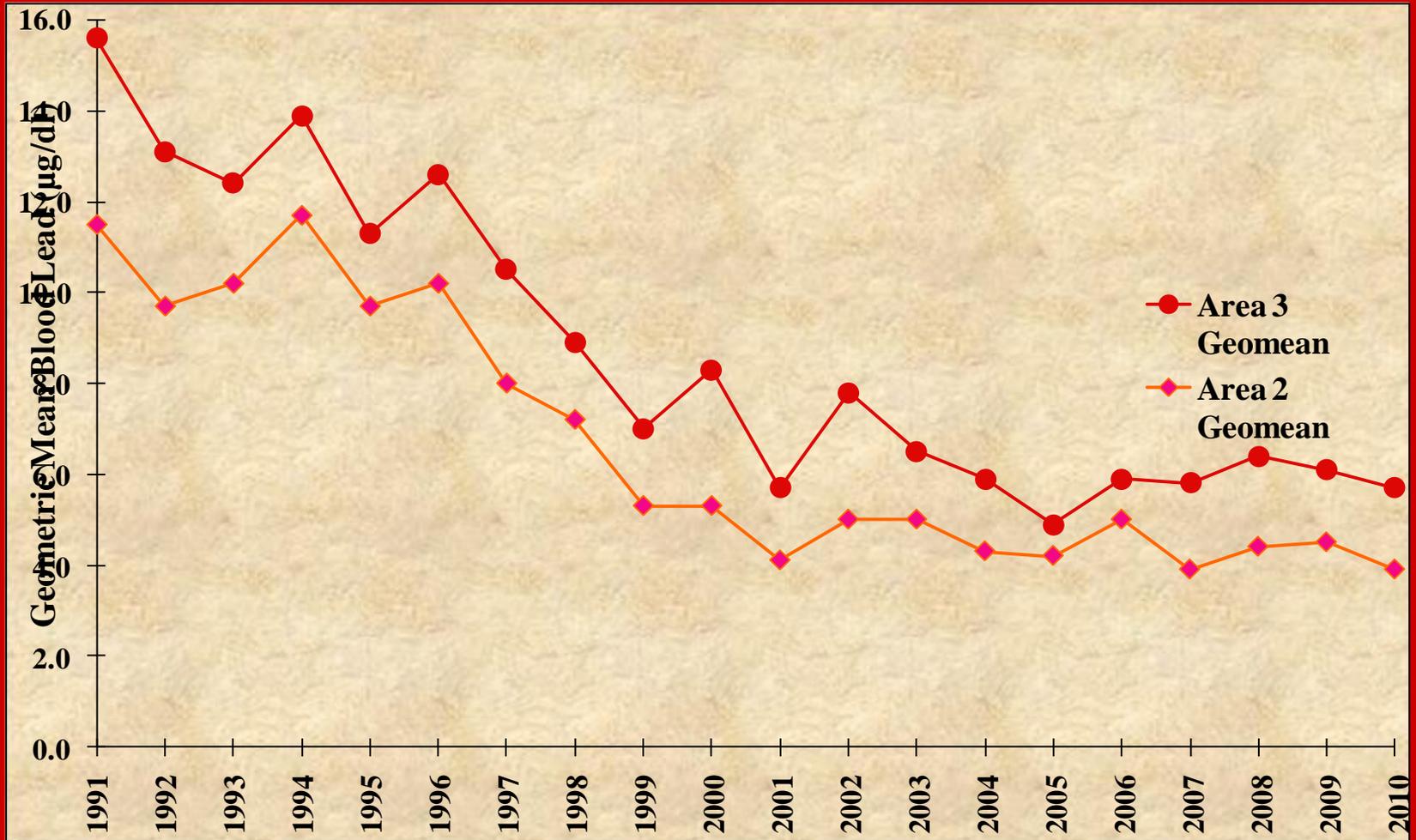
# 2010 Blood Lead Histogram: Area 2/3

*(Age 6 mos. - 36 mos.)*



# Blood Lead Geo Mean by Area

(age 6 – 36 months throughout)

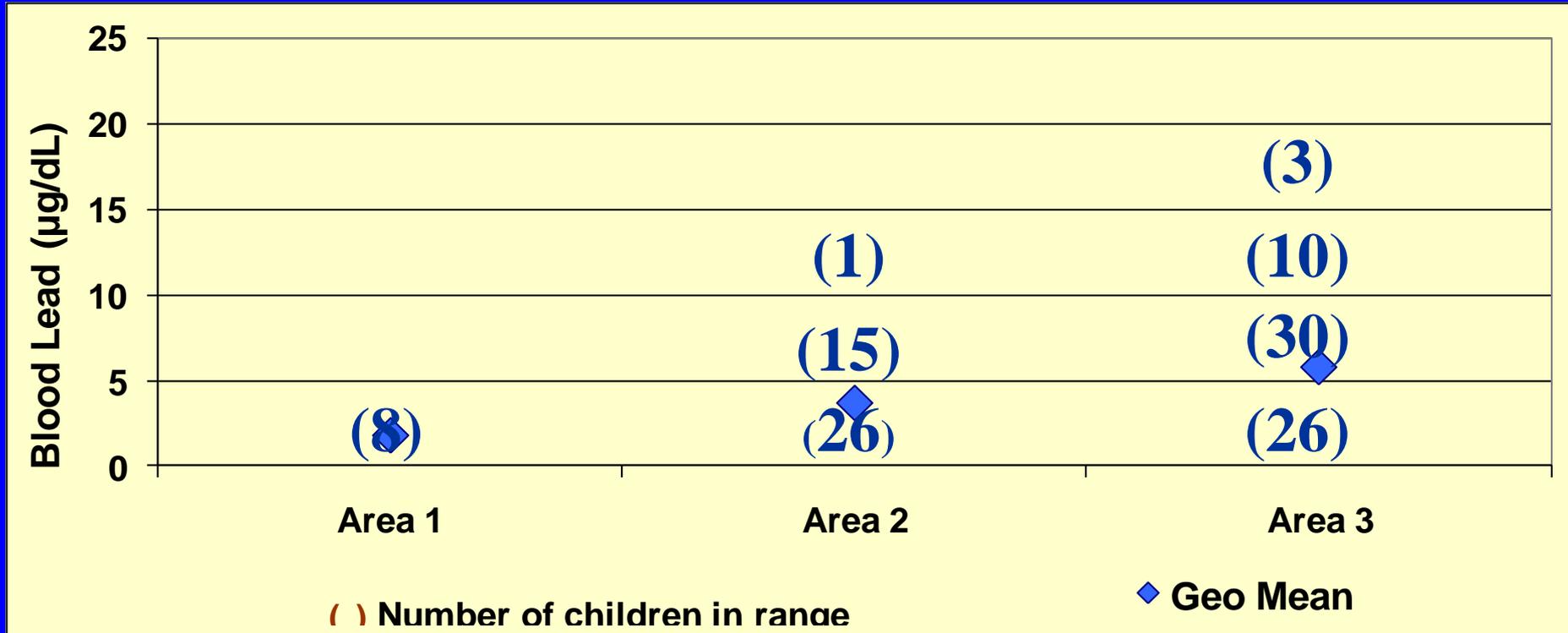


# Area 2 & 3 Children under 3 yrs

<b>Statistic</b>	<b>2010</b>	<b>2009</b>
<b>Geometric Means</b>		
Overall	4.9	5.6
Area 2	3.9	4.5
Area 3	5.7	6.3
<b>Percentages at or Above:</b>		
10 µg/dL	12%	16%
15 µg/dL	1%	5%
20 µg/dL	0%	3%

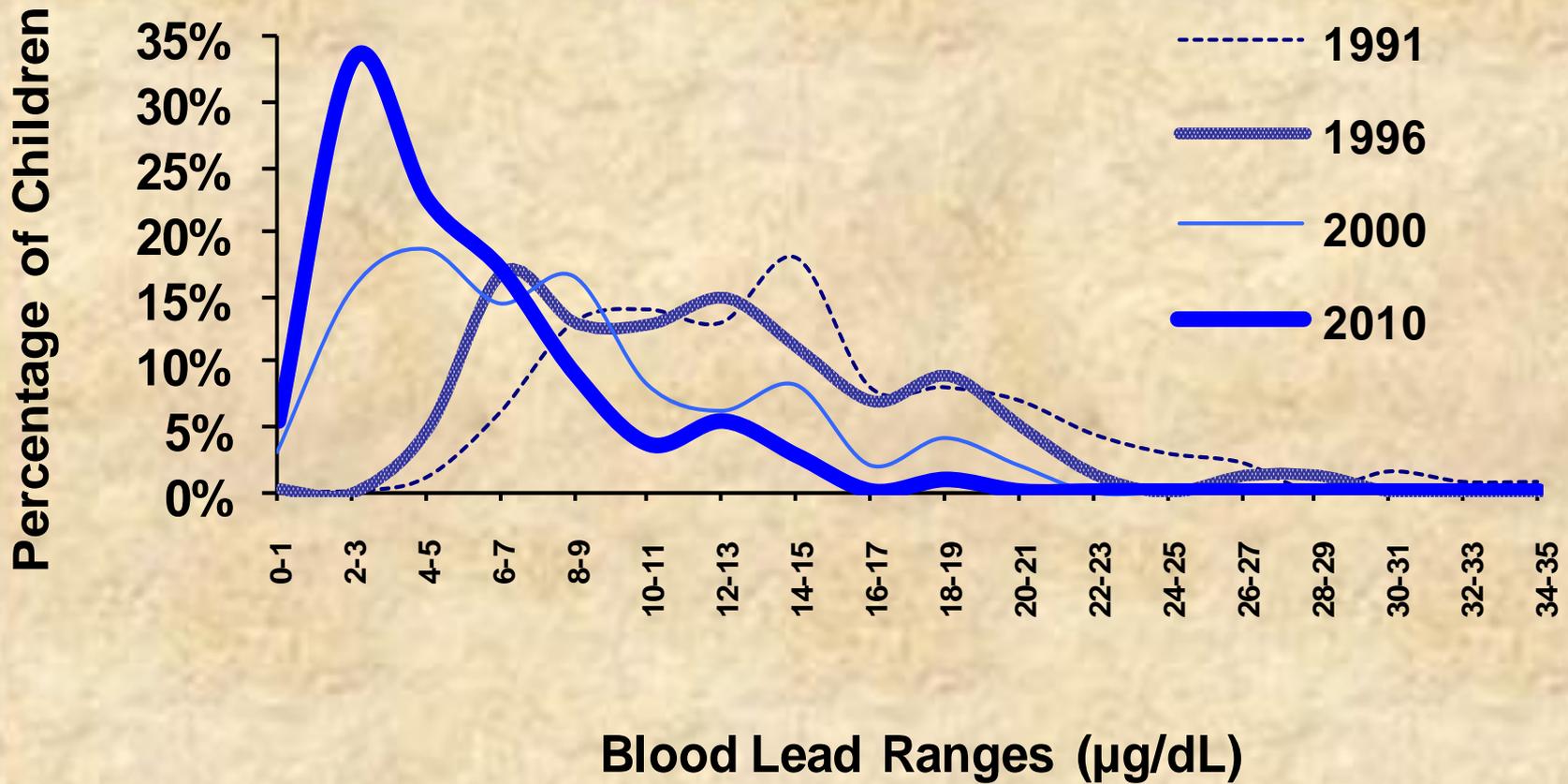
# 2010 Blood Leads by Area

*(Age 6 mos. - 60 mos.)*

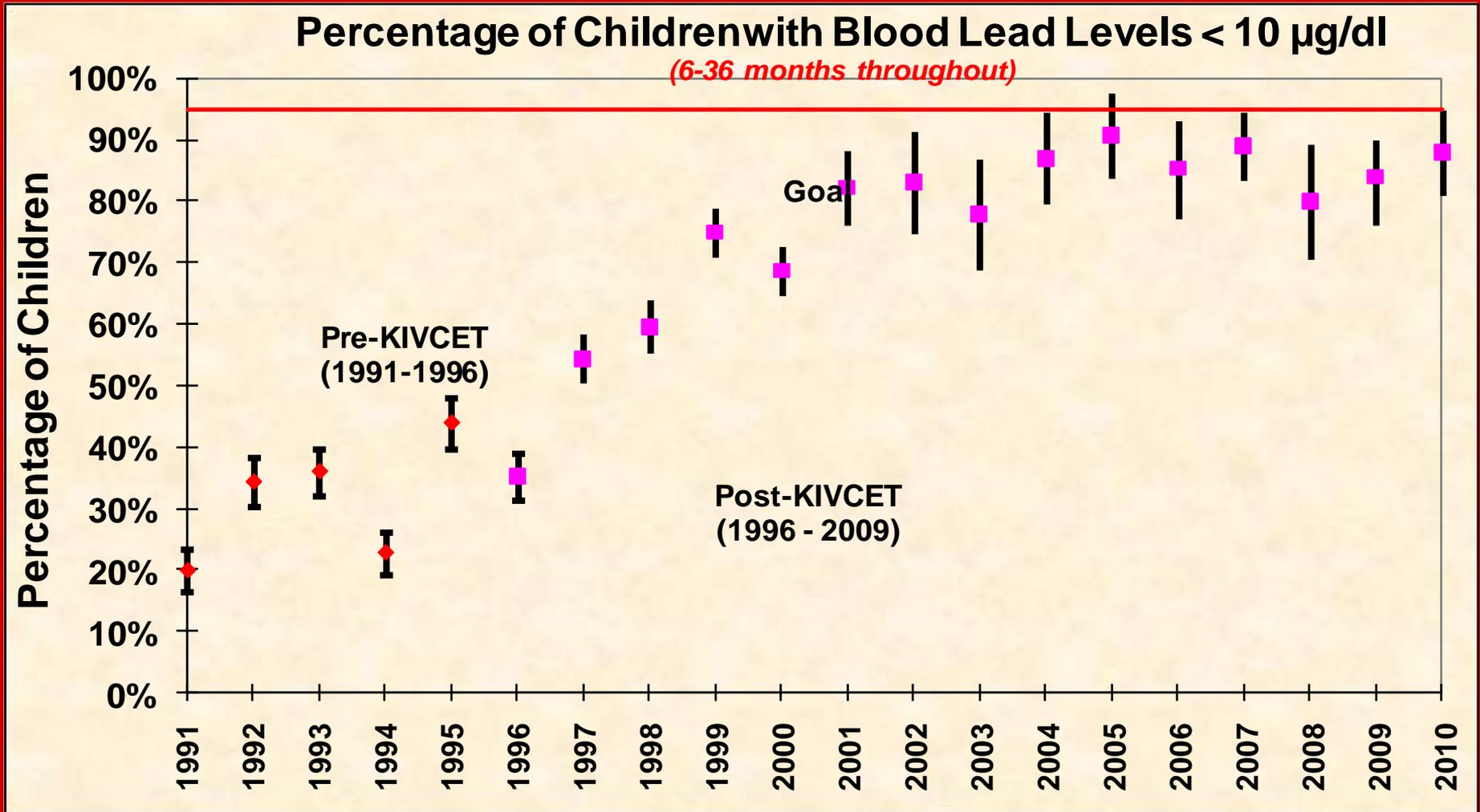


# 1991-2010 shift

## Areas 2 & 3: Children $\leq$ 60 months

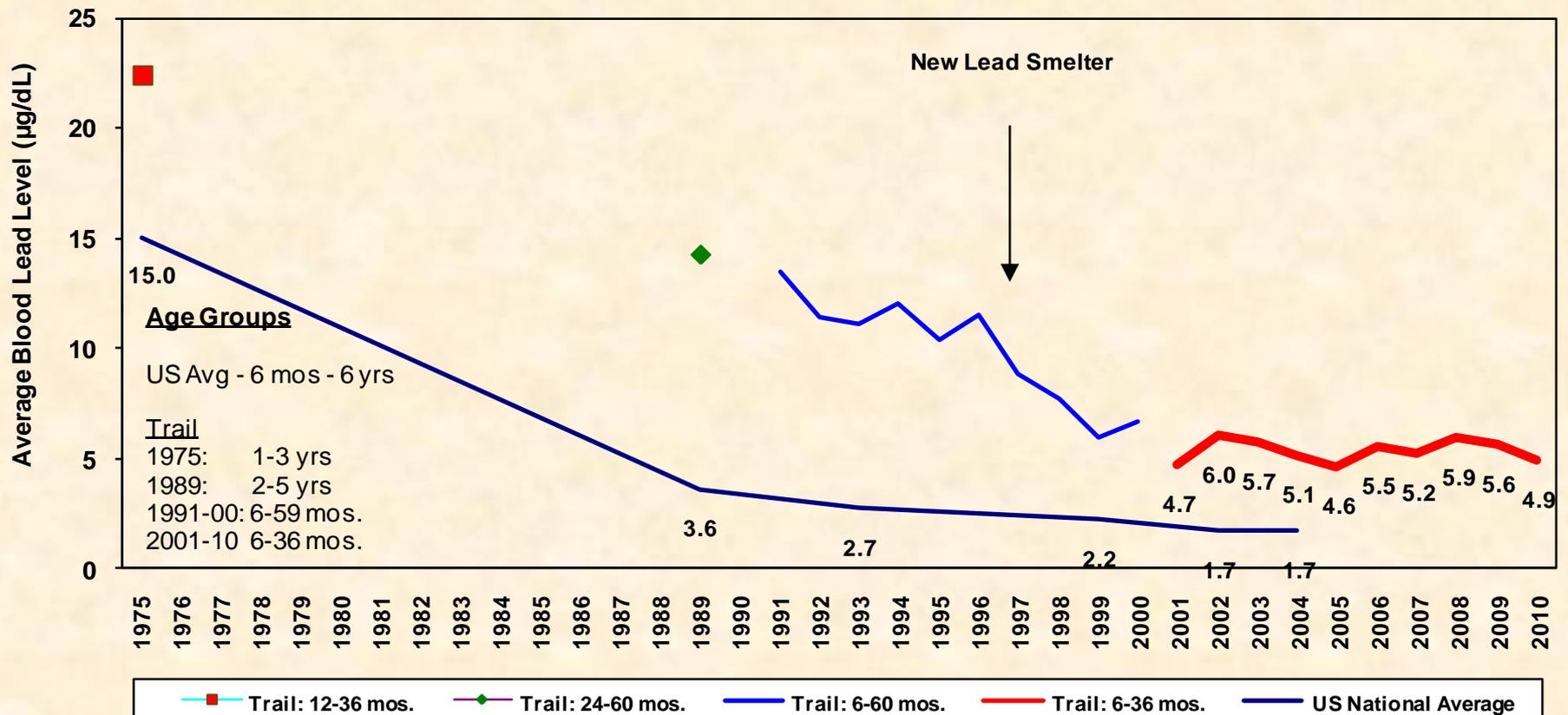


# Goal for 2015



# Comparison with "background"

History of Children's Blood Lead Levels in Trail

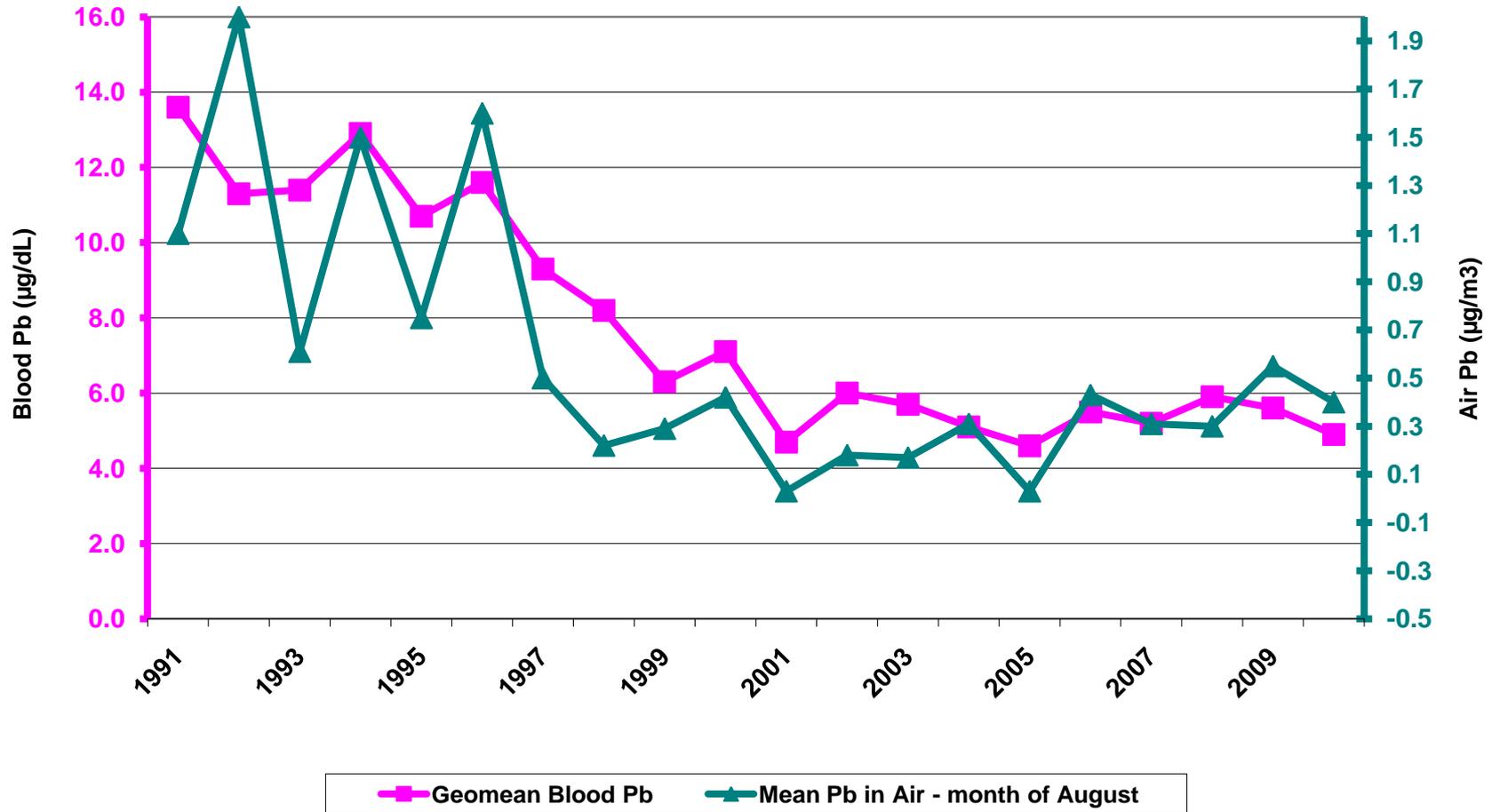


# Comparison with Other Sites

<b>City/Region</b>	<b>Country</b>	<b>Nature of site</b>	<b>Age of kids tested</b>	<b>Year</b>	<b>Blood Lead Level (µg/dL)</b>
La Oroya	Peru	Primary Pb smelter	< 6 yrs	2007	20.0
Port Pirie	Australia	Primary Pb smelter	9 mos to 4 yrs	2005	10.6
Torreón	Mexico	Primary Pb smelter	1-3 yrs	2010	5-6?
Hoboken	Belgium	Secondary Pb smelter	2.5 yrs to 6 yrs	2009	6.9
Rouyn-Noranda	Canada	Primary Cu smelter	6 mos to 5 yrs	1999	5.2
Mount Isa	Australia	Primary Pb smelter/mine	1-4 yrs	2007	5.0
Trail	Canada	Primary Pb smelter	6 mos to 3 yrs	2010	4.9
Hamilton	Canada	Urban/city centre	under 6 yrs	2008	3.0
Nation-wide	U.S.A.	Urban/rural (NHANES)	1 to 5 yrs	2004	1.7

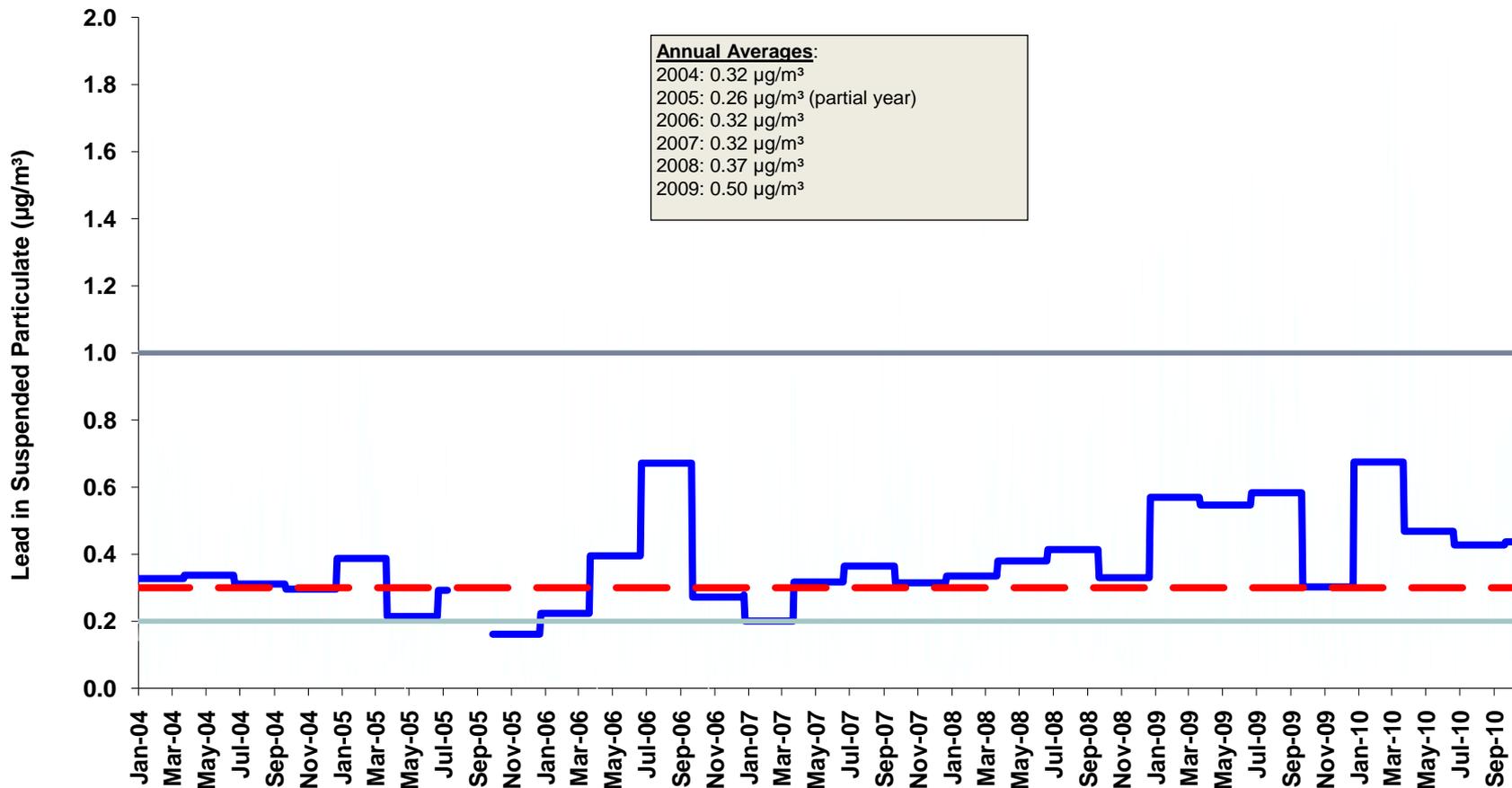
# Air Pb/Blood Pb Relationship

Geomean Blood Pb for Trail Children aged 6-36 Months  
and Air Pb in Month of August



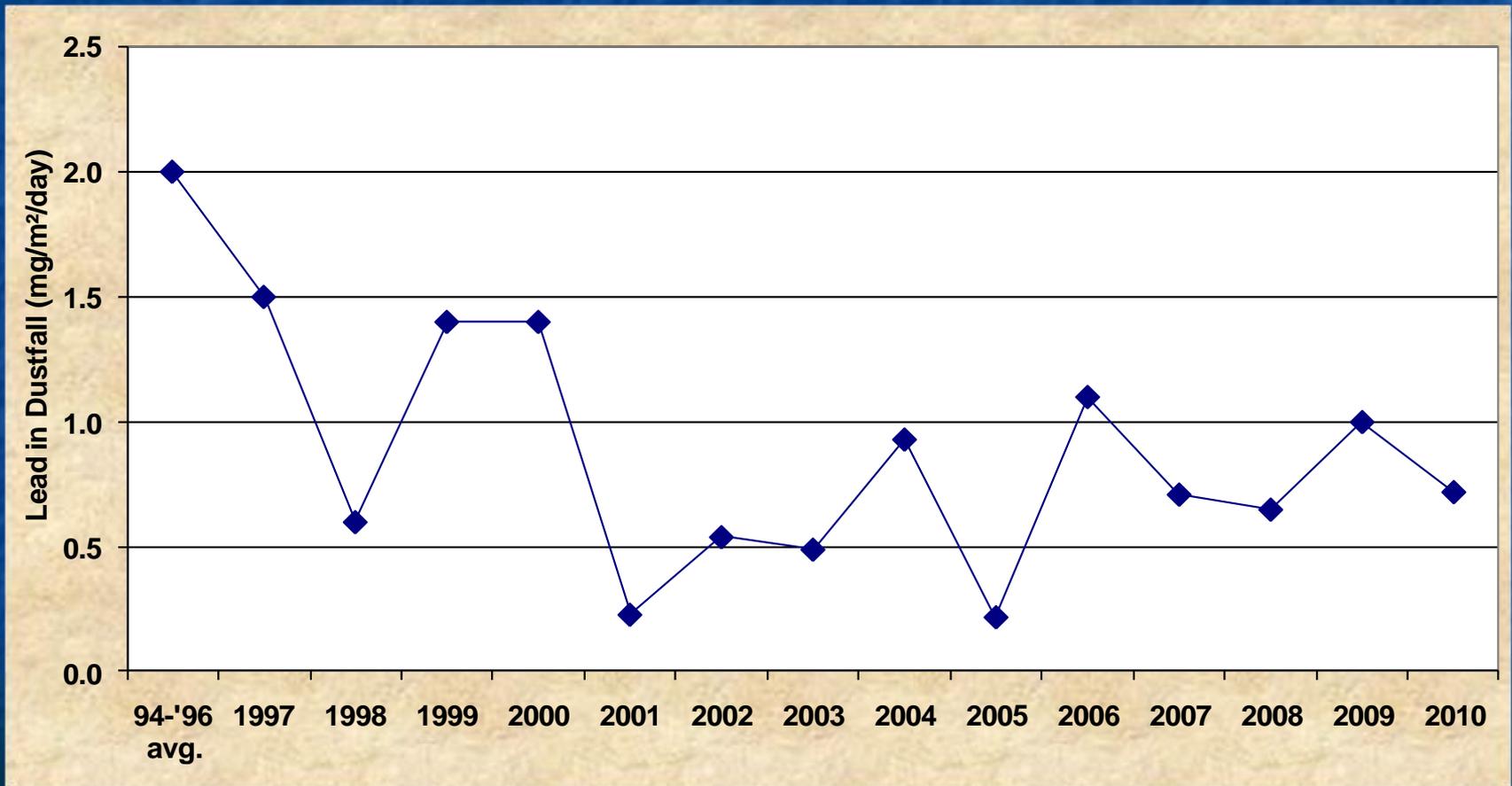
# Air Lead Levels - Butler Park Stn

## Butler Park - TSP Lead



Actual data points - Butler Park    Quarterly Average - Butler Park    2010 Goal    BC Objective for Annual Average    2018 Goal

# Lead in Dustfall: Month of August Only, Area 2/3



# Concluding messages

- Compared with last blood lead survey (2009), average blood lead in 2010 is down slightly, but the difference is not statistically significant ( $p=0.17$ )
- Late summer 2010 conditions were again warm and dry but the levels of lead in ambient air and dustfall were lower relative to 2009.
- The new THEP goal of having 95% of children with BLL of  $<10$  ug/dL by 2015 has not yet been reached (still at approx. 90%)
- There is no trend in blood lead levels in Trail children in over past 6 years – average blood lead level is not changing significantly.

# Concluding messages

- Huge improvement in children's blood lead levels over the past 18 years, and Trail is at the forefront of smelter communities in terms of low lead emissions and blood lead levels.
- Studies of large numbers of children have found that those with higher blood lead levels tend, on average, to score slightly lower on developmental tests than children with lower blood lead levels.
- Adverse effects associated with blood lead levels seen in children today are subtle, and an individual child's blood lead level is not a reliable predictor of his/her development.

# Concluding messages

- The current “level of concern” for blood lead levels in children is 10  $\mu\text{g}/\text{dL}$ . However, there is no known threshold below which there is no effect.
- A significant percentage (more than 5%) of children greater than 10  $\mu\text{g}/\text{dL}$  should result in community investigation and intervention.
- Children with elevated blood lead ( $\geq 10 \mu\text{g}/\text{dL}$  OR  $< 12$  months age and  $\geq 7 \mu\text{g}/\text{dL}$  OR increase  $> 3 \mu\text{g}/\text{dL}$ ) will continue to receive home visits and assistance with reducing exposure.