

BUNKER HILL SUPERFUND SITE 2023 BLOOD LEAD LEVELS

PANHANDLE HEALTH DISTRICT

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MARCH 6, 2024



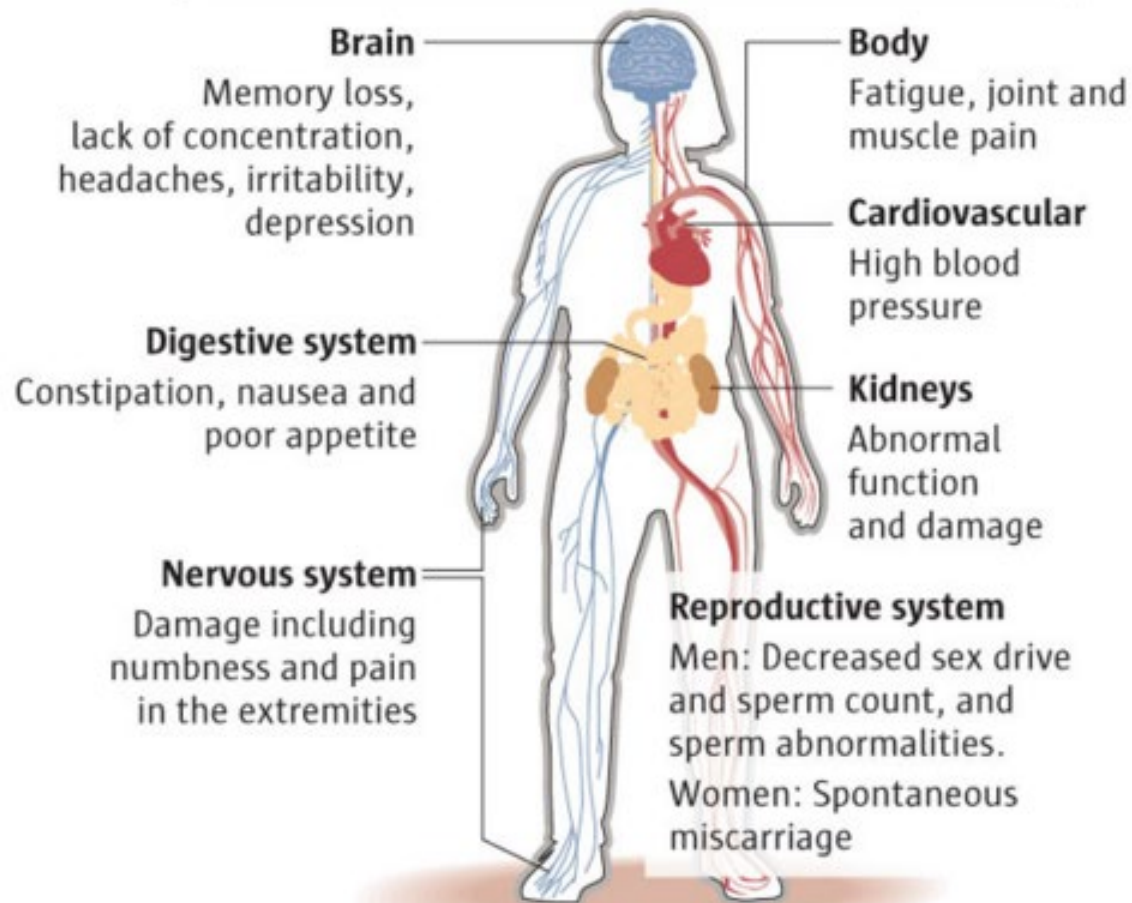
PRESENTATION OUTLINE

- HEALTH EFFECTS OF LEAD
- LEAD HEALTH INTERVENTION PROGRAM (LHIP) BACKGROUND
- 2023 LHIP APPROACH
- 2023 LHIP RESULTS



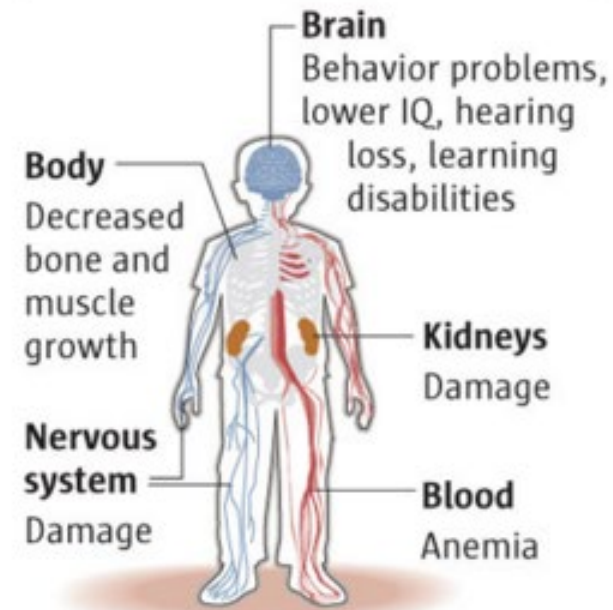
HEALTH EFFECTS OF LEAD

ADULTS



Most common exposure route:
incidental ingestion

CHILDREN

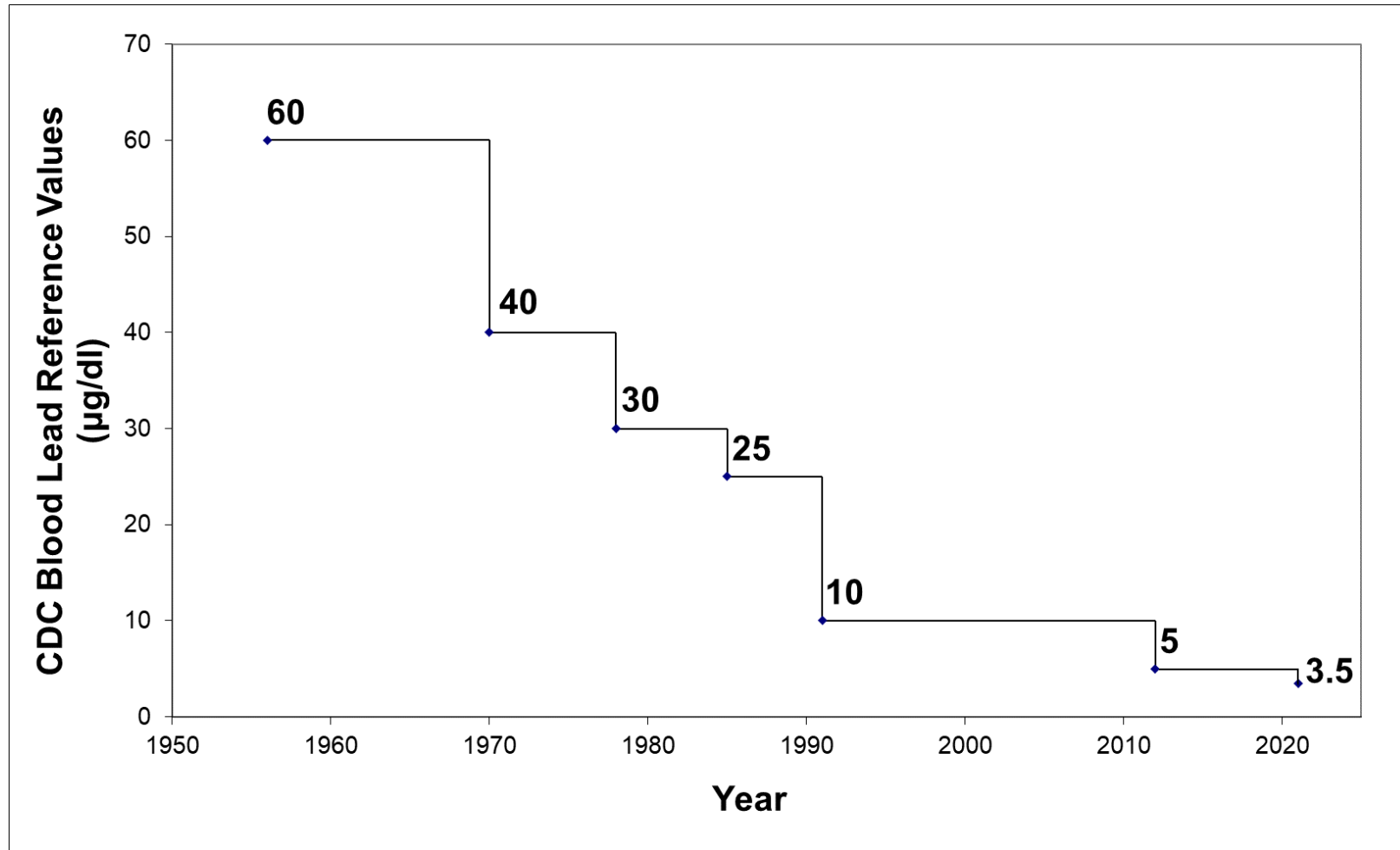


AT RISK POPULATIONS



Blood lead test is the best tool for identifying exposure & health risks

DECREASING “ELEVATED” BLOOD LEAD LEVELS



Blood Lead Concentrations Considered to be Elevated by the Centers for Disease Control and Prevention.

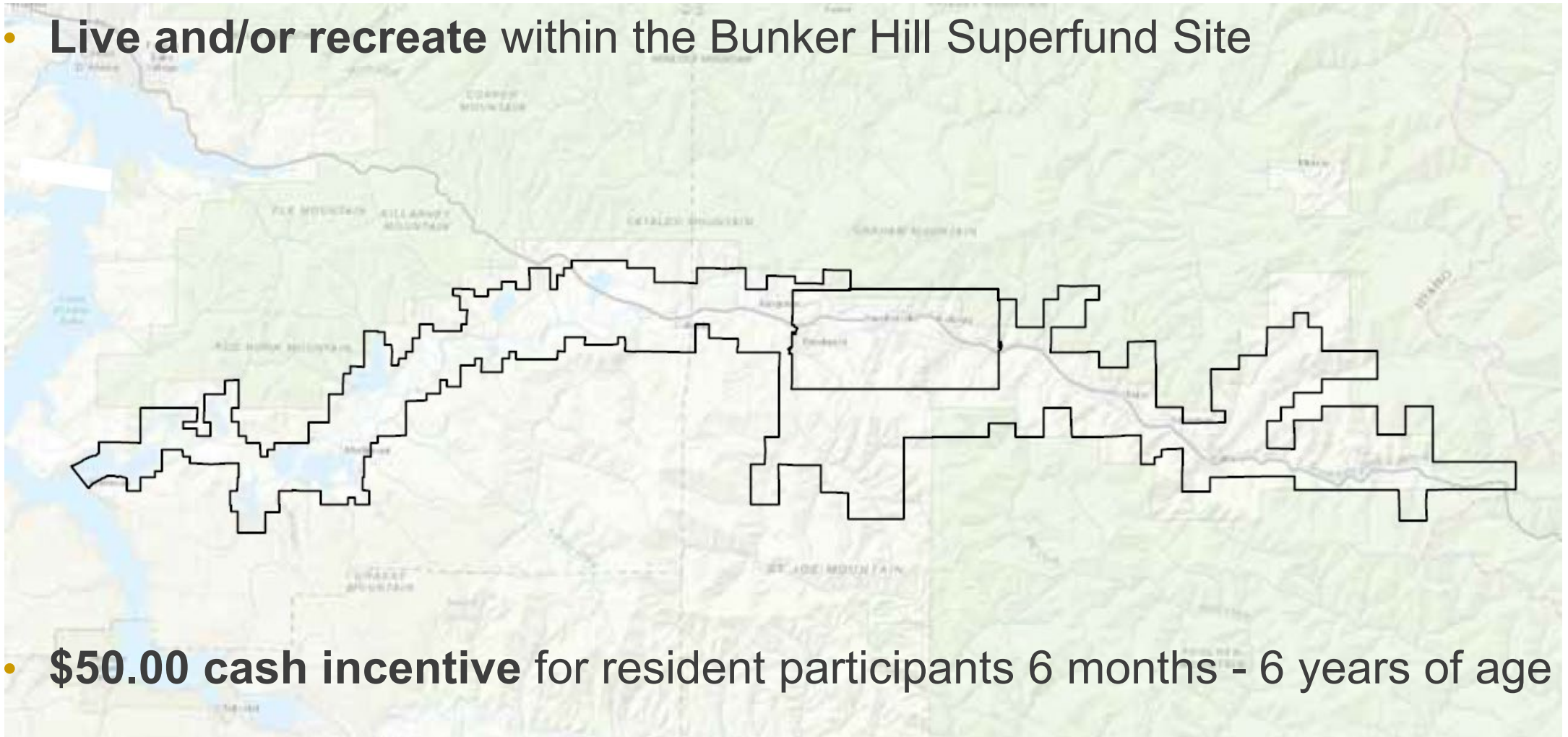
LEAD HEALTH INTERVENTION PROGRAM (LHIP)

- Public health service
- Not a study or experiment
- Box since 1974/1985
- Basin since 1996



LHIP PARTICIPANT CRITERIA & INCENTIVE

- **Live and/or recreate** within the Bunker Hill Superfund Site



- **\$50.00 cash incentive** for resident participants 6 months - 6 years of age

PRESENTATION OUTLINE

- ✓ HEALTH EFFECTS OF LEAD
- ✓ LEAD HEALTH INTERVENTION PROGRAM (LHIP)
BACKGROUND
- 2023 LHIP APPROACH
- 2023 LHIP RESULTS



2023 LHIP APPROACH

- Informed consent
- Blood test offered by either
 - Venous, or
 - Capillary (i.e., fingerstick [FS])
- If FS ≥ 3.5 $\mu\text{g/dL}$ then venous confirmation test
- Offer consultations and follow-up with all children ≥ 3.5 $\mu\text{g/dL}$



2023 LHIP APPROACH

- Screening offered in August, similar to past 30+ years
- Additional screenings held at community events that also offered incentive money:
 - Walk-ins throughout spring/summer/fall
 - Kellogg Elk's Club Blood Drive, June 6
 - Shoshone Medical Center Kid's Health Fair, September 23
 - Kellogg Elk's Club Blood Drive, October 3

2023 SCREENING EVENTS

| Area | Participants* | June 6 | August ‡ (8/7-8/15) | Sept 23 | Oct 3 | Walk-ins Referrals |
|-------|---------------------|--------|------------------------|---------|-------|-----------------------|
| Basin | 6 mos through 6 yrs | 0 | 94 | 3 | 0 | 4 |
| | 7+ yrs | 6 | 50 | 0 | 5 | 6 |
| Box | 6 mos through 6 yrs | 0 | 95 | 3 | 0 | 4 |
| | 7+ yrs | 6 | 53 | 1 | 4 | 8 |
| All | 6 mos through 6 yrs | 0 | 189 | 6 | 0 | 8 |
| | 7+ yrs | 12 | 103 | 1 | 9 | 14 |

*An additional 8 people (2 children, 6 over 7 years old) participated who resided outside the BHSS.

‡ “Typical” screening event

2023 RESULTS IN “THE BOX”

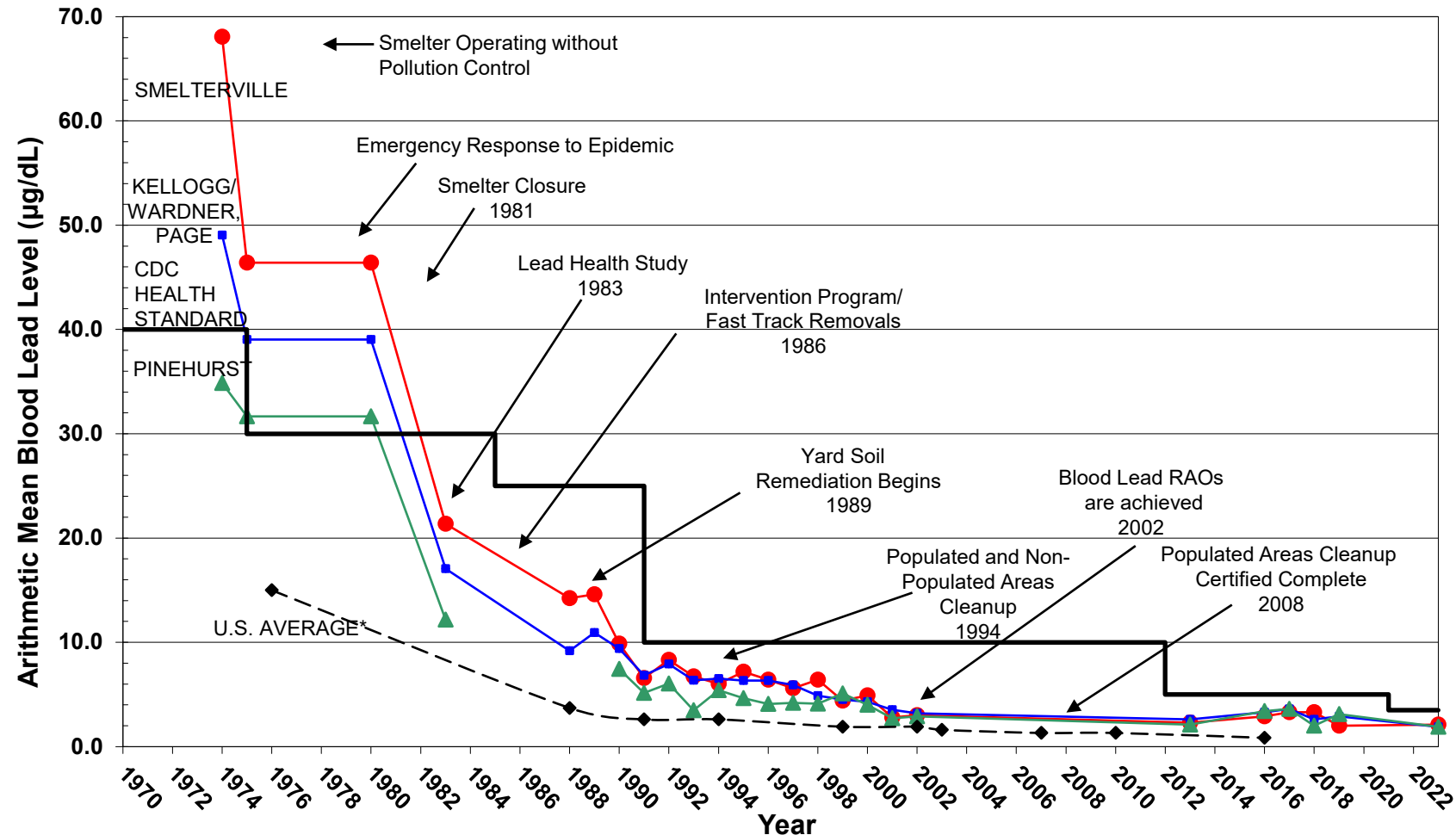
OPERABLE UNITS (OU) 1 & 2



BOX REMEDIAL ACTION OBJECTIVES

- No more than 5% of children in each community have blood lead levels ≥ 10 $\mu\text{g/dL}$
- Less than 1% with blood lead levels ≥ 15 $\mu\text{g/dL}$

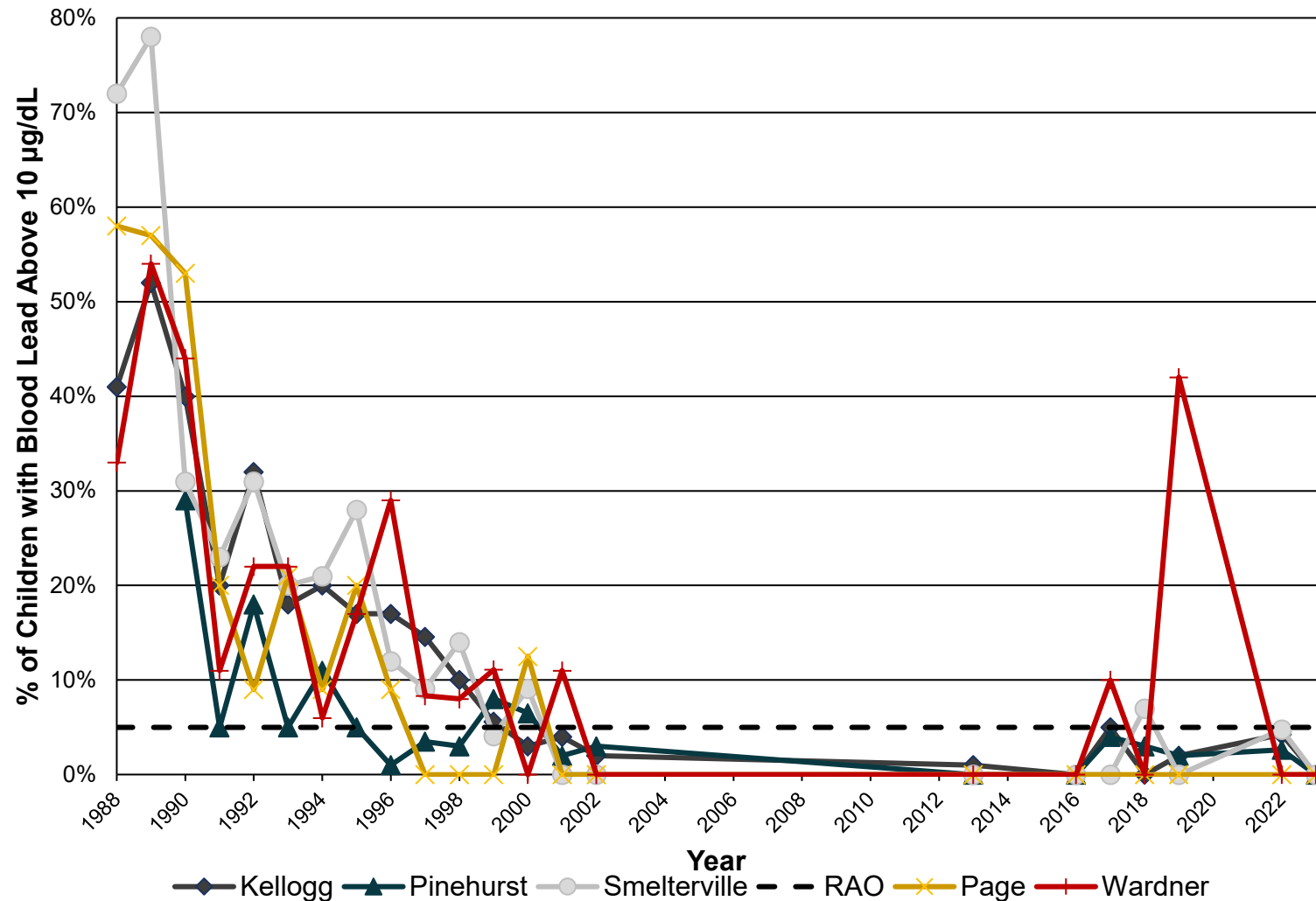
BUNKER HILL BOX AVERAGE BLOOD LEAD: 1974-2023*



*not enough samples in 2003-2012, 2014, 2015, 2020, & 2021

*Ref.=(Mahaffey et al. 1982; Pirkle et al. 1994; Pirkle et al. 1998 ; Lofgren et al. 2000; CDC 2013)

PERCENT OF BOX CHILDREN WITH BLOOD LEAD LEVELS ≥ 10 UG/DL, BY CITY, 1988-2023*



*not enough samples in
2003-2012, 2014,
2015, 2020, & 2021

Since 1998, ≤ 10
participants/year in
Page & Wardner

2023 BLOOD LEAD SUMMARY STATISTICS: BOX (AGE 6 MONTHS THROUGH 6 YEARS)

| | |
|----------------------------------|------------|
| Total Number of Children (N)* | 95 |
| Minimum (µg/dL) | 1 |
| Maximum (µg/dL) | 7 |
| Average (µg/dL) | 2.0 |
| Standard Deviation | 0.97 |
| Geometric Mean (µg/dL) | 1.8 |
| Geometric Standard Deviation | 1.5 |
| Number / Percent Below Detection | 59 (62%) |

| | Number* | Percentage* |
|--|----------------|--------------------|
| Children's blood lead \geq 3.5 µg/dL | 6 | 6% |
| Children's blood lead \geq 5 µg/dL | 3 | 3% |
| Children's blood lead \geq 10 µg/dL | 0 | 0% |
| Children's blood lead \geq 15 µg/dL | 0 | 0% |

*August event only.

2023 BLOOD LEAD SUMMARY STATISTICS: BOX (OTHER NON-ELIGIBLE PARTICIPANTS)

| | |
|-----------------------------------|----------|
| Total Number of Participants (N)* | 53 |
| Minimum (µg/dL) | <1.4 |
| Maximum (µg/dL) | 21 |
| Average (µg/dL) | 2.2 |
| Standard Deviation | 2.9 |
| Geometric Mean (µg/dL) | 1.7 |
| Geometric Standard Deviation | 1.7 |
| Number / Percent Below Detection | 43 (81%) |

| | Number * | Percentage * |
|-----------------------------|----------|--------------|
| Blood lead \geq 3.5 µg/dL | 5 | 9% |
| Blood lead \geq 5 µg/dL | 4 | 8% |
| Blood lead \geq 10 µg/dL | 1 | 2% |
| Blood lead \geq 15 µg/dL | 1 | 2% |

*7+ years. August event only.

2023 RESULTS IN “THE BASIN”

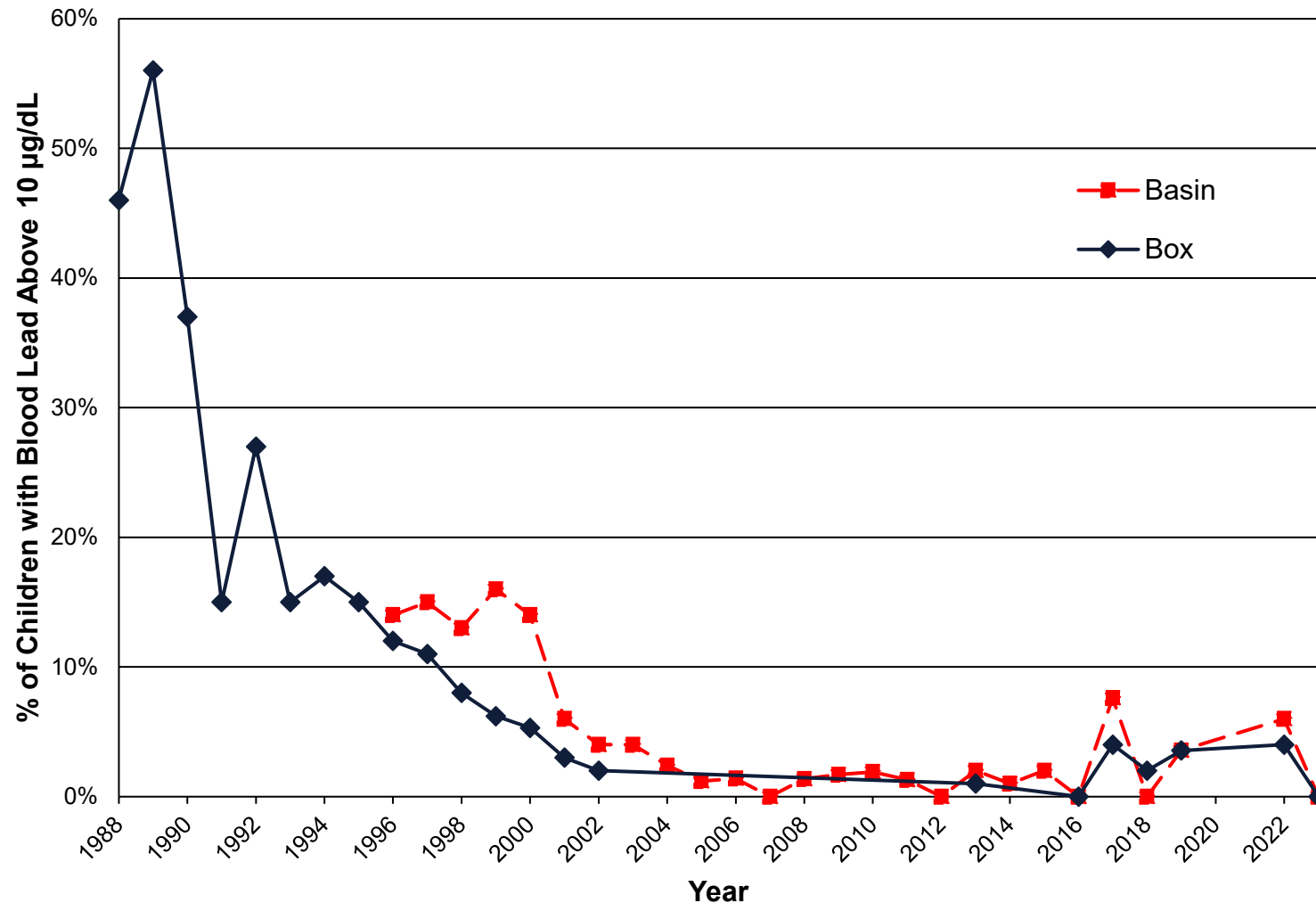
OPERABLE UNIT (OU) 3



BASIN REMEDIAL ACTION OBJECTIVES

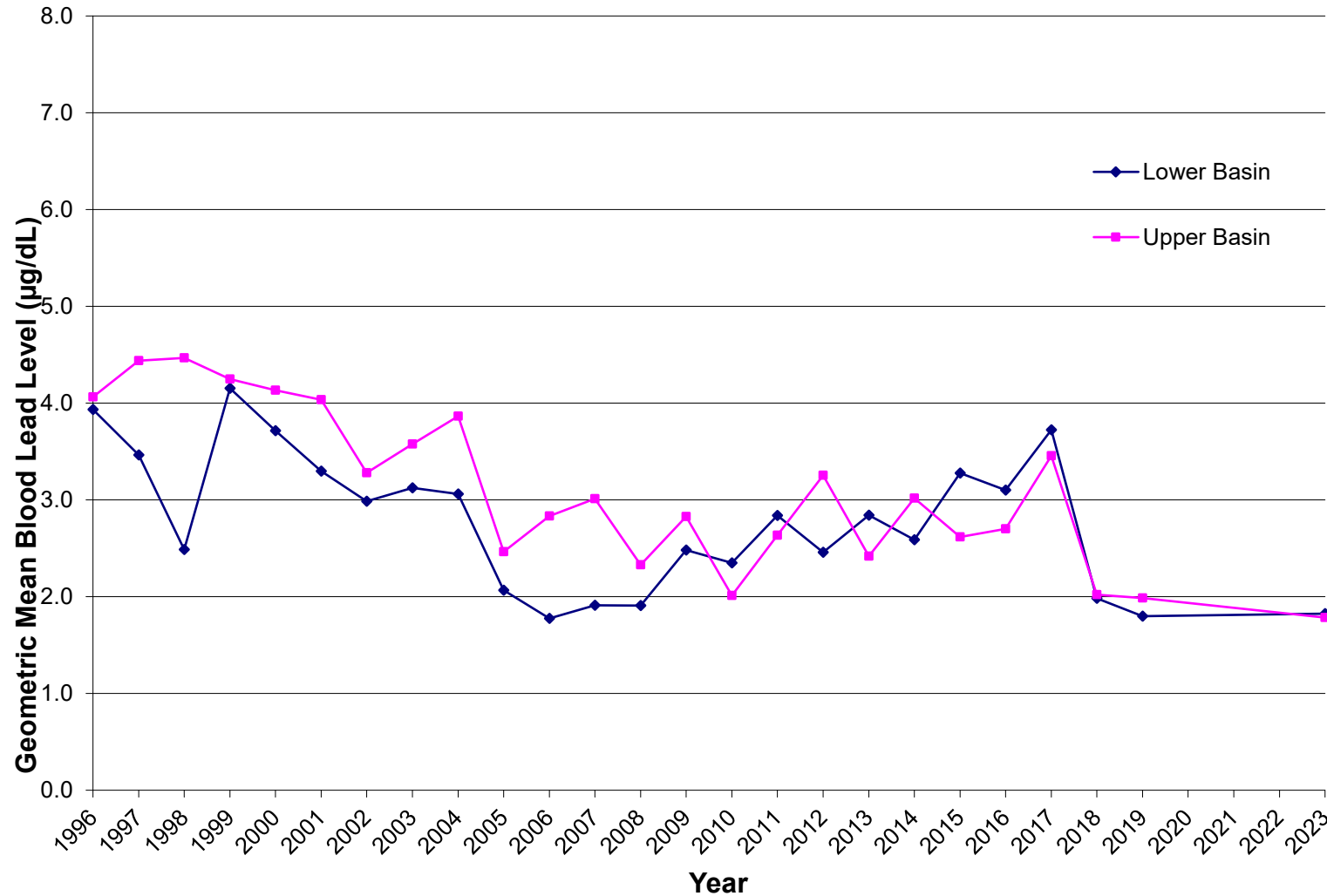
- Reduce exposures to soils with concentrations greater than:
 - Lead: ≥ 700 mg/kg
 - Arsenic: ≥ 100 mg/kg
- Reduce exposures to lead in house dust
- Cumulative exposures do not exceed USEPA's health risk goals:
 - **<5% chance that a typical child at an individual residence does not exceed $10 \mu\text{g/dL}$**

PERCENT OF CHILDREN WITH BLOOD LEAD LEVELS ≥ 10 UG/DL, BOX AND BASIN, 1988-2023*



*not enough samples in 2020 & 2021

BASIN AVERAGE BLOOD LEAD LEVELS BY YEAR, 1996-2023*



*not enough
samples in
2020-2022

2023 BLOOD LEAD SUMMARY STATISTICS: BASIN (AGE 6 MONTHS THROUGH 6 YEARS)

| | |
|----------------------------------|------------|
| Total Number of Children (N)* | 94 |
| Minimum (µg/dL) | 1.0 |
| Maximum (µg/dL) | 7.0 |
| Average (µg/dL) | 2.0 |
| Standard Deviation | 1.1 |
| Geometric Mean (µg/dL) | 1.8 |
| Geometric Standard Deviation | 1.5 |
| Number / Percent Below Detection | 56 (60%) |

| | Number* | Percentage* |
|--|----------------|--------------------|
| Children's blood lead \geq 3.5 µg/dL | 8 | 9% |
| Children's blood lead \geq 5 µg/dL | 3 | 3% |
| Children's blood lead \geq 10 µg/dL | 0 | 0% |

* August event only.

2023 BLOOD LEAD SUMMARY STATISTICS: BASIN (OTHER NON-ELIGIBLE PARTICIPANTS*)

| | |
|-----------------------------------|----------|
| Total Number of Participants (N)* | 50 |
| Minimum (µg/dL) | <1.9 |
| Maximum (µg/dL) | 33 |
| Average (µg/dL) | 3.4 |
| Standard Deviation | 6.1 |
| Geometric Mean (µg/dL) | 1.9 |
| Geometric Standard Deviation | 2.2 |
| Number / Percent Below Detection | 41 (82%) |

| | Number * | Percentage * |
|-----------------------------|----------|--------------|
| Blood lead \geq 3.5 µg/dL | 6 | 12% |
| Blood lead \geq 5 µg/dL | 5 | 10% |
| Blood lead \geq 10 µg/dL | 5 | 10% |
| Blood lead \geq 15 µg/dL | 3 | 6% |

*7+ years. August event only. One resident outside the BHSS boundary participated and is not included above.
Note: minimum value was less than (<) the detection limit.

2023 FOLLOW-UPS CONDUCTED (BOX & BASIN)

- **In-home follow ups: 20**
- **Phone consultations: 16**
- **Letters sent with more information: 38**

Identified sources:

- Recreating in un-remediated areas
 - Additional outreach & follow safety tips to reduce exposure
- Occupational related
 - PHD will attempt to work with industries to provide education and provide tips on how to reduce exposure at work and reduce tracking
- Lead based paint
 - Conduct assessment & address if needed



QUESTIONS?



ESTIMATED 2023 LHIP PARTICIPATION RATES

| | Basin | Box |
|---|------------|------------|
| Estimated Eligible Population ^a | 493 | 330 |
| Total No. of Eligible Population Providing Samples in 2023 | 94 | 95 |
| Estimated Percentage of Population Providing Samples | 19% | 29% |

^a Eligible population is 6 month through 6 year old children living in the Box or Basin, based on estimates from 2018; these estimates are currently being updated.

2023 LHIP PARTICIPANTS & PROPERTY REMEDICATION STATUS

| Property Remediation Status | Number of Children ^a | |
|---|---------------------------------|-----|
| | Basin | Box |
| No remedial action required or Remediated | 86 | 87 |
| Requires remediation or sampling | 1 | 0 |
| Not eligible for residential remediation program ^b | 7 | 8 |
| Total | 94 | 95 |

^a Eligible population is 6 month through 6 year old children living in the Box or Basin.

^b Includes properties developed under the ICP and properties currently under development.