



## Air Monitoring Plan

As part of the overall site Health & Safety Plan, an air monitoring plan was developed for use during the remedial phase.

- Components of the plan:
  - Real-time perimeter monitoring of TVOCs (total volatile organic compounds) and PM10 (dust); weather stations
  - Alert and action levels set for both
  - Alert: requires observation of site conditions and project operations
  - Action: specific operational and/or control actions are necessary, including possible work stoppage
  - Periodic (weekly) laboratory analytical samples for site COCs (contaminants of concern) from the site perimeter
  - Data posted to Quanta website: [www.quantaremediation.com](http://www.quantaremediation.com)



## Air Monitoring Plan

Sampling for 17 site-related contaminants in daily air samples:

- Arsenic, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Indeno[1,2,3-cd]pyrene, **Naphthalene**, Benzene, Ethylbenzene, Isopropylbenzene, n-Propylbenzene, Toluene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Xylenes, Total
- To date, only naphthalene has been detected above our residential screening level.



## Common Sources of Environmental Naphthalene





## Development of the Residential Screening Level

- Developed using: EPA Risk Based Screening Levels methodology: *Regional* Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites
- Screening levels are *NOT* regulated (not standards)
- Cancer risk set at:  $10^{-6}$  (one-in-one-million excess cancers); most conservative end of EPA risk range
- Noncancer hazard set at 1; standard EPA approach
- The site-specific exposure basis for calculating the chemical specific screening levels was:
  - 1.5 year soil solidification duration
  - intrusive work 5 days per week
  - work shifts of 10 hours per day
- $4.62 \text{ ug/m}^3$  selected to be protective of the most sensitive members of the population



## What do exceedances of the screening level mean?

- The selected residential screening level of  $4.62 \text{ ug/m}^3$  for naphthalene is NOT a not-to-exceed value but allows for necessary adjustments to on-site work
- Developed as a risk *goal* for the duration of the 18-month earth-moving portion of the remediation
- The current average concentration is at  $44 \text{ ug/m}^3$  which is trending above our goal and the reason EPA is making changes to operations and air monitoring
- Keep in mind that the fence line is not an accurate representation of a residential exposure
- Previous residential air samples were below a level of concern
- When compared with the OSHA PEL for workers of  $50,000 \text{ ug/m}^3$ , we are significantly below (highest reading to date was  $1000 \text{ ug/m}^3$  on 9/15/17)



## Air Monitoring Plan

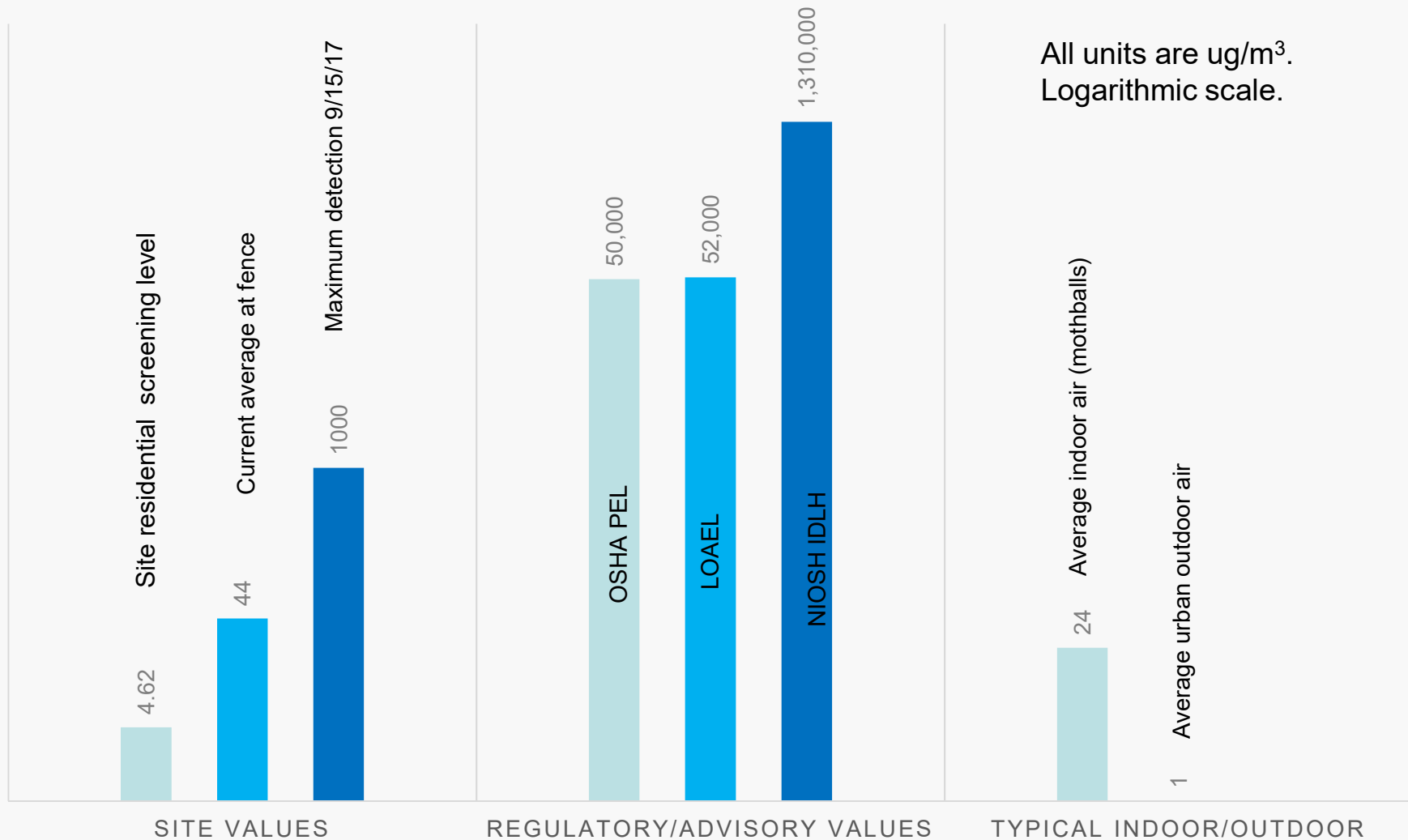
There have been some challenges in implementing the air monitoring plan.

- Site is tightly situated amongst residential, retail and restaurants
- Due to size of site and proximity to buildings, did not initially apply a typical two-zone (e.g., worker/residential) monitoring approach
- Set the residential screening level at the worker exposure perimeter (fence line)
- EPA chose to be very conservative (i.e., EPA selected a very low screening value and compares with samples collected at the worker perimeter) to be most protective of public health





## Naphthalene Values





## Two-pronged Approach to Protecting Public Health

- 1<sup>st</sup> prong: Increased air sampling
  - Residential areas (Independence Harbor, City Place and iPark) to better understand off-site exposures and have a better comparison of the residential screening level developed
  - One additional site perimeter sample adjacent to City Place
  - Separate work zone air sampling using the OSHA PELs which were developed to protect worker safety
  - Collected daily (rather than weekly) with ~1 week laboratory turnaround
  - Researching better technologies to estimate naphthalene concentration in real-time







## Off-site Air Monitoring Results

- Received 2 days worth of data thus far (3/16 & 3/19)
- Independence Harbor: no detectable naphthalene on either day
- City Place: all three sample locations on both days were below the residential screening level of  $4.62 \text{ ug/m}^3$  except for one location on one day ( $6 \text{ ug/m}^3$ )
- iPark: sample results for one day were below detection. One sample on the other day was above the residential screening level of  $4.62 \text{ ug/m}^3$  ( $8 \text{ ug/m}^3$ )
- Not enough data for a trend, but the levels we are seeing near where people live or work are dramatically lower than levels we sometimes see at the fence line. For example, the nearest fence line monitor to the residential monitor that read  $6 \text{ ug/m}^3$  showed a level of  $120 \text{ ug/m}^3$ .
- Indicates at least an order of magnitude decrease in concentration in nearby residential communities away from the fence line
- Daily monitoring will continue



## Two-pronged Approach to Protecting Public Health

- 2<sup>nd</sup> prong: Decreased air emissions
  - Honeywell has scaled back operations significantly; working in smaller areas, giving less opportunity for vapor emissions from contaminated soil and debris
  - Additional controls are being used to minimize contact of contaminated soil with the overlying air



## EPA Hotline

Instituting a hotline that people can call 24/7 to reach site operators and the EPA.

The hotline number is: (201) 807-0991.