

LPWG QUESTIONS	ECOLOGY RESPONSES
<p>Is there funding from the Gates Foundation for lead sampling?</p>	<p><i>We are not sure if this question is about soil testing or blood lead level testing. Funding from the Gates Foundation may be possible for local health districts or non-profits to access. They work primarily with local non-profit entities. Ecology encourages a partnership with a local community organization if this funding is to be pursued. On a related note, Ecology would be interested in partnering with public health agencies for funding, if specific grant opportunities are available.</i></p>
<p>Do you have any examples of lead and arsenic contamination from other apple growing areas in the state?</p>	<p><i>It's likely that Spokane, with its large apple growing region also has lead and arsenic contamination on former orchard lands. The following link has specific data if you're interested.</i> https://www.researchgate.net/publication/311977889_Heavy_metal_content_in_urban_residential_and_park_soils_A_case_study_in_Spokane_Washington_USA</p>
<p>What have other states decided to do about lead and arsenic contamination? Virginia?</p>	<p><i>Other states take different approaches based on the scope of their problem, their own state's environmental regulations, and input from their community. Links below talk about data and efforts in Virginia, West Virginia, and Wisconsin. The last link compares arsenic cleanup standards from across the country. Washington's levels fall in the middle.</i></p> <ol style="list-style-type: none"> 1. <i>Assessment of contamination from arsenical pesticide use on orchards in the Great Valley region, Virginia and West Virginia, USA.</i> https://www.ncbi.nlm.nih.gov/pubmed/17412902 2. <i>Lead Arsenate Soil Sampling Guidance for Homeowners – Wisconsin</i> https://datcp.wi.gov/Documents/ArmPub219.pdf 3. <i>Arsenic Cleanup Criteria for Soils in the US and Abroad: Comparing Guidelines and Understanding Inconsistencies</i> https://www.researchgate.net/publication/228873632_Arsenic_Cleanup_Criteria_for_Soils_in_the_US_and_Abroad_Comparing_Guidelines_and_Understanding_Inconsistencies
<p>What will be the source of clean soil?</p>	<p><i>The location and availability of clean soil is important for our overall cleanup effort. Ecology and the working group are collaborating on this issue.</i></p>
<p>How will smaller projects be addressed (projects that don't go through SEPA)?</p>	<p><i>Not every project will go through SEPA (State Environmental Policy Act). Ecology's goal is to provide information at local permit counters so developers and homebuilders can be aware of this issue if homeowners ask. We also plan to provide our sampling and technical assistance as needed. Public education is an important component of addressing this question.</i></p>

<p>There needs to be clarity that spill, mixing, and storage areas still require separate investigation and potential remediation that is independent of general site wide impact.</p>	<p><i>This is not necessarily true. It isn't always possible to find mixing or storage areas, unless you have an exact location from old aerial photos or unless you sample an entire property with a very tight sampling grid. Those concentrated areas that we have found will still be adequately addressed through the mitigation measures that we are implementing. Capping can be just as effective for 3000 ppm lead as it is for 300 ppm lead.</i></p>
<p>Do we expect that other legacy pesticides will sufficiently be addressed through remediation strategies that will be implemented for arsenic and lead impacted soil?</p>	<p><i>Another common pesticide used was DDT. DDT breaks down over time, and so commonly is below state cleanup levels. Specific contamination concerns from pesticides other than lead and arsenic need to be examined by Ecology on a case-by-case basis.</i></p>
<p>How can bonding relieve? Final plat approval happens when surface caps required for mitigation (home unfinished etc) are not completed.</p>	<p><i>It's possible a bond may be useful during the period between plat approval and cleanup. It's an idea that can be brought to the working group for consideration.</i></p>
<p>I have been told that property values in the Pierce Co smelter plume did not decline, or even see slower growth, due to public info on the risks to homeowners. Can you confirm that, and if so, share it with the group? Also, to what extent did knowledge of contamination prevent real estate loans and sales?</p>	<p><i>Some information has been received from Ecology staff who work with property owners living within the Tacoma Smelter Plume area. They have reported that property owners who weren't aware of the soil contamination were upset that they hadn't received that information. However, the property owners also said it wouldn't necessarily have changed their decision to purchase property.</i></p> <p><i>The article referenced below talks about how Tacoma, WA was the hottest housing market in 2019, with houses going under contract is less than two weeks (average: 8 days) and 50% of houses sold above their asking price.</i></p> <p>https://www.foxbusiness.com/features/city-home-nations-hottest-housing-market-season-report</p> <p><i>The following information is from the National Association of Realtors report covering the last quarter of 2019:</i></p> <p><i>Prices continue to rise even in America's most expensive metro areas. Of the top 10 most costly metros, only San Jose saw a year-over-year decline in single-family sales price (\$1.246 million; -0.3%). Other high-priced areas include San Francisco, Calif. (\$990,000; 3.9%); Anaheim-Santa Ana, Calif. (\$828,000; 3.6%); Urban Honolulu, Hawaii (\$812,600; 0%); San Diego, Calif. (\$655,000; 4.6%); Boulder, Colo. (\$630,400; 6.4%); Los Angeles-Long Beach, Calif. (\$617,300; 7.2%); Seattle-Tacoma, Wash. (\$528,800; 8%); Nassau County, N. Y. (\$496,600; 3.7%); and Boston-Cambridge, Mass. (\$482,800; 4.9%).</i></p>

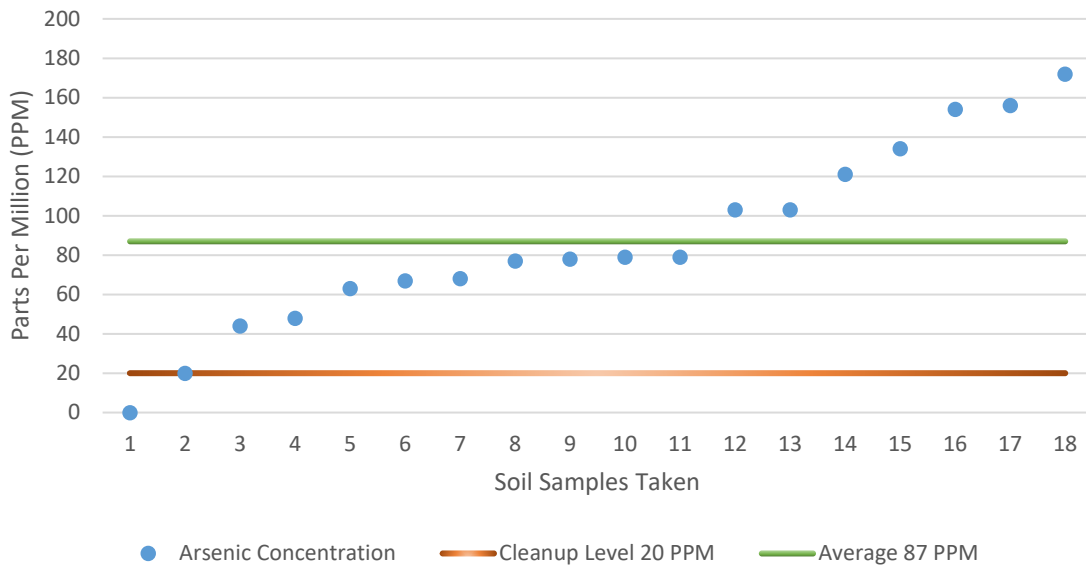
<p>Landscaping an effective cap for contaminated soils?</p>	<p><i>Landscaping is an effective cap if the landscaping materials provide a sufficient barrier. Compacted gravel, rock and other permanent materials in sufficient thickness are sufficient barriers. Contaminated soil should not be left exposed, even if it is in an area that is landscaped and not intended for use by home occupants; for example, soil in flower gardens or tree/shrub areas should still be capped, even if those areas aren't intended to be 'play areas' for children.</i></p>
<p>Will it be mentioned on the mapping site that you <u>cannot</u> determine which types/variety of tree fruit was grown? Will you clearly display – all you can confirm is there was a history of agriculture.</p>	<p><i>While historic aerial photo interpretation does clearly show locations of orchards in 1947, it is correct that we cannot determine the type of fruit grown on those orchards. We will note that information on the mapping site.</i></p> <p><i>However, apples and pears (the two fruits impacted by codling moth and sprayed with lead arsenate) accounted for almost 90% of the fruit tonnage produced in Washington State between 1941-1950 (70% apples and 17.5% pears). They were the two most frequently planted fruit trees in the state. The article referenced below discusses the fruit industry during the early 1900's.</i></p> <p>https://www.nass.usda.gov/Statistics_by_State/Washington/Publications/Fruit/Historic/wafruit1948-chapter1.pdf</p>
<p>Can parcels be removed from the map if the soil tests come back negative?</p>	<p><i>The overall areas showing old orchards are GIS layers. Those boundaries will not change. However, as Ecology continues sampling, we will add that data and show if the samples taken were above or below state cleanup levels. Ultimately, our goal is to create an online mapping interface that the public can search for both old orchard areas and available lead and arsenic data. Ideally, they would enter an address and be able to see whether a property was an old orchard, if it was sampled, and what those results were.</i></p>
<p>Good information to share: how much soil must be ingested to see elevated blood levels?</p>	<p><i>The Department of Health uses the IEUBK model to produce that information. That model shows 0.085 g/day – 0.135 g/day of ingested lead contaminated soil raises the blood lead level to 5 mgc/dl. 5 mgc/dl is the level at which adverse health effects start to occur. The photo to the right shows one gram of soil is approximately equivalent to a quarter.</i></p> 

<p>Any significant data sharing wind migration of arsenic?</p>	<p><i>Arsenic in soil is not anticipated to migrate by wind unless dust generating conditions occur. Dry surface soils, using heavy equipment to move soils around (like during construction) can cause levels to migrate. That's why it's especially important that dust prevention and mitigation measures be used during homebuilding.</i></p>
<p>Concern: NIMBY's (not in my back yard) use contamination as a tool to stop development.</p>	<p><i>It's true that people use NIMBY to do what they can to stop development, and preserve their community the way they like it. However, when Ecology receives concerns from the public, they are brought to us in terms of environmental regulations.</i></p>
<p>Suggest using maps analogous to a phase 1 report. Documents historic use which results in a possibility of contamination.</p>	<p><i>A Phase 1 Environmental Site Assessment should document the past use of the land and note any potential contamination.</i></p>
<p>Don't put maps up on the web until a communication plan is worked out with communities.</p>	<p><i>We do plan to pilot the maps, timing, and communication with local officials prior to making them available to the public. Ecology is hoping the mapping interface will be available later this year.</i></p>
<p>Why are the federal levels based upon activity, ie: 400 in areas where children play & 1200 in other areas, but not so in WA?</p>	<p><i>The short answer is that state and federal cleanup levels use different parameters.</i></p> <p><i>Ecology's standard cleanup levels are based on a one in one million health risk.</i></p> <p><i>A longer description from Ecology Publication 01-09-038, Questions and Answers: Tacoma Smelter Plume Site – Cleanup Levels and Interim Action Trigger Levels for Arsenic and Lead, says:</i></p> <p><i>“The lead cleanup level of 250 ppm was developed in 1991 and is based on protecting children against the toxic effects of lead. Infants and small children are particularly vulnerable to the effects of lead poisoning because lead adversely affects the developing brain and other parts of the nervous system. Also, children usually have greater exposure to lead than adults do because they tend to swallow more lead-contaminated material and absorb a much greater fraction of the lead that has been swallowed. A child's risk is evaluated by levels of lead in their blood. The state cleanup level was developed using a mathematical model to determine concentrations of lead in soils that would have less than a 1 percent chance of causing blood lead levels above 15 micrograms of lead per deciliter of blood. State cleanup regulations also provide the flexibility to take into account new scientific information and site-specific data when establishing cleanup levels for individual sites. Since 1991, there have been two main developments that impact how Ecology establishes cleanup levels for lead for some individual sites. First, the federal Centers for Disease Control and Prevention (CDC) published blood lead guidelines and currently considers children to have an elevated level of lead if the amount of lead in the blood is equal to or greater than 10 micrograms of lead per deciliter of blood. The Centers for Disease Control also recommends environmental investigation and intervention if blood lead</i></p>

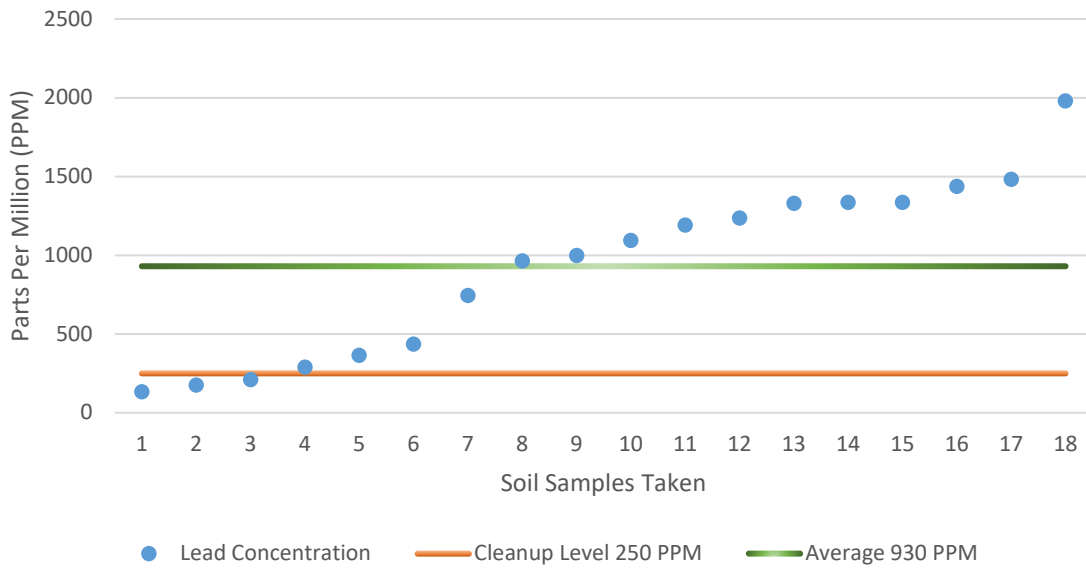
	<p><i>levels remain at or above 15 micrograms of lead per deciliter of blood. Second, the EPA developed a newer child blood lead model (Integrated Exposure Uptake Blood Kinetic (IEUBK) Model) which is now used by state and federal agencies to establish site-specific cleanup levels. Ecology still believes that the 250 ppm level protects children’s health even though the level was set before the current CDC guidelines and EPA Child Lead Model were developed. In fact, most of the site-specific levels established in Washington over the last several years are higher than 250 ppm. For example, Ecology used the newer EPA lead model to establish a lead cleanup level of 353 ppm for residential properties at the Everett Asarco Smelter Site.”</i></p> <p>https://fortress.wa.gov/ecy/publications/documents/0109038.pdf</p>
<p>Why are the cleanup sites mostly in city limits? (Yakima)</p>	<p><i>Locations of historic orchards – orchards that existed prior to 1950 – are commonly in areas that cities have expanded into over the subsequent 70 years. Cleanup sites in former orchard properties have typically originated when Ecology received data with soil contamination concentrations in excess of State cleanup levels. This data has typically been collected as part of environmental investigations, and commonly associated with property transactions and developments. These activities may be more common in urban areas than in rural settings.</i></p>
<p>Is there any education that has taken place?</p>	<p><i>Ecology’s Dirt Alert program has a number of brochures and other resources available to the general public. The staff working on the Tacoma Smelter Plume have done and continue to do education on an ongoing basis. That effort has not been done to the same extent in Central Washington.</i></p>
<p>Are lead and arsenic deposited in the same way in old orchards as they are in the Tacoma Smelter Plume? Are the estimates on blood lead levels taken from models developed in the smelter plume area? If so, they should be extrapolated to orchards. We don’t have any studies of blood lead level in orchards areas. I’m concerned that actions that might affect housing developments will be taken before we know if we really have an issue. Increasing the cost of homes could increase the cost of housing and promote homelessness.</p>	<p><i>While it’s true that we lack specific information tying lead and arsenic on old orchards to health effects seen in Central Washington residents, we do know some very concrete things. First, all exposure to lead is harmful. There is no safe level of lead exposure. Arsenic is a carcinogen. In addition, the levels of contamination are above what’s allowed under state regulations.</i></p> <p><i>At sites with contamination above State cleanup levels, we do not wait until community members develop adverse health effects. Washington’s cleanup levels are specifically designed to prevent that from happening.</i></p> <p><i>Also, it’s important to point out that it is not Ecology’s intent to make homes more expensive, but to protect public and environmental health. A lack of affordable housing is a complex topic and not the result of one action alone. We will work closely with communities impacted by lead and arsenic contamination to ensure that we are supporting affordable housing initiatives.</i></p>

<p>Education needs to be rock solid – lead classes? Like food permit?</p>	<p><i>We agree that public education is critical and will work with the Legacy Pesticide Working Group to inform our education and outreach moving forward.</i></p>
<p>Title lien</p>	<p><i>This can be discussed further with the LPWG.</i></p>
<p>Not clear as to what Ecology sees as their obligation under the law. What is minimally required?</p>	<p><i>Our obligation under the law is established by the Model Toxics Control Act (MTCA) established in 1989. MTCA requires cleanup of lead above 250 ppm and cleanup of arsenic above 20ppm.</i></p>
<p>Is the concern only with the ingestion of contaminated soil?</p>	<p><i>Ingestion and inhalation are our primary concerns. Breathing in or eating contaminated soil is the main source of exposure. These are long-term exposure (chronic) risks rather than acute (emergency) risks. Absorption through the skin is another route of exposure, but can be mitigated by thorough hand washing, washing shoes or not bringing them indoors, and cleaning pet’s feet regularly. A good set of home practices can be found here:</i></p> <p>https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Dirt-Alert-program</p>
<p>Charts showing ‘Chelan County’ lead levels don’t seem clear. Averages and peaks?</p>	<p><i>Average lead level in Chelan County for lead sampling is 504ppm (taking lowest to highest measurements over 167 samples taken). Lowest is less than a reporting limit and highest is 1980ppm. Both averages are well above state cleanup levels.</i></p> <p><i>See graphs below.</i></p>
<p>Please ensure you are presenting accurate data. Don’t use maps/graphs that headline arsenic/Pb but are not. Accurately define the info. 1) counties in WA Map historic data vs positive contamination, 2) # of samples vs. actual contamination</p>	<p><i>Ecology did provide accurate data. The data presented on lead and arsenic contamination came from properties all over Central Washington.</i></p> <p><i>Ecology’s current mapping effort attempts to show the most common question we receive, which is: “Was my property an old orchard?” We used aerial photos from both 1949 and 1953 to show those areas. While it doesn’t give positive evidence of contamination, it shows an increased likelihood, which is confirmed by our sampling efforts. If that distinction wasn’t clear, we will make an effort to articulate that more directly.</i></p> <p><i>While we did select specific data to display, it was not our intention to hide the full data picture. We’ve included new graphs below to show the total number of samples taken and levels of contamination from each sample on a given site. They show that <u>average contamination</u> of lead and arsenic (number of total samples vs number of samples over or under the cleanup level) is above cleanup levels at all sites tested.</i></p>

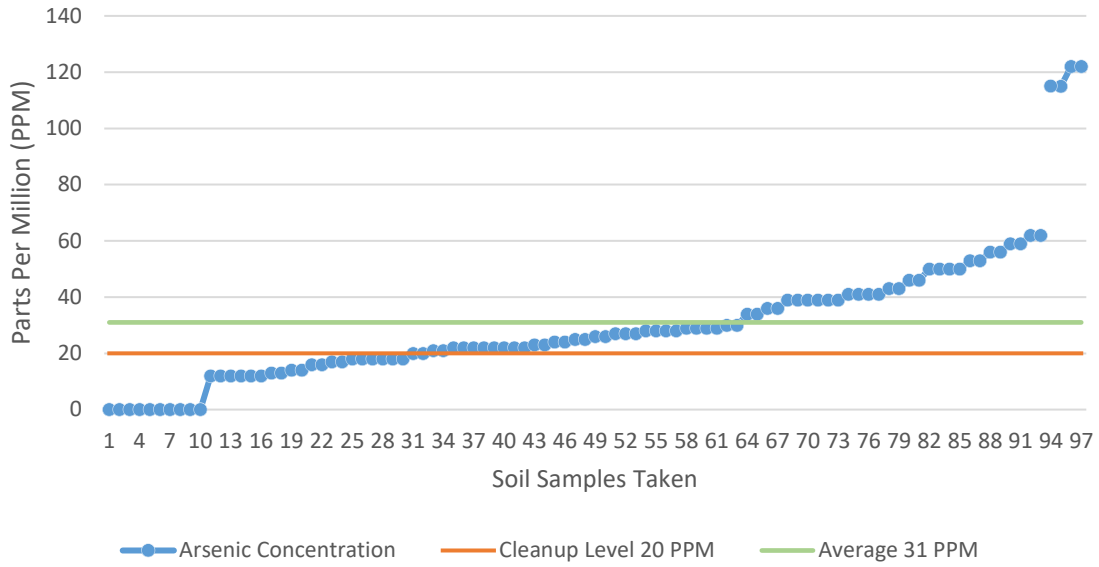
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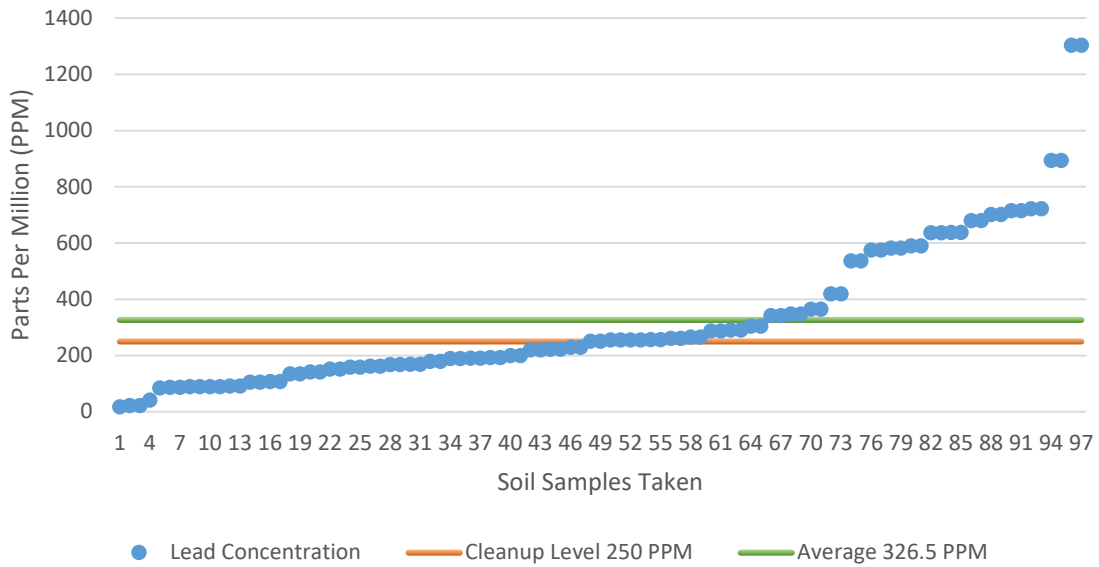
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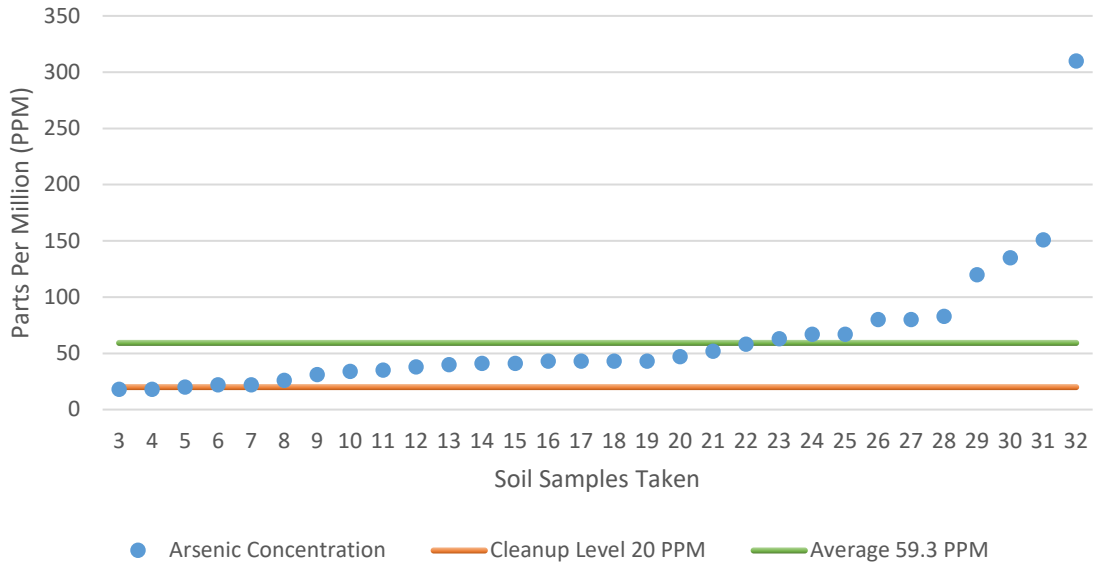
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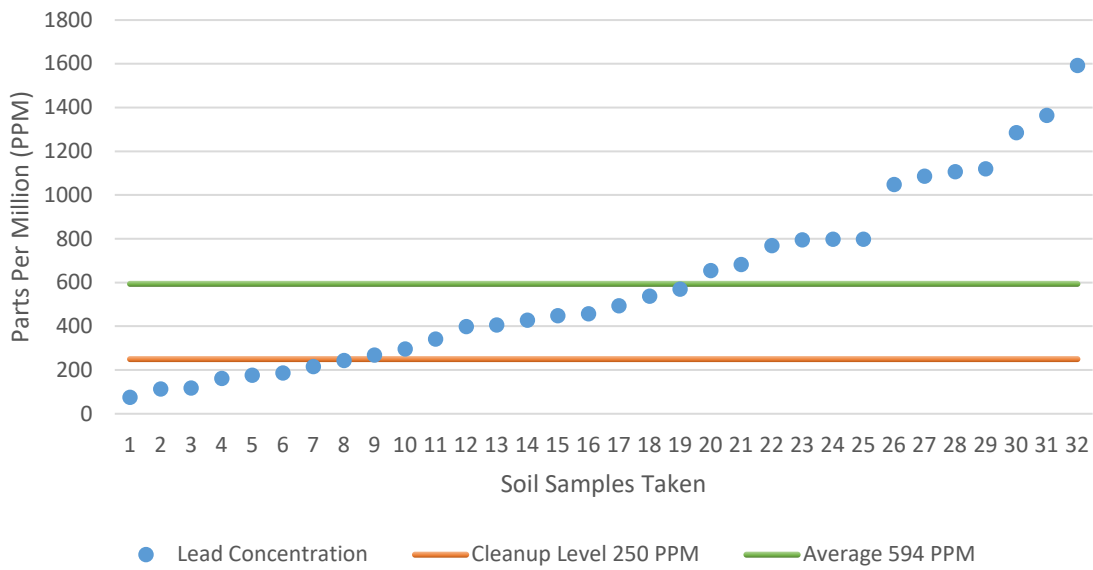
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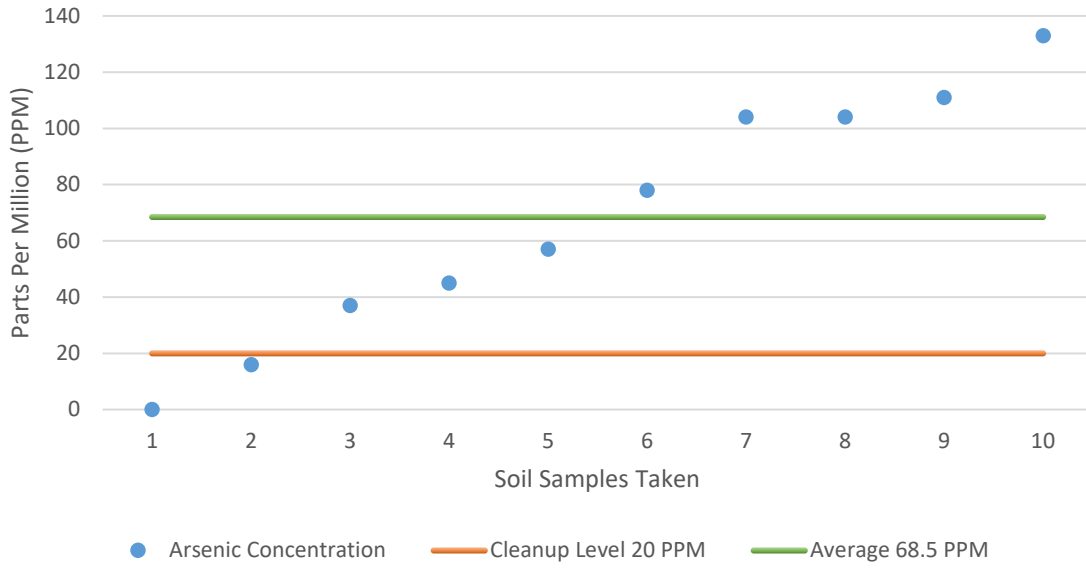
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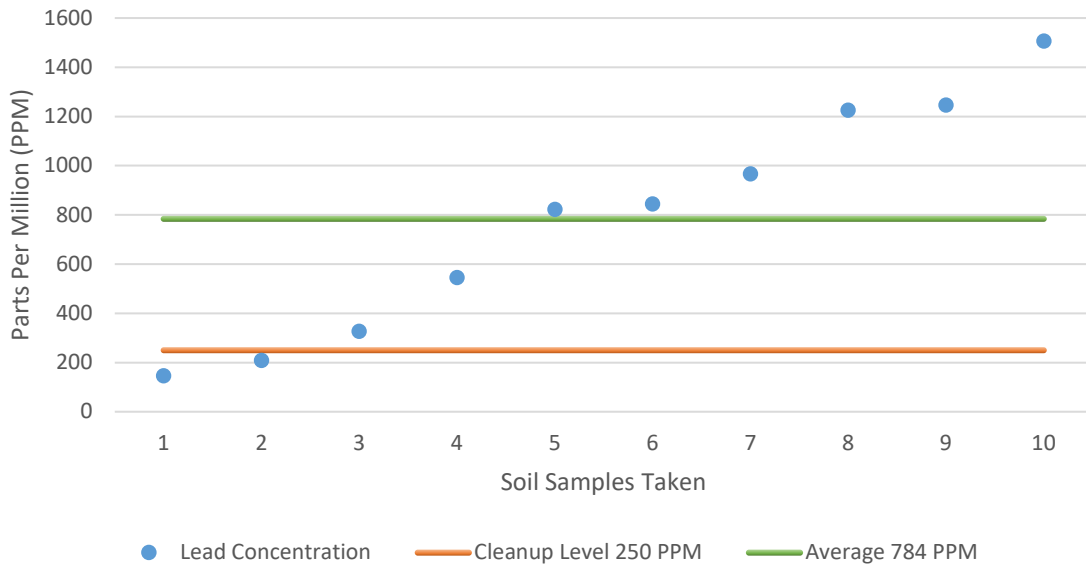
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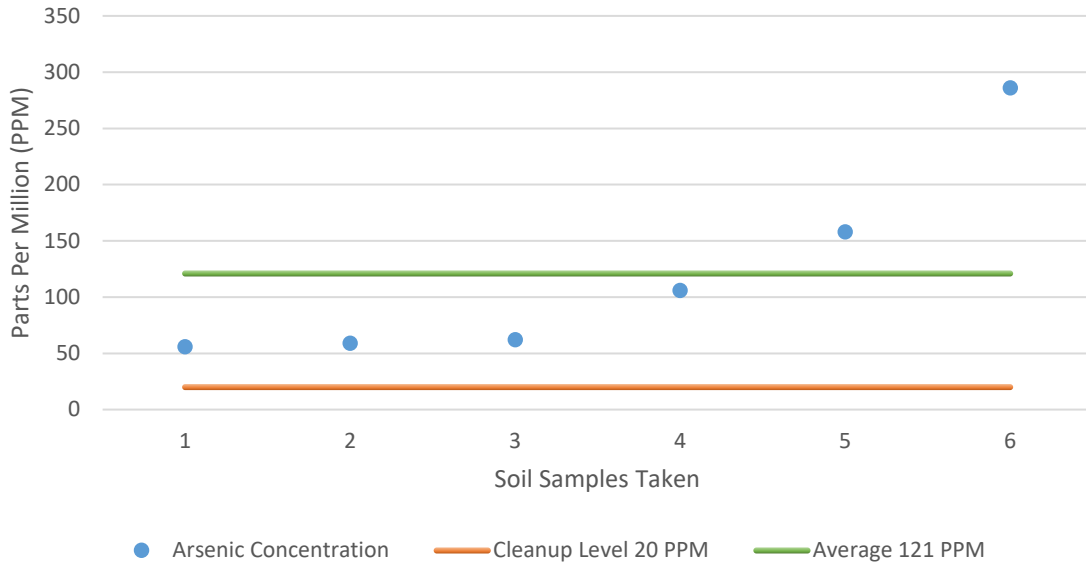
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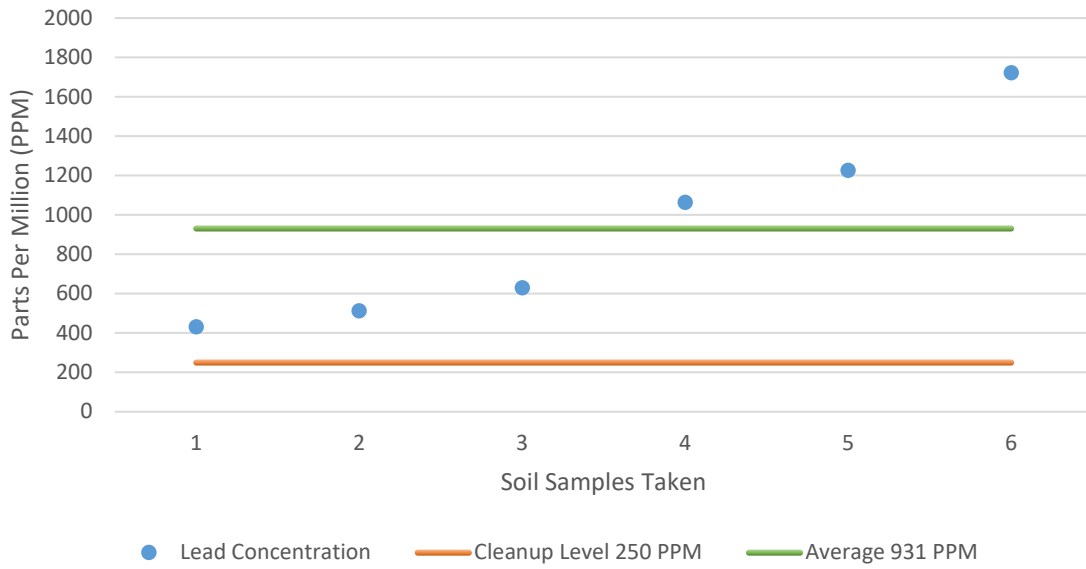
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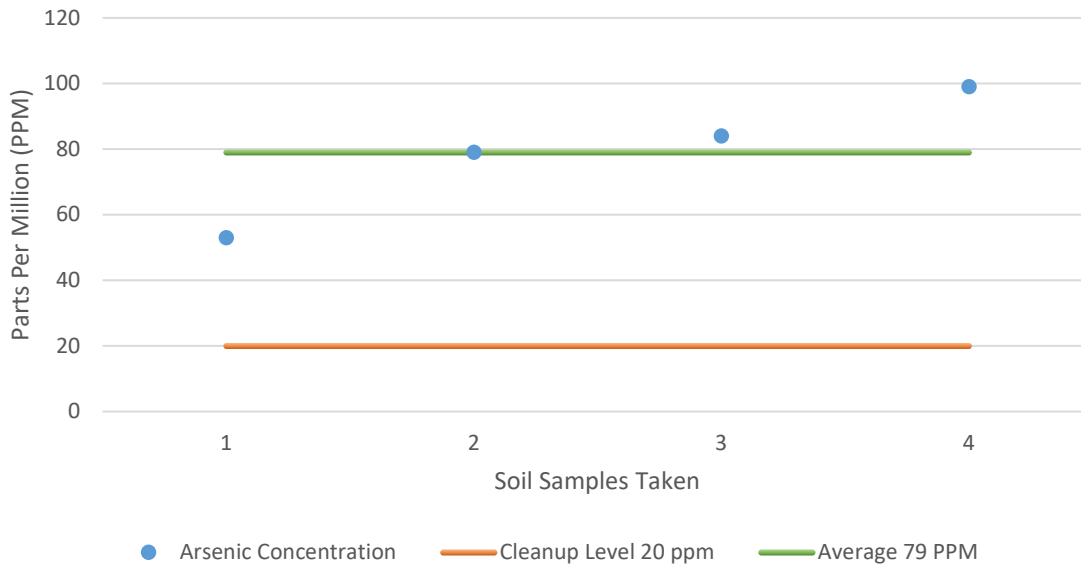
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