Supplemental Framework:
Selecting a Remedial Screening Level for Residential Soil Lead

BACKGROUND

This document serves to supplement the January 17, 2024 Office of Land and Emergency Management memorandum "Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities" to assist EPA regions in selecting an appropriate remedial screening level for lead in residential soil.

Per the OLEM memo, EPA regions should use a residential soil lead screening level of 200 parts per million. However, EPA regions should use a screening level of 100 ppm if an additional source of lead (i.e., lead water service lines, lead-based paint, non-attainment areas where the air lead concentrations exceed National Ambient Air Quality Standards) is identified. The recommended RSL of 100 ppm considers aggregate lead exposure and increased risk to children living in communities with multiple sources of lead contamination.

As further noted in the OLEM memo, EPA regions may use national data sets in making site-specific decisions on when to use a 100 ppm screening level. EPA regions may also use site-specific sources of information (e.g., data from the local health department or local public water system), alone or in combination with national data sets, to select an appropriate screening level of either 200 ppm or 100 ppm.

This supplemental framework is intended to guide remedial site teams through the selection and documentation of the screening level by evaluating lines of evidence available in a variety of national data sets as well as local and/or site-specific information. Site teams, which could include the Remedial Project Manager, risk assessor and/or other technical support staff, should complete the **Residential Lead Screening Level Checklist** as the primary method to document the consideration of lines of evidence and the rationale for the selected screening level. The screening level typically applies to an entire site, rather than individual properties. For large sites, it may be appropriate to select a screening level at the operable unit level. Site teams should refer to the completed Checklist and the selected screening level in the scoping and development of a remedial investigation.

As noted in the OLEM Memo, the screening level is not a default cleanup level and should not be used as such upon completion of the Checklist. The screening level is a tool used to identify and define areas that may require further evaluation. Site teams should consider additional guidance in the OLEM Memo to assist in the development of preliminary remediation goals. Site teams should continue to use well established Superfund remedial program procedures for remedy selection, including maintaining an administrative record to support site decisions.

EPA retains the discretion to adopt approaches on a case-by-case basis that differ from this framework, where appropriate. The administrative record supporting that decision should provide an adequate basis and reasoned explanation for doing so. This framework and associated tools may be updated, as warranted, to incorporate additional lines of evidence or lessons learned from site teams after an initial period of use. In situations where other parties are performing work under EPA oversight (such as Potentially Responsible Parties, other federal agencies, states, tribes, or political subdivisions), those parties may complete the Checklist or provide supporting information. EPA is responsible for selecting and documenting the screening level in these situations, consistent with EPA's longstanding Soil Screening Guidance.

APPLICATION OF THE CHECKLIST

The purpose of the Checklist is to facilitate the evaluation of relevant information and the selection of a screening level. It is intended to help ensure technical adequacy and to promote consistency in selecting screening levels pursuant to the OLEM Memo. The Checklist is designed to affirm that each data source has been considered in the appropriate context. The level of effort necessary to complete the Checklist will vary based on the complexity of the site and the extent of previous investigations, among other factors. The process of selecting a screening level is site-specific, and not all items in the Checklist are applicable to every site. The weight of evidence documented in the Checklist should be considered in totality when selecting the screening level.

The Checklist first asks for basic identifying information for the site or study area, including whether a site boundary has been established in SEMS which will assist in GIS-based analyses. It is important for site teams to describe the geographic scope of the study area that was considered while completing the Checklist, particularly if a site boundary does not exist or the boundary is likely to be expanded as a result of the screening decision.

The Checklist then identifies a national Superfund GIS-based tool as the primary data source for consideration (see Table 1). The Residential Lead GIS Screening Tool aggregates available national data sets, such as Superfund site boundaries, the EJScreen lead paint indicator, and non-attainment areas where the air lead concentrations exceed National Ambient Air Quality Standards, to assist site teams in evaluating whether an additional source of lead exposure may exist around the site or study area. Additional data layers may be added to the national GIS tool as they become available, such as lead water service lines. The attached **Residential Lead GIS Screening Tool User Guide** provides additional information on how to navigate the GIS tool and describes the data sources. If any non-EPA entities have difficultly accessing the GIS tool, the available References in the Checklist should provide access to source data.

As noted in Table 1, the site team has the option to select a screening level after reviewing the primary data sets in the GIS tool. For example, if there is a National Ambient Air Quality Standards non-attainment area within the area of interest or a majority of census blocks in the area of interest are greater than the 80th percentile in the EJScreen lead paint

indicator, then the site team may consider a 100 ppm screening level. The site team also has the option to continue through the Checklist if additional research is warranted before selecting a screening level.

The Checklist outlines a variety of other local or site-specific information that may be available for evaluation as secondary data sources (see Table 2). For example, this includes but is not limited to, local lead-emitting industries and lead water service lines. If the site team identifies GIS-based data for any of the additional information considered in Table 2, it can be imported into the national tool described above for ease of evaluation.

While the Checklist asks a series of yes/no questions, the individual completing the Checklist should use the Data Evaluation Notes column to capture key findings and conclusions for each line item. This column is important for proper consideration and documentation of the full weight of evidence for the selected screening level. Where possible, the References column suggests sources of information pertaining to a particular line item. The individual completing the Checklist should also add to the list of references for any additional data found, again for proper consideration and documentation of the selected screening level.

For Checklist items where a clear yes or no answer is not initially identified, the site team should determine whether additional research is warranted and document those findings before selecting a screening level. The individual completing the Checklist may select the "?" box for items where no additional information is available, or the information does not easily or readily indicate whether additional lead exposures may exist.

The Checklist then outlines a variety of local activities that may demonstrate past or ongoing efforts to mitigate sources of lead exposure (see Table 3). For example, this includes but is not limited to, lead-based paint abatement programs or known efforts to replace lead water service lines. As with Table 2, the individual completing the Checklist should use the Data Evaluation Notes and References columns to help ensure proper consideration and documentation of the full weight of evidence for the selected screening level. Site teams may also consider best practices from the Superfund Lead Collaboration Pilot and the "Superfund Lead-Contaminated Residential Sites Handbook", as appropriate.

DOCUMENTING THE SELECTED SCREENING LEVEL

Site teams should use the Checklist as the primary method to document the consideration of lines of evidence and the rationale for the selected screening level, regardless of whether the screening level is selected using only the GIS tool or after review of additional data sources. As noted in the Additional Notes field, site teams should coordinate with other EPA programs within their region as well as other federal, state, tribal or local agencies to ensure evaluation of the most thorough and current information on lead sources and/or local efforts to reduce lead exposure. This could include, for example, a regional lead coordinating committee or points of contact in air, water or lead-based paint programs. Where possible, site

teams may also consider ground-truthing information obtained from national or local data sources for accuracy.

The final text box in the Checklist provides the opportunity to document the selected screening level of either 200 ppm or 100 ppm. The individual completing the Checklist should summarize the totality of the weight of evidence provided by the Checklist in documenting the selected screening level. Space is provided to document approval of the selected screening level. Such approval may be provided by an EPA official with appropriate delegated authority, such as a first or second level manager in the remedial program or technical support program, or by a regional lead review team or similar. Each region is encouraged to develop an approach that ensures consistency across its portfolio of sites and site teams. The approved Checklist documenting the selected screening level should be placed in the administrative record for the site.

User Guide: Residential Lead GIS Screening Tool - Link to GIS Tool

Background

- The Residential Lead GIS Screening Tool was developed to assist site teams in evaluating whether additional sources of lead are present near a specific site or study area that warrant lowering the screening level to 100 ppm.
- The tool incorporates the National Ambient Air Quality Standards for Lead (Pb) EPA dataset[1]. As of May 2023, there are 11 non-attainment areas in 13 counties. This data is updated weekly.
- The tool incorporates the lead paint indicator data used in EJScreen. The lead paint indicator indicates the presence of older housing, which often, but not always, indicates the presence of lead paint, and therefore the possibility of exposure. These data are calculated based on the Census/American Community Survey data, retrieved in 2023[2] and updated annually. The data are reported as a percentage of the national average. For example, an area that is represented as 80th percentile means that the housing in that area has an equal or higher percentage of pre-1960 housing than where 80% of the US population lives. The screening level is set at 80th percentile nationally, based on the EJScreen tool default[3].
- No national data set for lead pipes currently exists, however this can be added in the future, if and when it becomes available.
- Refer to the *Supplemental Framework: Selecting a Remedial Screening Level for Residential Soil Lead* for additional information on how to consider the information in the GIS tool to select a screening level.
- If any non-EPA entities have difficultly accessing the GIS tool, the available References in the *Residential Lead Screening Level Checklist* should provide access to source data.

Navigation

1. Open the GIS tool (link) and zoom to a site location. Existing NPL Superfund Site boundaries are pre-loaded into the tool. For new sites lacking a boundary, type an address in the upper right input box to zoom to the area of interest based on best judgement.
2. Click the bottom left button to open a pop-up box that displays the legend.
3. If needed, the bottom center button can be used to turn layers on or off.

[1] https://epa.maps.arcgis.com/home/item.html?id=2a487fb6c56e492e8e2e66608d9b93d6

[2] https://www.epa.gov/ejscreen/overview-environmental-indicators-ejscreen

[3] Per the EJscreen technical documentation https://www.epa.gov/system/files/documents/2023-06/ejscreen-tech-doc-version-2-2.pdf: In past screening experience, EPA has found it helpful to establish a suggested Agency starting point for the purpose of identifying geographic areas that may warrant further consideration, analysis, or outreach. The use of an initial filter promotes consistency and provides a pragmatic first step for EPA programs and regions when interpreting screening results. For early applications of EJScreen, EPA identified the 80th percentile filter as that initial starting point. In other words, an area with any of the 12 EJ Indexes at or above the 80th percentile nationally should be considered as a potential candidate for further review.

4. If local GIS data is available (e.g., municipal lead pipe data), it can be added to the map using the bottom right button. Data can be imported using a search of pre-loaded available layers, a URL, or data files.