ATSDR's Template for Public Health Assessments (PHAs), Health Consultations (HCs), and Exposure Investigation-Health Consultations (EI-HCs)

Instructions for Using the Template

This template will guide health assessors in their preparation of PHAs, HCs, and EI-HCs. The template includes designated heading styles to use for each example heading, section text, figure, table, and text box. Instructions for authors appear in green italicized text and placeholder text appears in yellow highlight. Replace yellow text with what is appropriate for your report; remove green italicized text. Replace the text prompts (i.e., "Start typing here using [ATSDR_body_text] style.") with your site-specific text. Use the section headers that are appropriate for your specific documents and delete section headers that are not applicable. You may also add appropriate sub-headers into your document.

Guidance for the content to include in each section can be found in PHAGM Putting It All Together, Developing Documents. Additional guidance is indicated in the template sections that follow with direct links to those resources. Be sure to follow ATSDR's best practices for writing documents in PHAGM Tips for Preparing Written Documents. CDC's Environmental Health

Thesaurus can help you write about environmental health using plain language. Also, it will be helpful to look at examples of reports the agency has already published in ATSDR's Publication Repository.

For reference, there is also a companion file that provides frequently asked questions (FAQs) to help as you use ATSDR's Word template. This document is located in the PHAGM resource page in the "Putting It All Together" section.

ATSDR Document Type

Site Name

Subheading (if appropriate)

USEPA Facility ID: (if available)

Type of Release Date

Prepared By:

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TIP: To update the Table of Contents, select/highlight the TOC table and right-click. Select >Update Field >Update Entire Table. If you have applied the styles correctly, the TOC will repopulate with your new heading content. If there are errors in the TOC, go to those locations and check that the correct styles are applied. Re-update your TOC. Use the same process for the List of Figures and the List of Tables.

Acronyms and Abbreviations

ATSDR Agency for Toxic Substances and Disease Registry

Complete the list above to define the acronyms and abbreviations used throughout your document. Be sure to list them alphabetically by acronym or abbreviation.

1. Summary

Provide a brief introduction of the site that includes why ATSDR (or state agency) evaluated the site and what ATSDR (or state agency) did. Include language in the summary that says "ATSDR (or state agency) evaluated the site following the agency's (or ATSDR's) public health assessment (PHA) process, as summarized in <u>Appendix A</u>, and detailed in the <u>Explanation of ATSDR's PHA Process</u>."

Use information mapping format and plain language to present the conclusion hazard category and basis for each conclusion, followed by the Next Steps (combining recommendations and public health actions).*

If you have more than one conclusion, then you will need to add new rows to accommodate the information for each of your conclusions. To create the new row, right-click on the row you want to go below, click "Insert," and choose "Insert Row Below." Do this for each new row you want to add. Then copy in the appropriate heading from the left-hand side (Conclusion, Basis for Conclusion, or Next Steps) and insert your site-specific information for each heading on the right-hand side.

*Each conclusion should be listed separately and be followed by its Basis for Decision and Next Steps. Health assessors have the option to list all the Next Steps as one section after stating all conclusions with their bases for the decisions. If this option is chosen, it should be clear which step relates to which conclusion. You can also list the For More Information section once at the end if appropriate.

ATSDR (or state agency) evaluated the site following the agency's (or ATSDR's) public health assessment (PHA) process, as summarized in <u>Appendix A</u>, and detailed in the <u>Explanation of ATSDR's PHA Process</u>.

Start typing here using [ATSDR body text] style.

Conclusion What ATSDR (or state agency) found, ATSDR's hazard conclusion

category

Basis for Conclusion Evidence and support for each conclusion

Next Steps Recommendations and actions as follow-up to document release

For More Information ATSDR (or state agency) contact information

Refer to Guidance in: <u>PHAGM Developing Conclusions</u> and <u>PHAGM Putting It All Together</u>, <u>Developing Documents</u>

2. Background

Sections 2–5 should be prepared using clear writing techniques.

Start typing here using [ATSDR_body_text] style.

2.1. Statement of Issue and Purpose

Discuss why ATSDR (or state agency) is here and what the issues are. Indicate for EI-HCs that the purpose is to fill an exposure data gap.

Refer to Guidance in: PHAGM Putting It All Together, Developing Documents

Start typing here using [ATSDR body text] style.

2.2. Site Description and Timeline

Describe the site's location, use, timeline (placeholder below), geology/hydrogeology (if warranted), maps (placeholder below), site visit, and other relevant information.

Figure 1. Site Location Map		
[REPLACE PLACEHOLDER IMAGE BO	OX WITH SITE MAP]	
Insert ATSDR (or state agency) sources or note	s (such as abbreviations and acronyms)	
Table 1. Timeline of <mark>insert text</mark>		
Date/Year	Event	
Insert ATSDR (or state agency) sources or note	s (such as abbreviations and acronyms)	

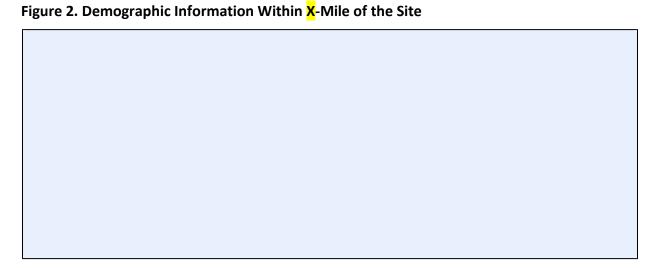
Refer to Guidance in: <u>PHAGM Getting Familiar with the Site</u> and <u>PHAGM Putting It All</u>
Together, Developing Documents

3. Community Description and Concerns

3.1. Community Demographics

Describe the community demographics such as by age groups and race/ethnicity. Consider including a demographic information map (placeholder below).

Start typing here using [ATSDR_body_text] style.



[REPLACE PLACEHOLDER IMAGE BOX WITH DEMOGRAPHIC MAP]

Insert ATSDR (or state agency) sources or notes (such as abbreviations and acronyms)

3.2. Community Concerns

Introduce community concerns at the site and efforts/steps to determine health concerns.

Address the concerns in a later section, if applicable. Describe children's health considerations.

Refer to Guidance in: <u>PHAGM Engaging the Community</u> and <u>PHAGM Putting It All Together</u>, Developing Documents

Start typing here using [ATSDR_body_text] style.

4. Sampling Data [for PHAs and HCs; delete for EI-HCs]

Discuss data sources. Consider organizing information in a table, if appropriate, such as by environmental media (refer to Table 1 in this template for 508-compliant formatting to use). Focus on data used to evaluate exposure and why they are representative of exposures and are of high quality. Discuss data gaps as needed. Consider including sampling maps, as appropriate (placeholder below).



[REPLACE PLACEHOLDER IMAGE BOX WITH ANY DESIRED SAMPLING LOCATION MAPS]

Insert ATSDR (or state agency) sources or notes (such as abbreviations and acronyms)

Refer to Guidance in: <u>PHAGM Selecting Sampling Data</u> and <u>PHAGM Putting It All Together</u>, Developing Documents

5. Methods and Sampling Data [for EI-HCs; delete for PHAs and HCs]

Describe the methods used for the exposure investigation.

Start typing here using [ATSDR_body_text] style.

5.1. Recruitment

Describe the process used to recruit participants for the exposure investigation.

Start typing here using [ATSDR body text] style.

5.2. Data Collection

Describe the methods used to collect data during the exposure investigation.

Start typing here using [ATSDR_body_text] style.

5.3. Laboratory and Data Analysis

Describe the laboratory methods used to measure the contaminants and how data are analyzed.

Refer to Guidance in: <u>PHAGM Selecting Sampling Data</u> and <u>PHAGM Putting It All Together</u>, <u>Developing Documents</u>

6. Scientific Evaluations

This template includes all media and routes a health assessor could encounter. Only those related to exposures at a site should be included. Present the media in order of priority.

Refer to Guidance in: <u>PHAGM Conducting Scientific Evaluations</u> and <u>PHAGM Putting It All</u> <u>Together, Developing Documents</u>

Also refer to guidance listed below for each subsection.

Start typing here using [ATSDR_body_text] style.

6.1. Exposure Pathway Analysis

Discuss potential and completed pathways. Describe the source, fate/transport, exposure point, exposure route, and exposed population for each contaminant. Determine if the pathway is a completed exposure pathway (all five elements above are present), a potential exposure pathway (one [or more] element is absent, but information is insufficient to eliminate or exclude the element), or an eliminated exposure pathway (one [or more] element is absent, and it never will be or is extremely unlikely to be present).

Refer to Guidance in: PHAGM Evaluating Exposure Pathways

Start typing here using [ATSDR_body_text] style.

Title

Example text box to include, if desired

6.2. Household Water Evaluation

6.2.1. Screening Analysis

Describe the screening analysis process. Include a table (placeholder below) with site contaminants that met or exceeded ATSDR comparison values (CVs)¹ for water or are included because of another factor (e.g., community concern). Consider including an optional table with a full list of contaminants in an appendix.

Start typing here using [ATSDR_body_text] style.

Table 2. Screening Analysis Results for Household Water

¹ ATSDR comparison values (CVs) are screening levels developed by the agency. If available, the CV must be used during the screening. Non-ATSDR screening levels can be used in addition to ATSDR CVs, when ATSDR CVs are not available, or when lower (i.e., more health protective) than ATSDR CVs. Refer to PHAGM Screening Analysis for more details. Before using them in your screening analysis, ensure you understand how the non-ATSDR screening levels were derived and discuss their possible use with the Associate Director for Science (ADS) group. This document refers to ATSDR's CVs, but be sure to refine your document to align with your site-specific analysis.

				Does
				comparison
	Reported	Media-Specific		indicate further
	Concentration	Screening Level	Type of	evaluation is
Contaminant	(<mark>unit</mark>)	(<mark>unit</mark>)	Screening Level	needed?

Insert ATSDR (or state agency) sources or notes (such as abbreviations and acronyms)

Refer to Guidance in: PHAGM Screening Analysis

6.2.2. Evaluation of Drinking Water

6.2.2.1. Exposure Point Concentrations (EPCs) and Exposure Calculations

Describe the calculation method. Include a table (placeholder below) for each contaminant that shows doses, both CTE and RME, for exposures at the EPC. Identify potential contaminants of concern (COCs) above hazard quotients (HQs) or cancer risks (CRs) that need further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach).

Start typing here using [ATSDR body text] style.

Table 3. Estimated Exposure Doses (unit) and Hazard Quotients for Exposure to Contaminant(s) From Drinking Household Water

					Is HQ Above 1 [indicating further
	CTE Dose	RME Dose	CTE Non-Cancer	RME Non-	evaluation
Exposure Group	(<mark>unit</mark>)	(<mark>unit</mark>)	HQ	Cancer HQ	is needed]?

Insert ATSDR (or state agency) sources or notes (such as abbreviations and acronyms)

Refer to Guidance in: PHAGM Exposure Point Concentrations and Exposure Calculations

6.2.2.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: ATSDR Mixtures Framework

Start typing here using [ATSDR body text] style.

6.2.3. Evaluation of Breathing Indoor Air (if showering/bathing)

6.2.3.1. Exposure Point Concentrations and Exposure Calculations

Describe the use of ATSDR's SHOWER model. Include a table with adjusted air concentrations. Identify COCs above HQs or CRs that need further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach).

Refer to Guidance in: PHAGM Exposure Point Concentrations and Exposure Calculations

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6.2.3.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process using the adjusted air concentration from PHAST. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: ATSDR Mixtures Framework

Start typing here using [ATSDR_body_text] style.

6.2.4. Evaluation of Skin Contact (if showering/bathing)

6.2.4.1. Exposure Point Concentrations and Exposure Calculations

Describe the use of ATSDR's SHOWER model. Include a table with tap water EPCs and dermal doses. Identify COCs above HQs or CRs that need further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach).

Start typing here using [ATSDR_body_text] style.

6.2.4.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process, including adding age-specific dermal doses to age-specific drinking water doses if people are also drinking the water. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: ATSDR Mixtures Framework

Start typing here using [ATSDR_body_text] style.

6.3. Soil or Sediment Evaluation

6.3.1. Screening Analysis

Describe the screening analysis process. Include a table showing site contaminants that met or exceeded CVs for soil/sediment or are included because of another factor (e.g., community concern). Consider including an optional table with a full list of contaminants in an appendix.

Refer to Guidance in: PHAGM Screening Analysis

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6.3.2. Evaluation of Combined Ingestion and Skin Contact

6.3.2.1. Exposure Point Concentrations and Exposure Calculations

Describe the calculation method. Include a table with EPCs and doses. Identify COCs above HQs or CRs that need further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach).

Refer to Guidance in: PHAGM Exposure Point Concentrations and Exposure Calculations

Start typing here using [ATSDR_body_text] style.

6.3.2.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: <u>ATSDR Mixtures Framework</u>

Start typing here using [ATSDR_body_text] style.

6.4. Vapor Intrusion Evaluation

6.4.1. Screening Analysis

Describe the screening analysis process. Include a table with site contaminants that met or exceeded soil gas or groundwater vapor intrusion (VI) CVs or are included because of another factor (e.g., community concern). Consider including an optional table with a full list of contaminants in an appendix. Proceed to the Outdoor or Indoor Air Evaluation section if these CVs are met or exceeded. Recommend collection of indoor air samples if indoor air data of sufficient quality are not available.

Refer to Guidance in: PHAGM Screening Analysis

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6.5. Outdoor or Indoor Air Evaluation

6.5.1. Screening Analysis

Describe the screening analysis process. Include a table with site contaminants that met or exceeded CVs for air or are included because of another factor (e.g., community concern). Consider including an optional table with a full list of contaminants in an appendix.

Refer to Guidance in: PHAGM Screening Analysis

6.5.2. Evaluation of Breathing Air

6.5.2.1. Exposure Point Concentrations and Exposure Calculations

Describe the calculation method. Include a table with adjusted air concentrations. Identify COCs above HQs or CRs that need further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach).

Refer to Guidance in: PHAGM Exposure Point Concentrations and Exposure Calculations

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6.5.2.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: ATSDR Mixtures Framework

Start typing here using [ATSDR_body_text] style.

6.6. Surface Water Evaluation

6.6.1. Screening Analysis

Describe the screening analysis process. Include a table with site contaminants that met or exceeded CVs for surface water or are included because of another factor (e.g., community concern). Consider including an optional table with a full list of contaminants in an appendix.

Refer to Guidance in: PHAGM Screening Analysis

Start typing here using [ATSDR body text] style.

6.6.2. Evaluation of Ingestion of Surface Water (if swimming)

6.6.2.1. Exposure Point Concentrations and Exposure Calculations

Describe the calculation method. Include a table with EPCs and doses. Identify COCs above HQs or CRs that need further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach).

Refer to Guidance in: PHAGM Exposure Point Concentrations and Exposure Calculations

Start typing here using [ATSDR_body_text] style.

6.6.2.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: ATSDR Mixtures Framework

Start typing here using [ATSDR body text] style.

6.6.3. Evaluation of Skin Contact with Surface Water (if swimming or wading)

6.6.3.1. Exposure Point Concentrations and Exposure Calculations

Describe the calculation method. Include a table with EPCs and dermal doses. Identify COCs above HQs or CRs that need further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach).

Refer to Guidance in: PHAGM Exposure Point Concentrations and Exposure Calculations

Start typing here using [ATSDR_body_text] style.

6.6.3.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: ATSDR Mixtures Framework

Start typing here using [ATSDR_body_text] style.

6.7. Food Evaluation

6.7.1. Screening Analysis

Determine which chemicals to evaluate based on the available data, the request for assistance, community concerns, or other factors. Note that ATSDR currently has not developed CVs for the food pathway. Consider including an optional table with a full list of contaminants in an appendix.

Refer to Guidance in: PHAGM Screening Analysis

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6.7.2. Evaluation of Eating Food

6.7.2.1. Exposure Point Concentrations and Exposure Calculations

Describe the calculation method. Include a table with EPCs and doses. Identify COCs above HQs or CRs needing further evaluation. Include HQs/CRs for all contaminants evaluated (preferred approach) or HQs/CRs for COCs with a full list of contaminants in an appendix (optional approach). Include a table describing meal frequency and portion size.

Refer to Guidance in: PHAGM Exposure Point Concentrations and Exposure Calculations

Start typing here using [ATSDR body text] style.

6.7.2.2. In-Depth Toxicological Effects Analysis

Describe the evaluation process. Summarize decisions about possible health effects. Include information on the optional mixtures evaluation, if conducted.

Refer to Guidance in: PHAGM In-depth Toxicological Effects Analysis

Other Resource: ATSDR Mixtures Framework

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6.8. Evaluation of Health Outcome Data (HOD)

Include this section if there are HOD available that were evaluated.

Refer to Guidance in: <u>PHAGM In-depth Toxicological Effects Analysis, Evaluate Site-Specific</u> Health Effects Data (Health Outcome Data)

Start typing here using [ATSDR_body_text] style.

6.9. Addressing Community Concerns

Include this section if there are specific health concerns from community members that can be addressed. List individual community concerns and ATSDR's (or state agency's) response.

Refer to Guidance in: <u>PHAGM Putting It All Together, Developing Documents (Addressing Community Concerns)</u>

Start typing here using [ATSDR_body_text] style.

6.10. Summary of Limitations and Uncertainties

Summarize major limitations and uncertainties identified throughout the PHA process.

Refer to Guidance in: PHAGM Putting It All Together, Evaluating Limitations

Start typing here using [ATSDR body text] style.

7. Conclusions

The conclusions should match the conclusions in the Summary. Do not follow an information mapping format.

Refer to Guidance in: PHAGM Putting It All Together, Developing Conclusions

Start typing here using [ATSDR body text] style.

8. Recommendations and Public Health Action Plan

Use the same text as included in the Next Steps Section from the Summary and put in plain language.

Refer to Guidance in: <u>PHAGM Putting It All Together, Determining Recommendations and</u>
Developing a Public Health Action Plan

Start typing here using [ATSDR body text] style.

9. Authors, Site Team, and Contributors

List authors, site team, and others who contributed to the report. Include affiliation for each person.

Start typing here using [ATSDR_body_text] style.

10. References

List sources cited in the document using formatting based on the NCEH/ATSDR Style Manual, Section III. Certain minimum information must be present in each reference.

- Author (for more than six authors, list the first six, followed by "et al.")
- Title of work
- Publisher with place and year of publication
- Inclusive page numbers

Other rules to follow include the following:

- Do not italicize document titles in the reference list.
- Only capitalize the first word and proper names in a title.
- Do not use periods in abbreviations unless they are part of the document title or official name (e.g., ABC Company).
- Follow National Library of Medicine style for abbreviating journal titles. You can use PubMed (https://pubmed.ncbi.nlm.nih.gov/) for help in doing that.
- Include every reference you cite in the text in the reference list. Likewise, every reference in the reference list must be cited in the text.
- Enclose citations in brackets. If possible, place the citation just before a mark of punctuation (e.g., a semicolon or period). Otherwise, insert the citation at a logical place in the sentence.
- Use either of two reference citation systems: numbered or author-date.
- Omit duplicative numerals when referring to a range of pages. In the following example, the redundant "34" of "349" was omitted from the page range: Lee JA. Understanding environmental health. JAMA. 2008;12(72):347–9.
- Use acronyms for in-text citations in the author-date style, when appropriate. In the reference list, always put the acronym in brackets followed by the full name. Refer to the example below as a guide.

[ATSDR] Agency for Toxic Substances and Disease Registry. 2022. Public health assessment guidance manual. Atlanta: US Department of Health and Human Services [accessed 1/1/2025]. Available from: https://www.atsdr.cdc.gov/pha-guidance/index.html.

Appendices

Include supplemental materials for any parts of the evaluation, such as Screening Analysis, EPCs and Exposure Calculations, PHAST output table, and In-Depth Toxicological Effects Analysis. Consider providing the pertinent information in the text that leads to and supports the conclusions and recommendations and add other information into these appendices as needed. The <u>Brief Summary of ATSDR's Public Health Assessment (PHA) Process</u> is a required appendix in all documents, and is already included (and must be retained) in the template as Appendix A.

Appendix A: Brief Summary of ATSDR's Public Health Assessment (PHA) Process

ATSDR follows the PHA process to find out:

- Whether people living near a hazardous waste site are being exposed to toxic substances.
- Whether that exposure is harmful.
- What must be done to stop or reduce exposure.

The PHA process is a step-by-step consistent approach during which ATSDR:

- Establishes communication mechanisms, including engaging communities at the beginning of site activities and involving them throughout the process to respond to their health concerns.
- Collects many different kinds of site information.
- Obtains, compiles, and evaluates the usability and quality of environmental and biological <u>sampling data</u> (and sometimes modeling data) to examine environmental contamination at a site.
- Conducts four main, sequential scientific evaluations.
 - Exposure pathways evaluation to identify past, present, and future site-specific exposure situations, and categorize those exposures as completed, potential, or eliminated.
 - Screening analysis to compare the available sampling data to media-specific environmental screening levels (ATSDR comparison values [CVs] and non-ATSDR screening levels). This process identifies potential contaminants of concern that require further evaluation for completed and potential exposure pathways.
 - Exposure Point Concentrations (EPCs) and exposure calculations for contaminants flagged as requiring further evaluation in completed and potential exposure pathways. It involves calculating EPCs, using EPCs to perform calculations that characterize exposure, and determining which site-specific exposure scenarios requires an in-depth toxicological effects analysis.
 - In-depth toxicological effects evaluation, if necessary, based on the three previous scientific evaluations. This step looks more closely at contaminant-specific toxicity information in the context of site exposures. This evaluation can also help determine if there is a potential for non-cancer or cancer health effects and what those effects might be.
- Summarizes findings and next steps, while acknowledging uncertainties and limitations.
- Provides recommendations to site-related entities, partner agencies, and communities to prevent and minimize harmful exposures.

The sequence of steps can differ based on site-specific factors. For instance, health assessors might define an exposure unit before or after the screening analysis or refine EPC calculations as they go through their site-specific analysis.

For more detail on the PHA process, visit <u>Explanation of ATSDR's PHA Process Evaluation</u>. Readers can also refer to <u>ATSDR's Public Health Assessment Guidance Manual</u> for all information related to the step-wise PHA process.

Appendix B:

Appendix Subheading

Appendix C: