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IDAHO DEPARTMENT OF

HEALTH & WELFARE

Bureau of Community and Environmental Health

PUBLIC HEALTH ASSESSMENT FACT SHEET

A Public Health Assessment (PHA) is an in-depth evaluation of available information on the release of a hazardous substance into the environment.

A PHA is a tool designed by the *Agency for Toxic Substances and Disease Registry* (ATSDR) to evaluate past, current, and future effects of hazardous materials releases on public health. It is used to develop health studies, actions, or recommendations needed to evaluate, reduce, or prevent adverse human health effects. ATSDR, or their state counterparts, conducts PHAs for all hazardous waste sites on the Superfund National Priorities List. They are also conducted in response to requests from concerned individuals and organizations. PHAs are non-regulatory documents produced for site managers, health professionals, and the public.

PHAs are developed using environmental characterization information, community health concerns, and health outcome data. They describe who is exposed, what the public health implications are of any exposures, and what should be done about those exposures to protect public health. PHAs are used to identify the need for health information and health education. They also show whether there is a need for additional investigation of the community's health.

5 Elements of a Public Health Assessment

	Elements	Explanation
1.	Characterization of contamination	The type and amount of contamination.
2.	Potential for exposure	The location of contamination, and how people can come into contact with it.
3.	Demographics and susceptibility of receptor population	The number of people who may come into contact with the contamination and particular groups of people are more sensitive than others to the contamination.
4.	Type of health threat	The type of health effects the contamination will cause and how serious it is.
5.	Morbidity and mortality data	The number of people who get sick and or die from this contamination.

The Public Health Assessment Process

The PHA process consists of the following steps:

- **Site Visit -** Analyze relevant site data and encourage community involvement.
- **Responding to Community Health Concerns -** Identify the demographics of the community and collect relevant information with the aid of community involvement.
- **Determining Contaminants of Concern -** Address community concerns about particular contaminants. Review environmental sampling data to determine the exposure potential. Compare concentrations of the contaminant to environmental regulations.
- **Identifying and Evaluating Exposure Pathways -** Address the source of the contamination, what happens to the contaminant when it enters the environment, and how it moves through the environment. Address the point and route of exposure. Identify the population at risk of exposure.

5 Elements of an Exposure Pathway			
Elements			**Explanation**
1.	Source		The contaminant of concern and physical site of the release.
2.	Media and transport		Solid, liquid, or gas and how it moves through the environment.
3.	Point of exposure		Exposure points include groundwater, surface water, air, soil, and food.
4.	Route of exposure		The three routes of exposure are eating or drinking, skin contact, breathing.
5.	Receptor population		People exposed to the contaminant in the past, present, or future.

- **Determine Public Health Implications -** Address community concerns. Perform a toxicological evaluation of the contaminants of concern. Evaluate community health data.
- **Determining Conclusions and Recommendations -** Identify public health hazard categories. Identify environmental sampling needs. Conduct follow up health activities, if needed.

Public Health Hazard Categories			
Hazard Category			**Explanation**
1.	Category 1		Sites that pose a serious risk to the public health as the result of short-term exposures to hazardous substances.
2.	Category 2		Sites that pose a public health hazard as the result of long-term exposures to hazardous substances.
3.	Category 3		Sites for which no conclusions about public health hazard can be made because data is lacking.
4.	Category 4		Sites where human exposure to contamination is occurring or has occurred in the past, but the exposure is below a level of health hazard.
5.	Category 5		Sites for which data indicate no current or past exposure or no potential for exposure and therefore no health hazard.

- **Develop Public Health Action Plan** - Identify actions to be taken. Identify who will perform these actions. Identify when those actions will take place.

When determining the type and extent of contamination, the PHAs author(s) look at contaminants on and off the site, concentrations of contaminants in environmental media, background concentration levels of the contamination, the quality of environmental sampling data and techniques used to collect data, and community health concerns. The PHA also looks at whether the contamination has cancer and non-cancer human health effects.

PHAs include evaluation of past and current potential public health hazards to people. They also include a health effects section for children. They contain recommendations for site characterization activities to help define exposure, and recommendations for prevention of human exposure. They are used to identify the need for public health actions and to inform the public of any health hazards that may exist in their community.

Overview of an Environmental Protection Agency (EPA) Human Health Risk Assessment

The EPA conducts Human Health Risk Assessments. They are a qualitative and quantitative process to describe the type and size of risks to public health from exposure to hazardous substances, pollutants, or contaminants released from specific sites. They are similar to Public Health Assessments, but differ in subtle ways.

A risk assessment is a numeric estimate of the public health consequences of exposure to a contaminant. In preparing a risk assessment for a site, a risk assessor also attempts to include all adverse health effects, describing the risk to the public when the information is available. EPA risk assessments are used in risk management decisions to set up site cleanup levels, to set permit level for discharge, storage, or transport of hazardous waste, and to determine allowable levels of contamination. The Human Health Risk Assessment

estimates the human health risks if the site is left as is. It also estimates risk to human health for both current and future land use scenarios. It is also used to calculate clean up levels for the site.

Elements of a Human Health Risk Assessment		
Element		**Explanation**
1.	Hazard Identification	Gather and analyze site data. Identify potential contaminants and contaminated materials. Collect and analyze samples.
2.	Exposure Assessment	Identify exposed populations and exposure pathways. Estimate the amounts of contamination people are exposed to for each pathway.
3.	Dose Response Assessment	Analyze toxicity information for site contamination. Determine toxicity values appropriate for the amount of contamination people are exposed to.
4.	Risk Characterization	Identify the potential for adverse health effects (carcinogenic and non-carcinogenic) due to exposure to contamination at the site. Evaluate the level of uncertainty in the assessment. Summarize risk information.

Comparison Between the EPA Human Health Risk Assessment and the ATSDR Public Health Assessment		
EPA Human Health Risk Assessment		**ATSDR Public Health Assessment**
Qualitatively and quantitatively characterizes current and potential future health risks. Used to assist decision making at hazardous waste sites.		Used to assess the human health impacts of a specific hazardous waste site and to identify appropriate public health interventions.
Provides a basis for determining levels of chemicals that can remain on-site and still be protective of public health. Compares potential health impacts of cleanup alternatives.		Identifies follow-up activities, such as: surveillance, health studies, community education, and contaminant-specific research.
Provides an analysis of the hazard associated with non-cancer health effects and a risk range of acceptable exposure levels of cancer-causing chemicals.		Provides a discussion of the potential adverse non-cancer health effects as well as potential cancer-causing effects. Includes specific community concerns. Assigns a health hazard category.
Conclusions are based on the risks of present and future exposures and land use scenarios, not past exposures.		Conclusions are based on past, present, and future exposures, the presence of an exposure pathway, and the presence of a receptor population.
Considered a regulatory document.		Considered a non-regulatory document.
Uses quantitative risk management to control and reduce exposure.		A more qualitative process designed to support recommendations for follow up work.
Both use environmental monitoring information and toxicological potency of contaminants of concern. They consider the same exposure pathways but can come up with different conclusions about public health significance of contamination at a site. They both rely on professional judgment, which may lead to the differences in conclusions.		

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