



EXPOSURE PATHWAYS

Shaw Air Force Base, S.C.

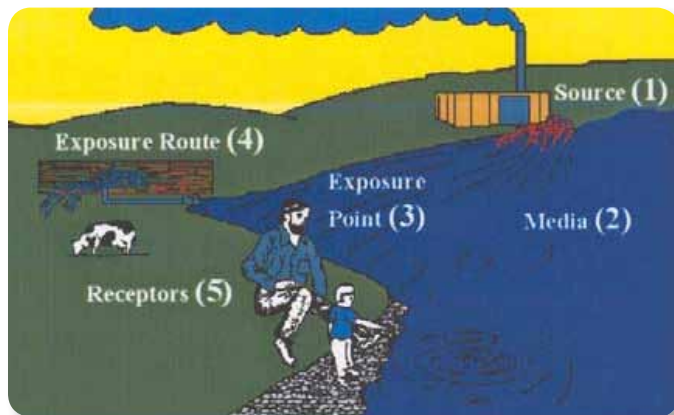
Exposure is when you come in contact with a material that enters your body. It only matters when the material is a hazardous substance, something that is a threat to human health if people are exposed to it. It is worth noting, the amount of material for potential exposure at Shaw is VERY dilute (a few parts per billion) compared to the discussions surrounding exposures to pure products of trichloroethylene and tetrachloroethylene (thousands of parts per million).

Exposure happens only if a material achieves the following three conditions:

- It is released from its container;
- Transported by some means (e.g., air, water, the food chain) from its source to human beings; and
- Taken into the human body by breathing, eating or drinking, or contact with the skin.

WHAT IS A PATHWAY?

A path or pathway is the course along which a material in the environment moves from its source to a new location. For example, if oil in tanks were to spill or leak on the ground, it could move through soil into groundwater that people may drink. That path through soil to groundwater to drinking water is a potential *exposure pathway*. An exposure pathway is the way in which a person may come in contact with a material.



FIVE ELEMENTS OF AN EXPOSURE PATHWAY

There are five elements of an exposure pathway:

- **Source:** How the material gets in the environment (i.e. landfill, storage tank, drum, pond, creek, factory or incinerator).
- **Media:** Soil, water or air in which a material moves from its source (i.e. soil, groundwater, sediment, surface water, air plants and animals).
- **Exposure Point:** Where people contact the media (i.e. business, residence, yard, playground, campground or waterway).
- **Exposure Route:** How the material enters the body (eating, drinking, breathing, touching).
- **Receptor/Population:** People who are exposed or potentially exposed (i.e. residents, workers, visitors, fishermen, gardeners or recreation participants).



EXAMPLES OF THE FIVE ELEMENTS OF AN EXPOSURE PATHWAY

Source: Landfill, storage tank, drum, pond, creek, factory, incinerator

Media: Soil, groundwater, sediment, surface water, air, plants, animals

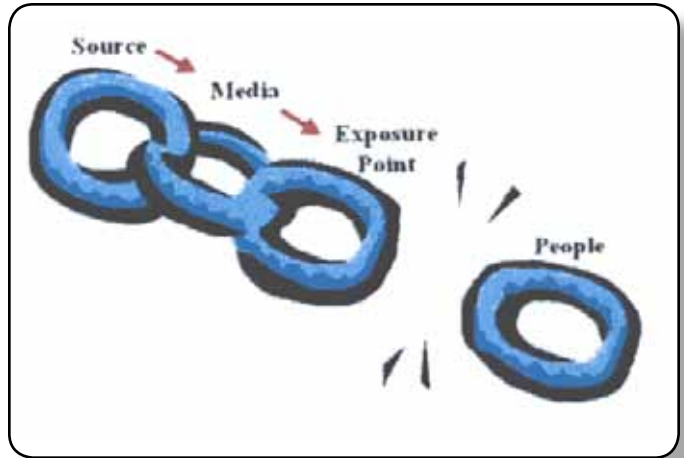
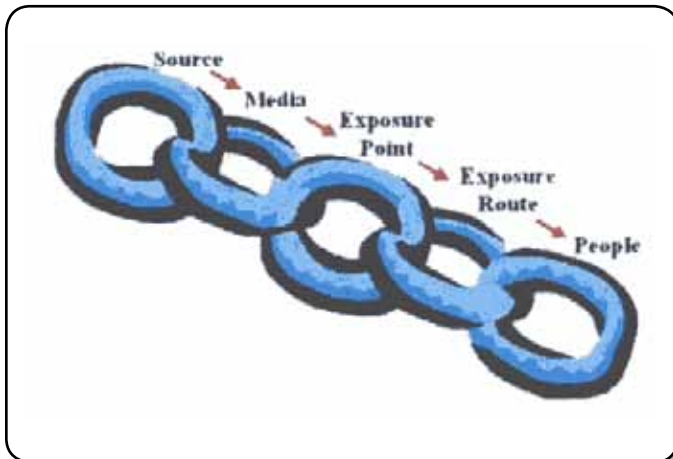
Exposure Point: Business, residence, yard, playground, campground, waterway

Exposure Route: Breathing, eating, drinking, touching

Receptor/Population: Residents, workers, visitors, fishermen, gardeners, recreational populations

WHAT IS A COMPLETED PATHWAY?

A pathway of exposure is considered completed when all five elements are present. A completed pathway connects the source of the material to people. If one element is missing, the pathway is incomplete and there is no exposure. A completed pathway can result in exposure and possible health effects. An incomplete pathway results in no exposure and no health effects. Risk assessments conducted at most sites here have found there currently are no completed pathways.



WILL EXPOSURE FROM A COMPLETED PATHWAY AFFECT MY HEALTH?

Whether or not a person experiences health effects from exposure to materials in the environment depends on a combination of several site-specific factors including:

- The kind of material released;
- The amount of material available at the exposure point;
- The physical and chemical form of the material;
- Environmental conditions;
- The length of exposure time.

Site-specific information about completed exposure pathways is used in both risk assessments and public health assessments to determine if a site is safe for humans or the plants or animals found on the site.

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South Carolina Department of Health & Environmental Control: www.scdhec.gov

