

HEALTH RISKS FROM COAL-FIRED POWER STATIONS

Source: Union of Concerned Scientists & Scientific American

COAL PILES

Dust blown from coal piles irritates the lungs and often settles on nearby houses and yards. Rainfall creates runoff from coal piles. This runoff contains pollutants that can contaminate land and water. Transport of coal also causes problems at ports and along roads.

FLY ASH REMAINING AFTER COAL IS BURNT

Toxic substances in the waste -- including **arsenic, mercury, chromium, and cadmium** -- can contaminate drinking water supplies and damage vital human organs and the nervous system.

FRESH WATER FOR STEAM

Fresh water from nearby water bodies, such as lakes & rivers is needed to create steam for turning turbines. Town supplies are affected

FLY ASH POND

COAL PILE

COOLING WATER
OUTLET

COOLING WATER

Water from local lakes or rivers, or the ocean, is circulated through the power station to draw out waste heat. Many fish are killed at the intake. Marine ecosystems are stressed by the higher temperature water at the outlet.

COOLING WATER
INTAKE

SMOKE STACK EMISSIONS

- * **Carbon dioxide** (CO₂), the primary human cause of global warming. Coal emits 29% more carbon per unit of energy than oil, and 80% more than natural gas.
- * **Sulfur dioxide** (SO₂), which causes acid rain that damages forests, lakes, and buildings, and forms small airborne particles that can penetrate deep into lungs.
- * **Small airborne particles**, which can cause chronic bronchitis, aggravated asthma, and premature death, as well as haze obstructing visibility.
- * **Nitrogen oxide** (NO_x) NO_x leads to formation of ozone (smog) which inflames the lungs, burning through lung tissue making people more susceptible to respiratory illness.
- * **Carbon monoxide** (CO), which causes headaches and place additional stress on people with heart disease.
- * **Hydrocarbons**, volatile organic compounds (VOC), which form ozone pollution and **Polycyclic Aromatic Hydrocarbons** (PAH) that cause genetic disorders.
- * **Mercury**, where just 1/70th of a teaspoon deposited on a 25-acre lake can make the fish unsafe to eat. Coal-fired power plants are the single largest source of mercury pollution in the USA.
- * **Arsenic**, which will cause cancer in one out of 100 people who drink water containing 50 parts per billion.
- * **Lead, cadmium, other toxic heavy metals** build up in the body. Trace amounts of **uranium** spread radioactivity.

Note: This is an indicative diagram only and is not intended to imply that the power station illustrated is a source of these pollutants