BEYOND COAL

Coal Threats to Human Health – Fact Sheet Series

Although abundant here, Alaskans do not rely on coal as a primary fuel source. Here in Alaska, we are increasingly looking for cleaner sources of energy to supplement or replace fossil fuels. While there is increasing pressure to develop coal for foreign export and domestic use, coal is dirty. Coal exploration and development threaten human health and our land, air, water and food, with hazardous emissions possible at every stage.[1] Pollutants from coal adversely affect all major organ systems in the human body and contribute to four of the top five causes of death in the United States: heart disease, cancer, stroke, and chronic lower respiratory disease.[2] To prevent these human health risks, a growing number of health care providers, tribes, parents, fishing groups, ratepayers, and other concerned Alaskans are working together to ***Keep Alaska's coal in the ground.***

Mercury and Your Health

What Is Mercury?

Mercury is a heavy metal that is naturally found in several forms in the environment. When elemental mercury is released into soil and water, microscopic organisms may convert it into methylmercury, which builds up in the bodies of fish, marine mammals, wildlife, and people (bioaccumulation) and concentrates up the food web (biomagnification).[3,4,5,6,7] According to the United States Environmental Protection Agency (EPA), levels of mercury in living organisms increase by approximately a factor of ten or more with each level of the food web.[8]

Mercury and the Coal Industry

The largest single source of mercury emissions in the U.S. comes from coal-fired power plants, accounting for 33% of all human-related environmental mercury emissions.[9,10] Trace amounts of mercury are present in coal and are released into the environment when coal is burned.[8] While Alaska currently has only one operating coal mine, coal exploration is underway throughout the state.[11] The development of these coal mines and power plants would lead to increased combustion of coal and potentially significant sources of mercury emissions.[11]

At present, the primary sources of mercury pollution in Alaska are emissions from Asian industry and other global sources that travel to Alaska via air and ocean currents. Thus, even when Alaska coal is exported to other countries, it may have a negative impact on the health of Alaskans.[12] Proposed coal development will lead to increased export of Alaskan coal to Asia, which will in turn increase mercury pollution here in Alaska.[11]

How Are We Exposed?

Coal combustion releases **elemental mercury** in a gaseous form, which can circulate in the atmosphere and travel far from its source.[13] Exposure to elemental mercury can occur through inhalation of contaminated air near coal-fired power plants and other locations where mercury emissions have taken place.[14,15] Elemental mercury is only minimally absorbed after ingestion of contaminated items or contact with skin.[7]

The primary source of exposure to coal-related mercury is consumption of fish and seafood contaminated with **methylmercury**.[3,16,17,18,19] Methylmercury is present at some level in all fresh and saltwater fish, but certain types of fish have higher levels than others.[19] Because methylmercury builds up in muscle tissue, eating large, predatory fish and other marine wildlife at the top of the aquatic food web commonly results in higher exposures.[4,20,21,22] Large, non-predatory marine mammals tend to have low levels of methylmercury. All species of wild Alaska salmon are very low in mercury levels, so salmon is not a major source of mercury exposure.[23]

Once mercury has been absorbed by adult women, it can be passed on to their children. Fetuses and infants