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TRIUMPH **ONGOING GROUNDWATER MONITORING** FACT SHEET

DEQ performs groundwater quality monitoring to assess the status of the Triumph Mine Cleanup.

In accordance with the 1998 ROD for the Triumph Mine Tailings Piles Site, the selected remedy for water discharging from the mine tunnel included plugging the mine tunnel and monitoring discharge from leakage around the plug. The selected remedy for contaminated soil included closure of tailings piles, process areas, and waste rock piles and capping all contaminated areas with clean soil. Groundwater monitoring is conducted to assess the status of these remedies implemented to protect human health and the environment from historic mine waste.

Heavy metals, arsenic, and manganese are identified in the ROD as constituents of concern. Arsenic and manganese are identified as constituents to monitor to ensure protection of drinking water downgradient of the Site. DEQ continues to monitor wells around the downgradient perimeter of the Site to evaluate any changes in water quality.

Water samples are analyzed for various constituents including metals which are known, or suspected, to be present or elevated due to historic mining activities. Exposure to some metals, such as arsenic and manganese, can be dangerous to human health. While people use and interact with metals every day, certain heavy metals are toxic in elevated concentrations.

HEALTH INFORMATION FOR HEAVY METALS MONITORED AT THE TRIUMPH MINE SITE

ARSENIC

- **Where does arsenic come from?** Arsenic (As) is a naturally occurring element found in the earth's crust. Trace amounts of arsenic are found in our surroundings; localized areas in Blaine County near Triumph Mine have elevated concentrations of arsenic in groundwater. Arsenic is usually found in rocks, soil, water, air, plants, and animals. Most arsenic found in drinking water comes from the rock formations. Water that encounters rock formations or soil can dissolve arsenic and carry it into groundwater aquifers, streams, and rivers that may be used as drinking water sources. Arsenic can be released into the environment through natural activities such as volcanic activity, erosion, and forest fires, or through human activities such as mining, smelting, burning fossil fuels, wood preservative, and pesticide application.
- **What are the health impacts if arsenic is found in drinking water?** Arsenic is associated with health effects such as cardiovascular disease, diabetes, skin changes, nervous system damage, and various forms of cancer. The amount of arsenic in a glass of drinking water in general is typically very small, and any drinking water-related health effects are the result of prolonged exposure over time.
- **How can arsenic be detected in drinking water?** When dissolved in water, arsenic is colorless, odorless, and tasteless, even at high concentrations. Laboratory testing of water is required to evaluate the amount of arsenic present.

MANGANESE

- **Where does manganese come from?** Manganese (Mn) is a naturally occurring metal found in many rocks and soils. Manganese is used mainly in steel production to improve strength. Manganese is an essential trace element present in most foods and may be added to food or nutritional supplements.
- **What are the health impacts if manganese is found in drinking water?** Too much manganese can harm the nervous system, resulting in behavioral changes and other nervous system effects including tremors and shaking, a condition called Manganism. Some studies have shown that consumption of manganese above the recommended concentrations during early childhood may also have effects on learning and behavior.
- **How can manganese be detected in drinking water?** When dissolved in water, manganese can turn water a brown or rust color, causing staining of faucets and sinks, and can make the water have an off-taste or odor.

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