

June 2, 2022

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Ms Weise,

This message is in response to your request for a review of the soil and sediment (evaporite crust) data collected from Little Gaynor Lake in Boulder County. The Toxicology and Environmental Epidemiology Office at the Colorado Department of Public Health and Environment has reviewed the report entitled "Little Gaynor Lake Sediment, Evaporite Crust, and Vegetation Sampling Report" and evaluated the data for potential human health risks. Overall, the results of a preliminary screening evaluation indicates there appears to be little to no human health risks associated with direct contact with the evaporite crust, underlying soil, or windblown dust from the lake.

Two samples were collected from both evaporite crust and underlying soil. The two samples were combined and sent as a single sample for laboratory analysis. The evaporite crust and soil samples were analyzed for trace metals and other physical and chemical parameters. The metals results are summarized below.

<b>Analyte</b>	<b>Evaporite Crust Sample SE-1 (in mg/kg)</b>	<b>Soil Sample SO-1 (in mg/kg)</b>	<b>EPA Residential Screening Level (in mg/kg)</b>
Arsenic	3	6	11*
Barium	34	124	15,000
Cadmium	ND	ND	7.1
Chromium	3	20	120,000
Lead	3	16	400
Mercury	ND	ND	23
Selenium	ND	2	390
Silver	ND	ND	390
Sulfur	106,000	13,300	NA

Note: mg/kg = milligram per kilogram, \*This is the background level of arsenic in Colorado soil, ND = Not Detected, NA = Not Available

As shown above, all of the analytes are below the screening values that we use for risk assessment purposes. Screening values enable us to quickly evaluate the data to determine if there is a potential health concern. The screening values used are the Environmental Protection Agencies (EPA) Regional Screening Levels (RSLs) for residential soil. More information on the EPA RSLs can be found here: <https://www.epa.gov/risk/regional-screening-levels-rsls>. In short, the RSLs, use conservative assumptions to estimate levels of soil that should not present a

harm to residents. The RSLs account for chronic, or long-term, residential exposure to soil and indoor dust by incidental ingestion, dermal (skin) exposure, and inhalation of dust. Essentially, we are assuming that the soil and evaporative crust surrounding the lake is representative of exposures that would occur in a typical residential yard. This is considered a conservative assumption because it is unlikely that people will be in contact with the soil and evaporation crust as often as they would in a residential yard.

Since all of the metals that were analyzed by the laboratory are below the RSLs, it is unlikely that soil, evaporite crust, and the associated dust from Little Gaynor Lake will harm nearby residents.

However, there are some limitations to this evaluation that are important to note. First, a screening level for sulfur in soil is not available. Sulphur is relatively non-toxic to humans, causing only mild local irritation to the eyes, nose, throat and upper airways. In addition, sulphur is not listed as a carcinogen by Occupational Safety and Health Administration, National Toxicology Program, International Agency for Research on Cancer or American Conference of Governmental Industrial Hygienists. Since there is a fair amount of sulphur found in the evaporite crust and soil samples, it is possible that nearby residents could experience some irritation from the dust especially during a short-term, high level exposure situation such as if people were walking around the lake during high wind conditions. To reduce outdoor exposures to dust from the lake, avoid outdoor activities during high-wind events.

Second, there is not enough information available to determine if indoor air exposures from sulfur in dust during high wind events would have the same effect on nearby residents. Whether people experience health effects in general is related to how much dust they are exposed to, how often, and an individual's sensitivity to the contaminant in dust. To reduce indoor exposures to dust from the lake during high wind events close the windows in your home. You can also consider filtration options, including running a Heating, Ventilation and Air Conditioning System (HVAC) with a filter of MERV 11 or higher or [selecting portable air cleaners to remove particles using our guide](#).

Thank you for contacting the Toxicology and Environmental Epidemiology Office. We hope you find this information helpful. Please contact our ToxCall line at (303) 692-2606 or [cdphe\\_toxcall@state.co.us](mailto:cdphe_toxcall@state.co.us) if you have any questions on this material.

Best Regards,

Toxicology and Risk Assessment Unit  
via

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