

February 24, 2010

Ms. Ursula Kramer  
Director, Pima County Department of Environmental Quality  
150 W. Congress Street, Suite 109  
Tucson, AZ 85701-1317

### ASARCO Tailings Analysis

Dear Ursula,

This is in response to the Region 9 Laboratory analysis of the ASARCO mine tailings and associated samples (Project # R10A01; SDG 10029C; February 12, 2010). Three types of sample were analyzed: 1) mine tailings composites, 2) dust from a residential patio, and 3) native soil, for comparison.

- a) The concentration of heavy metals and toxic metals (such as arsenic and beryllium) in both the tailings and in the patio dust is low, and comparable to the native soil sample analyzed.
- b) Calcium (2.9%) and sulfate (2.8%) in the tailings and patio samples have the highest concentrations of the species analyzed. While significantly higher than the native soil, these species at these concentrations are not normally viewed as being toxic. Calcium sulfate is commonly referred to as gypsum.
- c) The samples were not analyzed for acidity (pH). Given the processing history of the tailings, I expect that they will be near neutral, but because of the high sulfate there is possibility that the dust might be acidic. The pH of the tailings, patio dust and native soil should be checked.
- d) Silica is probably the major component of the tailings and patio dust. ASARCO's independent analysis shows silica present at approximately 55% in the tailings. The silica content of the tailings, patio dust and native soil should be checked.
- e) While the tailings and patio dust appear to be chemically innocuous it is possible that on windy days the tailings could contribute to downwind PM<sub>10</sub> and/or PM<sub>2.5</sub>, which are regulated by the EPA. Consequently, it would be useful to determine the size distribution of the tailings and patio dust.

Sincerely,



Eric A. Betterton, Professor  
Head, Atmospheric Sciences



Raina M. Maier, Professor  
Associate Director, UA Superfund Program