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Dr. Christopher H. Frey
Chair
Clean Air Scientific Advisory Committee
EPA Science Advisory Board (1400F)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW.
Washington, DC 20460

Re: CASAC Review of Draft Lead Policy Assessment

Dear Dr. Frey:

Kennecott Utah Copper LLC (KUC) submits the following comments for consideration by the Clean Air Scientific Advisory Committee (CASAC) in its review of the first draft of EPA's "Policy Assessment for the Review of the Lead National Ambient Air Quality Standards" (NAAQS), (January 2013).

A subsidiary of Rio Tinto, KUC mines essential elements that make modern living possible. From medicine, food and shampoo, to cell phones, computers, CAT scans and hybrid electric cars, nearly everything consumers use today relies on materials that we produce. As the second-largest copper producer in the United States, KUC provides nearly a quarter of the country's copper needs. Throughout its history, the company's Bingham Canyon Mine has produced more copper than any other mine — more than 19 million tons. In addition to producing about 300,000 tons of copper a year, the Bingham Canyon Mine also produces approximately 400,000 ounces of gold; 4 million ounces of silver; 30 million pounds of molybdenum; and 1 million tons of sulfuric acid annually.

The Bingham Canyon Mine has been a fixture in the Salt Lake Valley for more than 109 years. We are the largest private economic driver in Utah. No other private sector operation has generated more production, exports, income and employment as KUC . As such, we take our responsibility to be a strong community partner seriously, through strategic partnerships, foundation contributions and charitable giving.

We also believe in being stewards of the land. Wherever possible, we prevent, or otherwise minimize, mitigate or remediate any potentially harmful effects of our operations on the environment. This practice creates and

sustains our business value and reputation. We set self-imposed environmental targets to drive continual improvement. Through our commitment and actions, we strive to be a leader in environmental performance by demonstrating good management of natural resources, responsibly reducing our environmental footprint and exceeding community expectations for sustainable development and protection of employee and public health and safety.

In the first draft of EPA's lead Policy Assessment, agency staff recommend retention of the current lead NAAQS. The CASAC Lead Review Panel has drafted a letter to the Administrator endorsing the staff position. For the following reasons, KUC urges the Committee to endorse the staff position as well.

Primary Standard

EPA's Integrated Science Assessment (ISA) for Lead indicates that emissions of lead to ambient air no longer pose a significant national health issue. Emissions in the U.S. were estimated to be 964 tons in 2008, a small fraction of past emissions, and are continuing to decrease. More than half of the remaining emissions are from piston-engine aircraft. The ISA also finds that the median blood lead level for the U.S. population is now 1.1 micrograms per deciliter (µg/dl). Among children aged 1-5 years, the median is 1.2 µg/dl. With respect to IQ deficits in children, the primary health basis of the current lead NAAQS, the studies reviewed in the ISA find effects at mean blood lead levels between 2 and 8 micrograms per deciliter (µg/dL), with significant uncertainty at the lower levels as discussed further below.

The lead standard is subject to greater uncertainty than other NAAQS because it involves multiple exposure pathways, not simply inhalation exposure. This is explained in the ISA at pp. 1-3-4 and Figure 1-1, the conceptual model of lead exposure. The ISA finds that ingestion through hand-to-mouth contact is "the main pathway of childhood exposure . . ." While some of this is attributed to lead in dust that originated from ambient sources, ambient emissions are now extremely low as discussed above. The ISA also finds that significant non-ambient exposure pathways include "hand-to-mouth contact with Pb-containing consumer goods, hand-to-mouth contact with dust or chips of peeling Pb-containing paint, or ingestion of Pb in drinking water conveyed through Pb pipes." Further, unlike other NAAQS the lead standard is not based on studies linking current ambient exposures to adverse health effects. Because the ambient levels in the available studies are much higher than the current standard, EPA must rely instead on risk models that attempt to predict ambient exposures, blood lead levels and associated health effects. The limitations and uncertainties of this type of

evidence are markedly greater than studies based directly on current exposures.

As EPA staff have noted, the evidence newly available in this review does not support conclusions on air to blood ratios or IQ deficits in children that are significantly different from those drawn in the last review. Substantial uncertainties remain with regard to air-to-blood ratios and to estimates of the concentration-response (C-R) function for IQ deficits at lower blood lead levels. Additional uncertainties are associated with the predicted relationships between ambient lead and lead in outdoor or indoor soil and dust.

These uncertainties are greatest for exposure levels below those allowed by the current standard. For example, the ISA discusses several recent studies finding IQ deficits in children at blood lead levels below 5 ug/dl. However, those studies have greater limitations than the studies performed at higher levels. This is discussed in the ISA at p. 5-259:

> Among studies that examined populations with mean blood Pb levels <5 µg/dL, some lacked representative populations due to high prevalence of prenatal alcohol and/or drug exposure (Chiodo et al., 2007) or had limited consideration for potential confounding (Zailina et al., 2008). Kim et al. (2009b) estimated similar effects as the Boston and Rochester studies although the log-linear model makes comparisons difficult . . . In this study, the potential influence of higher past Pb exposures cannot be excluded. Among children ages 6-10 years in New England with a mean concurrent blood Pb level 2.2 µg/dL, lower FSIQ was found in the group with blood Pb levels 5-10 µg/dL (Surkan 27 et al., 2007). While results from these studies were adjusted for SES and parental IQ or education, parental caregiving quality was not examined.

The current evidence also indicates that the current standard will achieve the public health policy goal, recommended by CASAC in the last review, that loss of one to two IQ points should be "prevented in all but a small percentile of the population." EPA staff estimate that the size of this population at present is well below one tenth of one percent of the full population of children aged 5 years or younger in the U.S. today. In enacting the NAAQS provisions of the current Act, Congress directed EPA to protect sensitive populations but not the most sensitive subgroups of such populations. In addition, the ISA does not discuss any new information or new commonly accepted guidelines or criteria for the public health significance of specific IQ decrements. While the U.S. Centers for Disease

Control (CDC) has recently revised its guidance for blood lead levels in children, the CDC analysis is not substantially different from the current ISA.

As a result of the uncertainties in the underlying studies, the exposure-risk analysis for lead is extremely complex and subject to even greater limitations and uncertainties than the evidence-based analysis. The uncertainty is increased for scenarios involving ambient concentrations below the current standard as a result of modeling limitations caused by the uncertainty of relationships between ambient lead and lead in indoor or outdoor dust and soil. Despite these uncertainties, the available quantitative risk estimates suggest a level of risk generally consistent with the evidence-based analysis for the current standard.

The Clean Air Act requires EPA to establish primary standards that are "requisite to protect public health with an adequate margin of safety." The Supreme Court has held that EPA must establish standards that are neither more nor less stringent than necessary for this purpose. See *Whitman v. American Trucking Associations, Inc.*, 531 U.S. 457 (2001). The Act does not require that primary standards be set at a zero-risk level, but rather at a level that avoids unacceptable risks to public health. The uncertainties and limitations associated with the many aspects of the estimated relationships between air lead concentrations and blood lead levels and potential health effects are greatly amplified at increasingly lower air concentrations and blood lead levels. Accordingly, we agree with EPA staff that the current evidence supports the conclusion that the current standard will protect public health with an adequate margin of safety.

Secondary Standard

KUC likewise supports the preliminary staff conclusion that the current secondary standard for lead should be retained. The limitations of the available evidence on welfare effects are succinctly summarized in the following passage from the ISA:

> There is limited evidence to relate ambient air concentrations of Pb to levels of deposition onto terrestrial and aquatic ecosystems and to subsequent movement of atmospherically-deposited Pb through environmental compartments (e.g., soil, sediment, water, and biota) (Section 2.9.7). The contribution of atmospheric Pb to specific sites is not clear and the connection between air concentration of Pb and ecosystem exposure continues to be poorly characterized. Furthermore, the level at which Pb elicits a specific effect is difficult to establish in terrestrial and aquatic systems, due to the influence of other

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> environmental variables (e.g., pH, organic matter) on both Pb bioavailability and toxicity, and also to substantial species differences in Pb sensitivity. Current evidence indicates that Pb is bioaccumulated in biota; however, the sources of Pb in biota have only been identified in a few studies, and the relative contribution of Pb from all sources is usually not known (p. 1-14).

We rely on the Committee to ensure that EPA's interpretations of the scientific evidence are reasonably balanced and necessary to protect public health and welfare, without causing the unnecessary economic dislocation that will surely result if the scientific studies are unduly stretched. In this case, we agree with EPA staff and the Lead Review Panel that such considerations argue for retention of the existing standards. We urge you to recommend such an approach, and we thank you for considering these issues of vital importance to our industry and the people who rely on it.

Sincerely,

Chris Kaiser

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Environmental Permitting and Regulations
Kennecott Utah Copper