Purpose of the Review of the Nickel and Chromium Methods Report and Charge to the External Peer Reviewers.

Purpose

The purpose of this review is to seek expert advice (written report that can be shared electronically) on the methods used to develop inhalation cancer risk estimates associated with emissions of chromium and nickel compounds from coal and oil-fired electric utility steam generating units (EGUs) in support of EPA's recently proposed Air Toxics Rule.[1] The derivation of cancer risk estimates is based on the speciation data available from selected source categories, and on the available unit risk estimates (UREs) reflecting the dose that corresponds to a specific level of cancer risk.

Description of the document to be reviewed

This 13-page document titled *Methods to Develop Inhalation Cancer Risk Estimates for Chromium and Nickel Compounds* includes a brief description of its purpose, followed by discussions of emissions for both chromium (Section 2) and nickel (Section 3) compounds with regards to (1) the methods and rationale used in previous EPA analyses (where applicable), (2) the methods used in the recent analysis for the EPA's Air Toxics Rule (considering previous methods and currently available data), and (3) a discussion of the uncertainties and/or limitations of the methods used. In this document, we consider the emissions of chromium compounds from both coal- and oil-fired EGUs and the emissions of nickel compounds from oil-fired EGUs, since these are major contributors to inhalation cancer risk estimates from each these source types.

In addition to these discussions, we have included attachments A (titled *Chromium Emissions Speciation for Selected Source Categories*) and B (titled *Nickel Speciation Analyses of Residual Oil Fly Ashes Using X-Ray Techniques*) with information on chromium speciation profiles for different industrial sources, and nickel species in particulate matter for power plants, respectively.

Charge questions

<u>Chromium and Compounds</u>

1- Do EPA's judgments related to speciated chromium emissions adequately take into account the available chromium speciation data?

[1] US EPA, 2011. National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units Rule. Available online at http://www.epa.gov/ttn/atw/utility/utilitypg.html.

2- Has the EPA selected the species of chromium (i.e., hexavalent chromium) that accurately represents the toxicity of chromium and compounds?

3- Are the assumptions used in past analysis scientifically defensible, and are there alternatives that the EPA should consider for future analysis?

Nickel and Compounds

1- Do EPA's judgments related to speciated nickel emissions adequately take into account available speciation data, including recent industry spectrometry studies?

2- Based on the speciation information available and on what we know about the health effects of nickel and compounds, and taking into account the existing URE values (i.e., values derived for IRIS, Cal EPA and Texas), the EPA has provided several approaches to derive unit risk estimates that may be more scientifically defensible than those used in past analyses. Which of the options presented would result in more accurate and defensible characterization of risks from exposure to nickel and compounds? Are there alternative approaches that the EPA should consider?

Timeline for Submittal of Review

The comments from the reviewers must be submitted to the EPA no later than July 29, 2011.