

Appendix H.2
Human and Ecological Health
Information Request #2

December 12, 2014

Catherine Ponsford
Project Manager
Canadian Environmental Assessment Agency
Pacific and Yukon Regional Office
410-701 Georgia Street West
Vancouver, BC V7Y 1C6

Dear Ms. Ponsford:



Reference: Human and Ecological Health Information Request #2

This letter responds to the request for Outstanding Information received from the Canadian Environmental Assessment (CEA) Agency on August 14, 2014.

Information Request #2

Government of Canada – Outstanding Information:

The proponent indicates that elevated TSS concentrations as a result of dredging have the potential to increase PCDD/F exposure in marine country foods (HHRA 6.3.2.3), and that the associated increase in human health risk relative to baseline is “small”. Please determine the quantitative risk to human health as a result of environmental changes, or provide a rationale as to why this is not necessary. Any quantitative increase to human health risk resulting from changes to sediment quality and marine country foods should be used to update the cumulative effects assessment, or a rationale provided as to why this is not necessary.

Pacific NorthWest LNG (PNW LNG) – Response:

Dioxin modelling in aquatic organisms is based on dioxin concentrations leading to a steady state between dioxin uptake and excretion/metabolism. Exposure pathways with the highest concentrations have the greatest influence on dioxins in aquatic wildlife.

The hydrophobic nature of dioxins makes them virtually insoluble in the water and the concentrations are orders of magnitude lower compared to sediment and food. Almost all dioxin uptake in marine organisms is attributed to sediment contact and food ingestion (US EPA 1993).

Conceptually, dioxins are absorbed from water contact. In practice, this contribution is negligible given that analytical techniques are not sensitive enough to measure such low dioxin concentrations in the water column.

The US EPA guidance on modelling dioxins in aquatic wildlife notes that:

“For many extremely hydrophobic chemicals such as TCDD (i.e. dioxins), reliable measurements of ambient water concentrations, especially dissolved concentrations, are not available. Therefore, accumulation of chemicals by an organism cannot be referenced to a water concentration as required for a bioconcentration or bioaccumulation factor. However, concentrations are generally measurable in sediments as well as in organisms because these chemicals distribute predominantly in association with organic carbon”.

Closure

This letter provides the Outstanding Information requested by the Government of Canada. If you have any questions, please contact PNW LNG.

Reference

US EPA (United States Environmental Protection Agency). 1993. Interim Report on Data and Methods for Assessment of 2,3,7,8-Tetrachlorodibenzo-p-dioxin Risks to Aquatic Life and Associated Wildlife. EPA/600/R-93/055.