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Washington State Department of Ecology
Olympia, Washington

Re: Formal Comments on Kalama Manufacturing and Marine Export Facility Draft Second Supplemental Environmental Impact Statement, September 2020

Please deny Kalama Manufacturing and Marine Export Facility (KMMEF) a shoreline substantial development and a conditional use permit. The environmental impacts from the project are significant and cannot be mitigated.

Greenhouse gas emissions are insufficiently explained in the draft second supplemental environmental impact statement (SSEIS) and the data contains errors and omissions.

The SSEIS asks a basic question. How much CO₂e will be produced in refining 3.6 million metric tons of methanol per year?

When science looks at a question and comes up with an answer the usual first response to the answer should be another question. Is the answer reasonable? In the case of NWIW the answer is no.

Looking only at methanol process, from Table 3.5-2 GHG Emissions from On-site Sources, the ULE process and purchased power (the 100 MW demand required for the process) will produce GHG emissions ranging from the low estimate 728,535.7, to mid estimate 915,121, to the high estimate 1,347,803 MT CO₂e/year.

The high estimate means 0.374 metric ton of GHG would be emitted for every metric ton of methanol produced. The low estimate yields 0.202 metric ton GHG per ton of methanol.

The methanol industry would likely find these answers ludicrously implausible.

"Ten or more years ago, a typical methanol manufacturing plant would emit about 0.9-1.0 metric tonnes of carbon dioxide for every ton of methanol produced. In addition to the environmental concerns, large CO₂ emissions represent operational inefficiencies in a methanol plant, since the carbon emitted as CO₂ is not available for making methanol molecules. In fact, excess CO₂ from other industrial facilities can also be captured and consumed to increase methanol production. Through the implementation of efficiency improvements and through replacing of older facilities with newer plants that use more efficient technologies, over the last decade methanol plants have been able to significantly reduce CO₂ emissions by up to 40%. Some facilities report emissions as low as 0.54 tonnes of CO₂ / tonne of methanol produced. This is equivalent to emitting 3.8 lbs of CO₂ per gallon of methanol."

<https://methanolfuels.org/about-methanol/environment/>

The ULE process is not new. It is based on a small prototype, the Coogee facility in Australia,

operational more than twenty years ago.

Here is what I told Southwest Clean Air Agency about the Coogee ULE process in my comments January 2019 regarding extension of NWIW Kalama's air discharge permit.

"The ULE process is not a conventional methanol process with conventional equipment and has only been used in one small facility that has since been closed, the Coogee Methanol Plant, Laverton North, Victoria, Australia, operated by Coogee Energy Pty Ltd.

<https://insider.thewest.com.au/august-2017/power-played/>

The best information on the Laverton Coogee methanol process and emissions can be found in Coogee Energy Pty Ltd Methanol Plant Environment Improvement Plan, December 2003.

Attached.

http://s3.amazonaws.com/zanran_storage/www.coogee.com.au/ContentPages/1245343343.pdf

This was the plant's third improvement plan (EIP). They had problems. They admitted it was an experimental process that needed improvement.

"The Coogee Methanol Plant is Australia's only methanol production facility, and is currently capable of producing between 70,000 to 80,000 tonnes per annum of chemical grade methanol. The plant operates 24 hours a day, 7 days a week, all year round." EIP p. 10 The Coogee methanol plant had capacity to produce in one year what NWIW Kalama plans to produce in 8 days. In other words, the NWIW production capacity is proposed to be about 45 times greater than the prototype on which it is designed.

In 2003 the Coogee plant had been operating almost ten years. Their aim was to produce methanol with greater efficiency and less CO₂e emissions. The EIP states in 2002 that 0.781 Tonnes CO₂e were produced per tonne of methanol, EIP p. 21. If this emission rate were applied to NWIW Kalama production of 3.6 million tons methanol per year, then NWIW would be emitting 2,811,600 tons of CO₂e annually at the refinery site alone, over twice the estimate projected in the ADP."

When scientific inquiry reveals extraordinary results, extraordinary proof is required. The unrealistically low emissions Northwest Innovation Works claims will result from their ULE methanol process demands extraordinary proof. Chemical equations describing a perfect process are not sufficient or realistic.

Demand real world examples the NWIW ULE process will produce the extremely low emissions as claimed on a large industrial scale.

Thank you,

Diane L. Dick
Longview