

Todd Pelman



August 18, 2024

Washington Department of Ecology  
% Gayle Garbush  
Southwest Region Office  
PO Box 47775  
Olympia, WA 98504-7775

Dear Ms. Garbush,

Thank you for the Department of Ecology's continued attention to the health of our natural environment and the forthcoming final determination regarding Project Macoma. We broadly support the proposed permit WA0991051, though we request a slight modification.

Project Macoma LLC supports the agency's Tier II analysis and preliminary determination to authorize Project Macoma's discharge of alkaline-enhanced seawater. Project Macoma is expected to create a healthier environment by removing 1,000 net tonnes of carbon dioxide (CO<sub>2</sub>) per year while temporarily restoring water quality. It will help the State to meet its goals for greenhouse gas removal and to continue leading on ocean acidification research and technological innovation. An alkaline solution (with pH higher than ambient) discharged towards the water surface is required for this project to efficiently remove CO<sub>2</sub> from the atmosphere. An alternative scenario that processes a larger volume of water at a pH closer to ambient values would result in fewer net tonnes of carbon dioxide removed and permanently sequestered because more carbon would be emitted building and operating a larger processing facility. None of Project Macoma's positive environmental, social, and economic effects would be realized under a no-operations alternative.

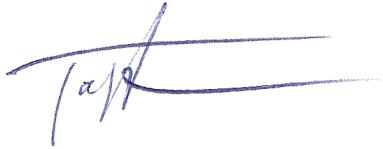
The agency's Tier II determination authorizes Project Macoma to produce a measurable change in pH of greater than 0.1 units from the standard upper limit of 8.5. We ask the agency to apply its determination and authorize Project Macoma to produce a measurable change above 8.5 and not to exceed 9.0 at the point of compliance, considering the high degree of seasonal variability in pH locally. (Please see the enclosure for a year's worth of pH data collected from Sequim Bay.) While there are significant periods of time in which ambient conditions indicate alarmingly acidic conditions, there are also extended periods when ambient conditions exceed pH 8 such that, under the proposed permit limits, we expect to be unable to operate for at least 3 months of the year. Year-round study under all real world conditions is necessary to adequately assess the potential of this technology to safely remove legacy carbon pollution and raise the alkalinity of seawater closer to pre-anthropogenic conditions.

Thank you for considering our request that the final permit apply Ecology's Tier II determination and authorize Project Macoma to produce a measurable change above 8.5 and not to exceed 9.0 at the point of compliance. We identified a few minor inconsistencies between the fact sheet and proposed permit and non-substantive erratum, which we've described for you in the "Suggested Revisions" enclosed.

We remain dedicated to ongoing and meaningful community engagement throughout the life of Project Macoma.

Signed,

Todd Pelman

A handwritten signature in blue ink, appearing to read "Todd Pelman", with a long horizontal flourish extending to the right.

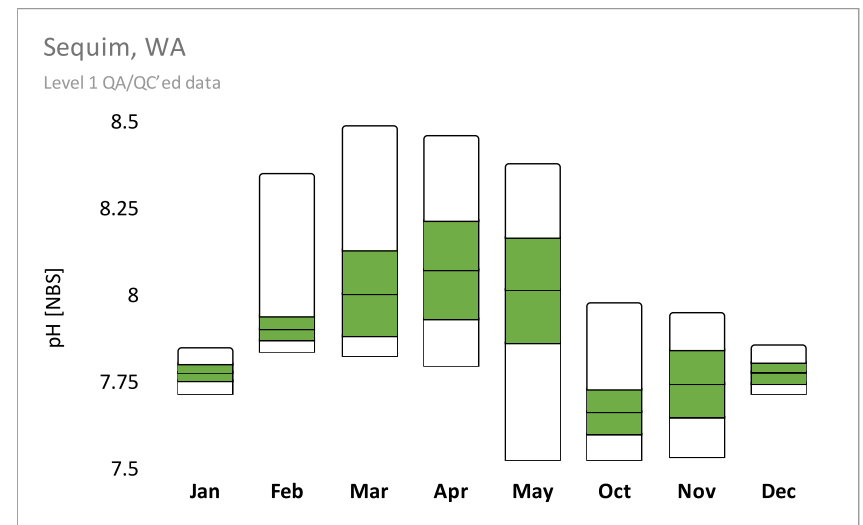
Project Macoma, LLC.

## Suggested Revisions

1. Table 2 and page 13 of the Fact Sheet lists a pH of 6.8 for maintenance operations whereas the Draft Permit at Table 2 and page 7 lists a range for pH of 7.0 – 8.5.
2. Project Macoma agrees with the distances cited in the permit for the IDZ, Acute, and Chronic Mixing Zones. However, as stated in the permit (Table 6) the point of measurement at the final process water holding tank and the point of discharge are distinct. The latitude and longitudes cited in the permit may require adjustment prior to permit issuance, as what is described in the permit doesn't appear to be correct. Project Macoma requests a workshop with the current drawing sets to confirm the selection of the applicable Lats/Longs for integration in the Permit and Fact Sheet as necessary.
3. Page 20 of the Fact Sheet states: The permittee is required to conduct a baseline water quality and biological study and submit it to Ecology before starting their operations. However, in the draft permit - Table 1 lists a due date of January 2, 2025 for the Receiving water baseline study report (which includes biological analysis); meaning, data must be collected before operations but operations can begin before the report is submitted.
4. On Page 7 of the Draft permit, footnote 3 should describe pH. Instead, the footnote describes temperature.
5. Special Conditions 1.B and 8 in the draft permit require Project Macoma to submit an ecological safety methodology, approved by the U.S. Fish and Wildlife Service, that includes monitoring and adaptive management protocols. Ecology should modify these conditions because the U.S. Army Corps of Engineers, not the U.S. Fish and Wildlife Service, is the federal agency with permitting authority for Project Macoma. Project Macoma LLC has applied to the U.S. Army Corps of Engineers for authorization to construct and operate along the nearshore environment. This application included submission of a biological assessment consistent with Section 7 of the Endangered Species Act, which Anchor QEA prepared on behalf of Project Macoma LLC, in furtherance of the U.S. Army Corps' consultation obligation. The U.S. Fish and Wildlife Service concurred with the biological assessment's conclusions, and the National Marine Fisheries Service conducted its own biological opinion. Project Macoma commits to incorporating into its ecological safety methodology all monitoring conditions for the protection of listed and proposed species that the U.S. Army Corps sets forth in its final permit.

Date (MM/DD/Y)	MIN of pH	AVERAGE of pH	MAX of pH	STDEVP of pH
Jan	7.72	7.78	7.85	0.024
Feb	7.84	7.91	8.35	0.033
Mar	7.83	8.01	8.49	0.125
Apr	7.8	8.08	8.46	0.142
May	7.53	8.02	8.38	0.152
Oct	7.53	7.67	7.98	0.066
Nov	7.54	7.75	7.95	0.098
Dec	7.72	7.78	7.86	0.030
<b>Grand Total</b>	<b>7.53</b>	<b>7.79</b>	<b>8.49</b>	<b>0.15</b>

Jan	7.72	0.04	0.024	0.024	0.045
Feb	7.84	0.03	0.033	0.033	0.409
Mar	7.83	0.05	0.125	0.125	0.355
Apr	7.8	0.13	0.142	0.142	0.243
May	7.53	0.34	0.152	0.152	0.209
Oct	7.53	0.07	0.066	0.066	0.247
Nov	7.54	0.11	0.098	0.098	0.102
Dec	7.72	0.03	0.030	0.030	0.051



Data collected dockside at Pacific Northwest National Laboratory - Sequim in 2017 and 2018.  
Data should be considered level 1 QA/QC'ed data - sensors calibrated and given general review  
Missing data was removed for QA/QC reasons