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Comments on Draft Aquatic Plant and Algae Management General Permit

1. General comment – phosphorus is spelled several different ways throughout permit document. Suggest searching document and ensuring that one spelling is used.

2. Section S2.A #2 – First sentence. "...the discharger my apply for permit coverage". Who is the discharger? Does this mean the applicator? The agency with oversight/management responsibility of the waterbody? The sponsoring agency? I feel strongly that applicators should not be allowed to obtain permit coverage for phosphorus control products, as they do for licensed herbicides or algaecides. Phosphorus control products typically do not have a specific label application rate and involve some design/calculation of dose based on lake conditions.

3. Section S4.C #2b – abbreviation for phosphorus sequestration products (PSP) no longer relevant given the change to phosphorus control products. Needs to be changed to PCP. Double check throughout permit.

4. Table 3 – First row "Alum (Aluminum sulfate and Sodium Aluminate)" last column "Other Specific Restrictions" – what does "range finding" test mean? What range are you looking for? Range of aluminum doses? Range of impact to pH? I would suggest leaving it at "A jar test must be completed prior to whole lake treatment." The point of this jar test in this table was to determine impacts to pH based on lake conditions the day of application and the chemicals delivered on site. The point of this jar test was also to confirm the alum to buffer application ratio based on lake conditions and chemical delivered to the site. This edit appears to change the intention/purpose of this jar test. If you want to make sure that a jar test is conducted to determine/confirm the aluminum dose of the treatment, then that's a whole different thing and impacts design of a treatment. That specific jar testing to determine/confirm aluminum dose would have to happen several months, maybe a year or more prior to treatment.

5. Table 3 – Second row "Calcium Products...". Same comment as for the first row "Alum (Aluminum Sulfate and Sodium Aluminate)". The text change to range-finding doesn't line up with the second part of this bullet.

6. Table 3 - Third row "Iron Bound Lanthanum". I am not aware of any use of an iron bound lanthanum product for phosphorus control in the real world or Washington State. I have not come across any peer reviewed literature about this product. Are there any examples of real-world applications? What data did Ecology use to determine the appropriateness of adding this control product to the table of approved products? Following the revisions to row #1 and #2, this product should also require a jar test on site prior to application to determine impacts based on lake conditions. Similar to alum and calcium, a jar test should be required regardless of alkalinity. Application of this product should not rely on label application rates but should be based on specific waterbody conditions. Does this product impact pH as other liquid iron products do? Other iron based flocculants when added to water decreases pH. We know this from use of iron based products historically as well as their use in water and wastewater treatment. Is there a proposed buffer to be used with this product if it does impact pH?

7. Table 3 Third row "Iron Bound Lanthanum" – please make available the updated EIS and eco toxicity data available for this product.

8. Table 3 Fourth row "Lanthanum Modified Bentonite Clay" – same comment as above lines in Table 3. Should be consistent with the requirements of jar testing for all phosphorus control products. Why is LMB not required to have a range finding test as was stated for Alum, Calcium, and granular iron?

9. Table 3 – "Subject to Treatment Timing Window" – The second bullet that is in this column for Alum should be repeated for the other phosphorus control products. There is no reason why this should only be applied to Alum. Plant biomass may interfere with all these products.

10. Table 3 General Comment – there appears to be some confusion with regards to "range-finding test" and "jar test". The intent of the jar test in this table in the permit historically has been to determine/confirm buffer ratio as well as any potential impacts to lake pH the day of application. If Ecology would like to see jar testing of products to confirm the dose of either aluminum, calcium, lanthanum, etc then that is something completely different that would take place even before the permit is applied for. The dose of products has not been something that Ecology has historically regulated.

11. Section S6 A#1d – I would recommend using a percent saturation for DO threshold. 9 mg/L may be difficult to achieve if temperature is high. Where did the thresholds of 7 mg/L and 9 mg/L come from?

12. Section S6 B#1d – "monitoring to determine pre-treatment conditions..." – how many samples/results need to be collected within that 3 months prior to treatment? 1? Once a month for three months? I see where there is more specific information in Table 5. Suggest rewording bullet #1d to reflect Table 5.

13. Section S6 B#1e – Table 5 appears to only include monitoring requirements and schedule for the use of alum/aluminum as the phosphorus control products. If this is the intent, then #1e needs to be reworded to reflect that Table 5 is specific to Alum and then other tables should be added to permit to show monitoring requirements and schedule for other phosphorus control products. All phosphorus control products should have monitoring requirements based on their active ingredients.

14. Section S6 B#1g – what parameters need to come back to pre-treatment levels? Aluminum? Alkalinity? Sulfate? Be more specific on the requirements to postpone post treatment monitoring. If Ecology plans to make decisions based on a case by case basis then that should be explained in the permit.

15. Table 5 – At what depth should samples be collected? pH monitoring and other insitu parameters probably will differ than other parameters. pH, Temperature, Conductivity and DO should be measured throughout the water column. Samples collected for lab analysis would be at discrete depths. Provide guidance on what depths.

16. Does Table 5 only apply to aluminum treatments? If so it should specifically go in that section. OR Table 5 should include additional columns for parameters specific to iron/lanthanum

applications. Some parameters will be the same but some will be different based on phosphorus control product chosen.

17. Section S6 B #2a – this "range finding testing" does not make sense. If this testing were to be done to determine the proper volumetric aluminum dose then this would have to be done well in advance of treatment, many months as the application is being designed, well before the permit is even applied for. Is this section suppose to be referring to a jar test to CONFIRM dose OR check lake response regarding pH and adapt volumetric application rates of alum and sodium aluminate based on that response. If that is the intent, then I suggest calling it a jar test and not a range finding test. To me a range finding test indicates you are trying to determine proper aluminum dose which needs to be done to design the application.

18. Section S6 B#2d – pH monitoring during treatment is NOT used to assess aluminum toxicity thresholds. Its used to assess impacts to lake pH and lake conditions. Alkalinity is not easy to analyze for in the field and requires sending to the lab and I'm not aware of what immediate steps one would take to increase the pH. That would require adding a different product which would need to be covered under this permit. Right?

19. Section S6 #3g – need to include a table similar to Table 5 for lanthanum and iron products. Are samples being collected on the same schedule as proposed for aluminum products? The schedule should be the same. The parameters that should be required for post treatment monitoring should reflect the active ingredient in the phosphorus control product. For example, aluminum is the active ingredient in Alum and is required to be sampled for. I would assume that for lanthanum treatments, lanthanum should be analyzed as well as other constituents that could affect lanthanum toxicity. DOC?

20. Section S6 #5 a – At times it can be challenging to receive laboratory data within 30 days of collection, so it may be different for permittees to submit the monitoring data results within 30 days of sampling. Is there any flexibility in the submittal timeline for this data?

21. Section S6 #5 a – What "data" does the permittee need to submit that was used to estimate the dose of products? Would this include a report, the raw data and/or calculations, the technical specifications used to guide the application if developed? Often times there will be sediment data used to determine the dose. Not everyone does a jar test to determine the dose of products. The dose is often calculated based on the amount of mobile phosphorus in the sediment and the concentration of phosphorus, as well as previous experience and case studies/historic knowledge and data. So there may not be jar test results to submit. There should be jar test results from right before the start of application to show the impact or lack thereof on pH but those are not data that would estimate the dose.