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Subject: Sierra Club Comments on the Tahoe Keys Lagoons Aquatic Weed Control Methods Test Draft Permitting Documents: Tentative Resolution Granting Exemption to the Pesticide Prohibition, Tentative WDRs and NPDES Permits, and Draft Mitigation Monitoring and Reporting Program

The Tahoe Keys Property Owners Association (TKPOA) has applied to the Lahontan Regional Water Quality Control Board (Lahontan) for permits to conduct the Tahoe Keys Lagoons Aquatic Weed Control Methods Test (Proposed Project). This letter submits the comments of the Tahoe Area Group, the Toiyabe Chapter, and the Mother Lode Chapter of the Sierra Club on the following draft permitting documents for the Proposed Project:

- Tentative Resolution Granting an Exemption to the Aquatic Pesticide Prohibition in Lahontan Water Board's Basin Plan and supporting Staff Report
- Tentative Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) Permit
- Mitigation Monitoring and Reporting Program (MMRP)

The Tahoe Area Group has more than 900 members in Nevada and California. Sierra Club Groups are subdivisions of Chapters. Group members in Nevada are members of the Toiyabe Chapter (more than 6,700 members); Group members in California are members of the Mother Lode Chapter (more than 18,800 members). Tahoe Area Group members have engaged on issues related to the health of Lake Tahoe for many years and are intensely interested in the outcome of this process for our current and future members as well as for the health of our precious national treasure, Lake Tahoe.

Protection of the health of Lake Tahoe is also a high-priority issue for the Toiyabe and Mother Lode Chapters as well as members across the country.

Lahontan released the draft permitting documents for public review on September 15, 2021. The Sierra Club continues to oppose the Proposed Project to use aquatic herbicides in the Tahoe Keys for numerous reasons, many of which were stated in our September 3, 2020 comments on the Project's Draft Environmental Impact Statement (EIS) and Environmental Impact Report (EIR).

The Sierra Club continues to assert that other less environmentally impactful methods than herbicides (non-chemical methods such as laminar flow aeration (LFA) and ultraviolet light) must be thoroughly tested and their effectiveness fully evaluated before such drastic measures as pesticide discharges be used. Also, instead of attacking the symptoms, long-term solutions that do not involve perpetual use of herbicides must be developed to address the systemic underlying sources of the problem. The Draft EIR/EIS stated that testing only non-chemical methods is the environmentally superior alternative Project. This draft permit ignores the identified environmentally superior alternative and instead proposes the use of herbicides, despite the fact that aquatic herbicides do not address the underlying sources of the invasive weed population explosion at the Tahoe Keys: 1) high nutrient loading over multiple decades by stormwater from the Keys and South Lake Tahoe and 2) stagnant, warm water in the unnatural lagoons formed by dredging the Upper Truckee River marsh. TKPOA agrees, stating in a 2018 application that "The general conditions of the lagoons provide ideal habitat for prolific plant growth with abundant light, nutrients in the sediment, and near-optimal water temperatures for most of the summer months." Until the nutrient problem is effectively addressed, the weeds will continue to plague the lagoons, whether herbicides are used or not. We further contend that this "test" is a precedent for allowing further herbicide treatment in the Keys and around the Lake, which the Sierra Club would fervently oppose.

The permitting agencies, the Tahoe Regional Planning Agency (TRPA) and Lahontan Regional Water Quality Control Board (Lahontan), have prioritized recreation by the private boaters in the Keys over the health and well-being of Lake Tahoe, a national treasure and Tier III Outstanding National Resource Water. After decades of regulatory neglect and rampant weed growth in the Keys, Lahontan and TRPA are now desperately trying to find a solution that will keep the private boatowners at the Keys happy, rather than tackling the very difficult tasks required by their mission to protect and preserve Lake Tahoe.

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General Comments / Arguments Against Adoption of Permitting Documents

1) The proposed project fails to comply with the Basin Plan Exemption Criteria that require a demonstration that non-chemical methods have been shown to be ineffective or inappropriate. The Exemption Criteria for Controlling Aquatic Invasive Species (AIS) and Other Harmful Species in Chapter 4 (page 4.1-9), provides prohibition exemption criteria language for a variety of project types: *Emergency Projects*, *Time-Sensitive Projects*, and *Projects That Are Neither Emergencies Nor Time Sensitive*. The criteria for both Time-Sensitive Projects and Projects that are Neither Emergencies Nor Time Sensitive require demonstration that non-chemical methods must be shown to be ineffective or inappropriate. The Basin Plan criterion for "Time-Sensitive" projects requires:

   "Demonstration that non-chemical measures were evaluated and found inappropriate/ ineffective to achieve the project goals. (Alternatives to pesticide use must be thoroughly evaluated and implemented when feasible (as defined in CEQA Guideline 15364: "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.)"

   The Basin Plan criterion for <u>non-Emergency and non-Time Sensitive</u> projects requires:

   "A description of the failure of non-chemical measures to effectively address the target organisms. The description will include either (1) evidence that non-chemical efforts failed to address target organisms or (2) justification, accepted by Regional Board, of why non-chemical measures were not employed or are not feasible (CEQA Guideline 15364) to achieve the treatment goals."

   The project must satisfy both of the above criteria. The Staff Report, however, does not show that these criteria have been satisfied and that the use of herbicides is justified. The Staff Report states the project goal as:

   "The primary purpose and goal of the CMT project is to evaluate the effectiveness of multiple AIP [Aquatic Invasive Plant] treatment methodologies, including chemical and non-chemical methodologies and combinations of both, to identify methodologies that will: 1) quickly reduce the AIP biomass 2) bring infestation to a level that can be managed by non-chemical treatment methodologies, 3) improve water quality, 4) improve recreational benefits, and 5) reduce re-infestation."

   The Staff Report claims that the first criterion is satisfied by these statements:

> "The information generated by the CMT test will be used by TKPOA to update or to develop a new Integrated Management Plan for Aquatic Invasive Weeds (IMP)[1]. As recommended by the Lake Tahoe Aquatic Invasive Species Coordination Committee's 2015 AIS Plan, TKPOA is considering multiple AIP treatment methodologies, including chemical and non-chemical, in updating/developing its IMP. In order to compare the effectiveness of the different AIP treatment methodologies with minimal variability in testing conditions, it is important that all AIP treatment methodologies being considered for future use be evaluated at the same time in the same or very similar environment. That is why both chemical and non-chemical treatment methodologies identified in the CMT project need to be evaluated concurrently. Failing to do so, will fail to meet the project's goals, as outlined, above.
> If following the CMT project, TKPOA develops an IMP that includes pesticide use, such a plan will require a Basin Plan prohibition exemption, separate from that being considered for the TKPOA CMT project. The results from the CMT project will be available for the project review and evaluation process related to the proposed IMP. As noted in the Basin Plan, the Lahontan Water Board has significant discretion in and how it approves pesticide use in surface waters of the Lahontan Region. Additionally, the Lahontan Water Board is under no obligation to grant a prohibition exemption for the proposed IMP simply because it may have granted such an exemption for the TKPOA CMT project."

This plainly contravenes the Basin Plan Exemption Criteria requirements. Both the spirit and the letter of the Plan *require* that non-chemical methods be shown to be infeasible *before* chemical treatment methods can be used. The supposed justification for this project that chemical and non-chemical methods must be tested simultaneously could be used for every project and would effectively eviscerate the stringent Plan exemption criteria. The Board's interpretation of the Plan is a significant departure from the letter and intent of the Plan, is unreasonable, and will not likely be upheld by the courts. (*See*, *Monterey Coastkeeper v. State Water Resources Control Bd.* (2018) 28 Cal.App.5th 342, 370 ["While we defer to an administrative agency's interpretation of a statute, regulation, or policy involving its area of expertise, we owe no deference to an interpretation that 'flies in the face of the clear language and purpose of the interpreted provision.'"])

Just as the Basin Plan itself borrows CEQA's definition of "feasibility," related CEQA case law regarding project objectives is instructive, consistent with the Plan requirements, and contrary to the position of the proposed Order and Staff Report. (*See North Coast Rivers Alliance v Kawamura* (2015) 243 Cal.App.4th 647, 668 [Project objectives should not be so narrowly defined that they preclude consideration of reasonable alternatives for achieving the project's underlying purpose.]) Here, it is inaccurate and unduly restrictive to define the project objective as a project to test and compare chemical and non-chemical treatment methods, in a

vacuum. In reality, the overarching and true project objective is *to remove aquatic invasive species* from the Tahoe Keys. This situation is very analogous to *Habitat & Watershed Caretakers v City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1299. In that case, the court emphasized the importance of basing the statement of objectives on the underlying purpose of the project. The court noted that the draft EIR's description of the project was too narrow because it focused on the *nature* of the project, which it described as implementing a settlement agreement relating to expansion of the University of California, Santa Cruz, campus and seeking a sphere-of-influence change. A revised statement of project objectives described in the final EIR was sufficient, however, because it described the *purpose* of the project: to provide water and sewer service for expansion of the campus. The same is true here, where the underlying purpose of the project is removal of aquatic invasive growth, not testing and comparing removal methods in a vacuum.

The project proposal clearly does not comply with the Plan Exemption Criteria requiring "justification . . . of why non-chemical measures were not employed or are not feasible (CEQA Guideline 15364) to achieve the *treatment* goals," since the newer technologies of UV light and laminar flow aeration have not been demonstrated to be ineffective as treatment methods. In addition, the *Implementation Plan for the Control of Aquatic Invasive Species within Lake Tahoe*, July 31, 2015, cites results of a "comprehensive removal program using a combination of benthic barriers and diver assisted suction removal" in Emerald Bay that showed "successful removal of Eurasian watermilfoil can occur." The project's purported goal, therefore, seeks to circumvent the clear intent of the criterion, that all non-chemical methods must be fully examined first and deemed ineffective, which has not been demonstrated. The above attempt to justify the use of herbicides hides behind the goal of the project, fails to disclose successful non-chemical treatments elsewhere in the Lake, and provides no discussion of how non-chemical methods were found to be ineffective/inappropriate.

The Staff Report claims that the second criterion is satisfied by these statements:

> "In response to the growing infestation of target aquatic weeds in the Tahoe Keys and to limit non-point sources of pollution, TKPOA was tasked with developing a Non-Point Source Water Quality Management Plan (NPS Plan), and an Integrated Management Plan (IMP) to address target aquatic plant species management. Both plans are being implemented and a variety of non-herbicidal control methods have been utilized. However, due to the size, density and dominance of the infestation in the Tahoe Keys Lagoons, these control methods have produced limited results. In addition, these current control methods also produce large quantities of weed fragments, which risk the further spread of aquatic weed infestations throughout the shallow nearshore waters of Lake Tahoe. Non-chemical efforts to date have failed to address target organisms. Other non-chemical control methods (LFA and UVC-C light) are experimental

methodologies that are unproven in controlling AIS on scale and density found in the Tahoe Keys.

The proposed CMT project will be evaluating both non-chemical and chemical treatment methodologies concurrently to compare the effectiveness of each treatment methodology and combinations of treatment methodologies. The following reasons provide a justification of why the CMT project may proceed, concurrently evaluating both non-chemical measures and chemical measures.

1. Non-chemical treatment methodologies will be employed in the Project.
2. TKPOA has been utilizing mechanical measures to control AIP, which has failed to control growth and spread of AIP in the Tahoe Keys Lagoons.
3. The Lake Tahoe Aquatic Invasive Species Coordination Committee's 2015 AIP Plan prepared by the University Nevada Reno identifies the Tahoe Key Lagoons as highest priority location within Lake Tahoe to be treated for Aquatic Invasive Species, including AIP.
4. The CMT project will be testing two experimental non-chemical treatment methodologies (LFA and UVC-C light) to compare their effectiveness to that of two chemical treatment methodologies in the Tahoe Keys Lagoons.
5. The original CMT project has been modified through a collaborative approach with assistance from the League to Save Lake Tahoe, Tahoe Regional Planning Agency, and substantial work by other stakeholder groups. The collaborative approach has increased the project's scope regarding non-chemical treatment methodology evaluation and reduced the scope of herbicide use to a one-treatment event test application at multiple locations involving significantly less area than originally proposed. Further limiting the CMT project to evaluating only non-chemical treatment methodologies will reduce the knowledge to be gained and will not accomplish the goals of the project.

The information obtained through the proposed CMT project will be used to assist TKPOA, regulatory agencies, and others in making informed decisions regarding the future treatment methodologies TKPOA will use to control AIP. Including chemical use 14 as part of a future IMP will require a separate project evaluation and Basin Plan prohibition exemption prior to the IMP being accepted by the Lahontan Water Board."

The primary non-chemical control method used for several decades is mowing and removing the weeds low enough that they do not hinder navigation. Mowing produces large quantities of fragments which cannot be collected and removed. Some fragments settle into the sediment creating new infestations in the Keys while others are transported into the Lake creating new infestations there. Several decades of mowing have only made the weed problem worse. The above statement in the Staff Report claims that LFA (laminar flow aeration) and UVC-C light are "experimental methodologies that are unproven in controlling AIS." Yet *the 2020 TKPOA Laminar Flow Aeration End of Season Report* states that "Sediment

sampling data does appear to support the 2nd objective of the LFA project", which is "Reduce organic matter in sediments around the LFA diffusers." LFA increases dissolved oxygen in the sediment layer, controlling nutrients that lead to excessive aquatic weed and algae growth and increasing biological activity in the benthic layer, which accelerates the decomposition of organic muck at the bottom. LFA and UV light should be thoroughly tested and evaluated with other non-chemical methods (benthic barriers and diver-assisted suction dredging) before chemicals are used. The above statement is not a "description of the failure of non-chemical measures to effectively address the target organisms," which is what the criterion requires.

Applying and evaluating chemical methods without having first shown that non-chemical methods are ineffective violates the exemption criterion. Lahontan should have informed TKPOA about this violation when they received the application. Instead, Lahontan has expended significant staff resources on the environmental process for this Project. Without having demonstrated that non-chemical methods, alone, are not effective, testing chemical methods (with or without concurrent tests of non-chemical methods) is a violation of the Basin Plan.

When the Basin Plan was amended in 2011, the above exemption criteria were included to ensure that no pesticides would be used in the Lake without adequate justification and demonstration that all other less toxic approaches had been shown to be ineffective. The Proposed Project is essentially an attempt to circumvent both the intent and the regulatory standard of the Basin Plan. We assert that the Staff Report fails to provide justification for an exemption and that the exemption should be denied.

In addition to the current draft permit's not satisfying the above exemption criteria, the current draft permit does not contain any of the exemptions required for permitting exceedances of the narrative and numeric water quality objectives which will immediately be exceeded upon discharge of the aquatic herbicides. The Basin Plan, on page 4.1-7, states: "Exemptions to the prohibition on violating narrative or numeric water quality objectives may be granted for specific water quality objectives." In addition, the Basin Plan Amendment of 2011, which approved aquatic pesticide discharge exemption criteria in the Basin Plan, included a substitute environmental document containing the following language:

> "By definition, aquatic pesticides must be applied at concentrations that are toxic to certain aquatic organisms. Therefore, for certain aquatic pesticides, target concentrations needed for effective pest control within the treatment area may temporarily exceed narrative or numeric water quality objectives contained in the Basin Plan. Specific water quality objectives that may be exceeded include:
>
> - Toxicity
> - Chemical Constituents (in surface and ground waters)
> - Oil and Grease

- Dissolved Oxygen
- Floating Materials
- Settable Materials
- Suspended Materials
- Nondegradation of Aquatic Communities and Populations

When an exemption to the prohibition on pesticide use in water is granted, pesticides are discharged into water and additional water quality objectives, such as those listed above, may be exceeded. Consequently, the Water Board may also need to grant the pesticide discharger constituent-specific exemptions to waste discharge prohibitions 1 and 2 (Basin Plan, Chapter 4.1-1). These prohibitions prohibit the discharge of waste which causes violation of basin plan narrative and numeric objectives, respectively. Exemptions to these prohibitions would be short-term or seasonal and would only apply to the treatment area during the treatment event* (or project duration or length*). The intent is to limit exceedances of water quality objectives to the shortest possible time needed for project effectiveness. Upon project completion, water quality would be restored within the treatment area and suitable to protect beneficial uses."

No such constituent-specific exemptions are included in this Tentative Order or in the associated permitting documents and draft resolutions. Exemptions must be included because exceedances of the Basin Plan's narrative and numeric objectives will occur immediately upon herbicide discharge.

There is an abundance of scientific articles about herbicide treatment of many lakes and waterways around the country to control invasive aquatic weeds like Curlyleaf pondweed and Eurasian watermilfoil. None of these articles report eradication after one treatment or even after multiple annual or more frequent treatments. Several of the Aquatic Pesticide Application Plans (APAP), which have been permitted to use aquatic herbicides under the State Water Resources Control Board's (State Board) General Permit (GP), state that herbicides would be used multiple times per year. One of these plans is "Application for State Implementation Policy Section 5.3 Exception for Use of Copper Aquatic Herbicides to Control Aquatic Weeds in Irrigation Canals" submitted by the Byron-Bethany Irrigation District[1].

2) The antidegradation analysis in Attachment G of the draft NPDES permit is inadequate. State antidegradation policy in State Water Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality of Waters in California" states that:

   "Any activity…which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which

[1]https://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/docs/weedcontrol/sip_exemption_request_byron_bethany.pdf

> will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained."

The courts have applied several factors in reviewing whether a lowering of high water quality is to the maximum benefit of the people of the state. (*See*, *Asociacion de Gente Unida por el Agua v. Cent. Valley Reg'l Water Quality Control Bd.*, 210 Cal. App. 4th 1255, 1279 (2012) (citing State Water Resources Control Board, Guidance Memorandum (Feb. 16, 1995) pp. 4-5). Factors to be considered include (1) past, present, and probable beneficial uses of the water (specified in water quality control plans); (2) economic and social costs, tangible and intangible, of the proposed discharge compared to the benefits, (3) environmental aspects of the proposed discharge; and (4) the implementation of feasible alternative treatment or control methods. These factors clearly require the applicant to first try non-chemical methods to eradicate the weed infestation in the Tahoe Keys. The draft anti-degradation analysis fails to satisfy these factors to permit the discharge of aquatic pesticides in the Tahoe Keys.

Most notably, and as discussed, above, the applicant has failed to demonstrate that non-chemical treatment methods are infeasible. Indeed, and instead, the applicant proposes to use both *non-chemical and* chemical methods. Non-chemical methods can, should, and must be implemented *first*, to avoid the degradation to water quality that will otherwise occur due to the proposed pesticide discharges into the lake. Any findings to the contrary run counter to the weight of evidence and should be set aside. (*See*, Code Civ. Procedure. § 1094.5, subd. (c); Water Code § 13330, subd. (e).)

Further, like the invalidated order in *Asociacion de Gente Unida por el Aqua*, the proposed order and anti-degradation analysis rely heavily on the permit monitoring requirements to reduce and avoid adverse effects to water quality; but as discussed further, below, the proposed monitoring regime is wholly inadequate, and therefore cannot be the basis for any anti-degradation determination. (*Associacion* at 1280 ["the mechanism for ensuring that groundwater will not be further degraded is the monitoring plan, which, as explained above, is inadequate"].)

The draft order also violates federal anti-degradation requirements. Lake Tahoe is designated as an Outstanding National Resource Water ("ONRW"), which is provided the highest level of protection under the antidegradation policy. The policy provides for protection of water quality in high-quality waters that constitute an ONRW by prohibiting the lowering of water quality. (40 C.F.R. § 131.12(a)(3).) The exceptions provided by federal regulation and EPA guidance are nothing like the project being proposed here. For example, the draft order considers the proposed project to be "short-term," which EPA guidance interprets to last weeks and months,

not years. However, the very purpose of "testing" aquatic pesticides in this project is to determine whether they should be used annually. This reasonably foreseeable consequence, alone, should eliminate the option of discharging pesticides to the Keys altogether. Indeed, the proposed project is nothing like the examples of "short-term" projects set forth by EPA Guidance, which generally include things like minor and one-time replacements and repairs. Similarly, the examples cited by the State Water Board APU 90-004 that would permit a "simple" anti-degradation analysis do not apply here ("e.g., confined to the mixing zone," "e.g., will cease after a storm event is over," or "minor increase in the volume of discharge subject to secondary treatment.") Regardless, even if APU 90-004 did permit a simple anti-degradation analysis, which it does not, the project would still violate the prohibition on lowering water quality for an ONRW, and no state anti-degradation policy can be less stringent than required by federal law. (*See*, 40 C.F.R. § 131.4(a).) Simply put, "[t]he state must prevent water constituting an 'outstanding national resource' from being degraded." (*American Paper Inst., Inc. v. United States EPA* (7th Cir. 1989) 890 F.2d 869, 872.)

3) Lahontan is not disclosing information about plans and procedures which should be disclosed to the public. There is a general lack of transparency about and public noticing of supporting documents, other plans and relevant background data, which contain information supporting many of the assurances in the draft permitting documents that regulatory standards will be met. Some of the required plans have not even been provided to Lahontan, including the Best Management Practices (BMP) Implementation Plan, the Spill Response Plan and the Lanthanum-Modified Clay Application Plan (LMCAP) for the application of lanthanum-modified clay to control harmful algal blooms (HABs), which are expected to occur after the rapid release of nutrients from dying plant material after treatment. A "Draft Spill Contingency Plan" was apparently included in the APAP submitted to Lahontan on April 30, 2021, but was submitted under the title *Updated Basin Plan Exemption Application and Updated Control Methods Test Application*, which does not reference the Aquatic Pesticide Application Plan in the title. This document containing the APAP was also not posted on Lahontan's website with the other draft permitting documents. This document should have been posted and explicit instructions for accessing the APAP should have been provided to the public. Another example of the lack of transparency is Lahontan's not disclosing to the public their letter to TKPOA dated December 29, 2020 and the detailed additional information requested in that letter, which is the basis for the April 30, 2021 update of the APAP. Furthermore, the treatment areas specified in the current APAP are allowed to change based on pre-treatment macrophyte surveys and the final APAP is not required until 30 days prior to treatment. The very fact that the APAP could be completely altered just 30 days prior to herbicide treatment is unacceptable.

Even the State Water Resources Control Board's General Permit (GP) for discharges of aquatic pesticides requires that the APAP be provided to the State Board 90 days prior to pesticide use to ensure that the public is given 30 days to comment. This draft Order requires that amendments to the APAP be provided to Lahontan within 60 days after permit issuance and 30 days before the pesticide discharge is to occur. Given these timelines, the public will have no opportunity to review and comment on the amendments to the APAP and the final details and specifics of this plan to discharge herbicides into Lake Tahoe waters for the first time. This violates the Clean Water Act. (*See*, *Waterkeeper Alliance v. USEPA*, 399 F.3d 486, 503 ["The CAFO Rule deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because the Rule effectively shields the nutrient management plans from public scrutiny and comment. . . . This scheme violates the Act's public participation requirements in a number of respects. "])

A further example of the lack of transparency is the fact that the background data – "existing water quality, sediment quality, and biological data (fish and benthic macroinvertebrate surveys) for the Tahoe Keys Lagoons and Lake Tallac" – in the following documents, referenced in the Fact Sheet of the Tentative Order as the basis for the Order, are also not on Lahontan's website:
1. Final Summary of Results: Baseline Water Quality in Tahoe Keys Lagoons (Environmental Science Associates, 2019),
2. 2016 Baseline Water Quality Report for the Tahoe Keys Lagoons - Volume 1 (Sierra Ecosystem Associates, 2017),
3. 2017 Sediment Baseline Report for the Tahoe Keys Lagoons, (Sierra Ecosystem Associates, 2018), and
4. 2019 Fish and Benthic Macroinvertebrate Surveys in Tahoe Keys Lagoons (Sierra Ecosystem Associates, 2020).

There is apparently no plan by Lahontan to make these documents available to the public except in response to specific individual requests. These documents should have been posted with the documents available for public review. This failure to inform the public about supporting documents and to make them available does not bode well for informed public participation in Board decisions on the Proposed Project, since neither Lahontan nor TKPOA have fully disclosed plans and background data to the public.

4) Monitoring and Reporting: The Basin Plan requires that an NPDES permit include specification of the Monitoring and Reporting Program which will collect, analyze, and report the data needed to verify the Project's compliance with receiving water limitations (RWLs) and water quality objectives (WQOs) and protections of beneficial uses. The Monitoring and Reporting Program (MRP) in the draft NPDES is woefully deficient in every respect: not frequent enough monitoring, too few monitoring

locations both inside and outside treatment sites, and many essential water quality parameters not sampled.

Attachment E states: a “minimum of one monitoring location must be located in each treatment area that receives an aquatic herbicide, and Rhodamine WT application.” Also, Attachment E requires only one monitoring location in the receiving water between two herbicide treatment areas in the lagoons and allows that one monitoring location to be distant from both treatment areas (see the CMT NPDES Monitoring Map). Even the State Board’s GP, despite its very lax requirements, requires the event monitoring samples be collected “immediately outside of the treatment area.” Because only one monitoring location is required between two herbicide treatment areas, only nine receiving water monitoring locations are required in the lagoons, where there are twelve herbicide treatment areas. There should be three monitoring locations in each herbicide treatment area and, if there is receiving water outside an end of the treatment area, three monitoring locations in the receiving water immediately outside the treatment area. In addition, at least one of these three monitoring locations within the treatment area should be in the application area inside the treatment area. For further remarks, see comment on Attachment C.

The number of samples required is also inadequate. Only one sample is required from each monitoring location for background and event monitoring, and only “two samples from each monitoring location for post-event monitoring events collected no more than seven (7) days apart,” the first one of which is to be collected “within seven (7) days after the application event.” The lack of monitoring on a daily basis is clearly an allowance to exceed permit RWLs for the period of time between samples. This allowance constitutes a “mixing zone” but yet the draft permit does not fulfill any of the mixing zone policy requirements stated in the Basin Plan starting on page 4-2. These requirements are completely inadequate to verify compliance with the Discharge Prohibitions in Section III.B, C, D, E and N. They are also completely inadequate because of the possibility of sampling errors and biases. Post-treatment samples, both inside and outside treatment areas, should be taken at least daily, if not multiple times per day or in “real-time” as stated would be required in the MMRP. As the State Board’s General Permit (GP) states, “The more limited the amount of test data available, the larger the uncertainty.”

The set of parameters to be monitored is also incomplete; sampling of electrical conductivity, toxicity (acute and chronic), total nitrogen, total dissolved solids (TDS) and chlorophyll a (for the algal growth potential WQO) is not required in the draft permit. Sampling of these parameters and all of the WQOs listed in the Basin Plan should be required for verification that beneficial uses are protected. (See specific comment #2.) In a 2016 study, limnological variables such as pH, conductivity, and TDS were shown to impact herbicide performance with lakes that were lower in pH,

TDS, and conductivity exhibiting lower levels of treatment success[2]. The only parameters that the current Order requires be monitored are dissolved oxygen (DO), temperature and pH. Even the State Board's GP for discharges of aquatic pesticides requires sampling of more parameters (e.g., electrical conductivity).

The Basin Plan states: "Project implementation, with its associated control measures and compliance monitoring, must demonstrate compliance with Basin Plan Water Quality objectives, effluent limitations, and receiving water limitations, which must be maintained (a) in the receiving water **at all times during and after the treatment event**, and (b) within the treatment area after completion of the aquatic pesticide treatment event." (Page 4.1-6 of the Basin Plan, emphasis added.) The proposed monitoring plan is insufficient to ensure compliance with this requirement. Event monitoring and post-event monitoring are the minimum monitoring required by the State Board's GP. If this Project were truly a "test" as purported, there would be more monitoring sites and more frequent monitoring than is proposed and monitoring of all of the WQOs in the Basin Plan for Lake Tahoe would be required.

The State Board's GP also states that the MRP must be designed to address two key questions: "Question No. 1: Does the residual algaecides and aquatic herbicides discharge cause an exceedance of receiving water limitations? Question No. 2: Does the discharge of residual algaecides and aquatic herbicides, including active ingredients, inert ingredients, and degradation byproducts, in any combination cause or contribute to an exceedance of the "no toxics in toxic amount" narrative toxicity objective?" Considering that the requested permit is not a general permit, but a specific permit for a first-time discharge of herbicides to an ONRW, this permit should be much more stringent than a permit satisfying the requirements of the State Board's GP. Lahontan staff should at least take note of these questions and determine whether this permit adequately addresses them. We assert that the current draft permit's MRP requires too few monitoring locations, too infrequent sampling, and the sampling of too few parameters to ensure that the above questions can be answered.

The MRP in the draft NPDES Order and the MMRP prescribe apparently conflicting monitoring requirements. Even the MRP in the draft NPDES Order and the antidegradation analysis in Attachment G of the Order prescribe apparently conflicting requirements. Many of the conflicting requirements are not clearly stated, and a confident understanding of what monitoring is actually required is not possible. Of particular note is the "real-time monitoring" that cited numerous times in the DEIR/DEIS as mitigation of significant impacts. Real-time monitoring is claimed to be required in the MMRP, yet it is not actually required because alternative monitoring

[2] Paul Frater, Alison Mikulyuk, Martha Barton, Michelle Nault, Kelly Wagner, Jennifer Hauxwell & Ellen Kujawa (2017) Relationships between water chemistry and herbicide efficacy of Eurasian watermilfoil management in Wisconsin lakes, Lake and Reservoir Management, 33:1, 1-7, DOI: 10.1080/10402381.2016.1235634

options are allowed in sections 2 and 3 the MMRP. It is also not required in the draft permit's MRP[3], but yet is "required" in Attachment G to show that best practicable treatment or control practices were being used.

The draft NPDES also does not address the inevitable mixing of treatment area waters and receiving waters that will occur when boats enter and exit the treatment areas. The concentrations of pollutants subject to WQOs in the receiving waters will be changed by the mixing. Boats will enter and exit when applying the herbicides, monitoring pollutants, and installing and checking aerators. Presumably the entering and exiting would require lowering and raising the turbidity curtains, which would increase the concentrations of pollutants subject to WQOs in the receiving waters. This possibility has not been addressed in the draft permit.

The minimal amount of monitoring required by this draft permit will likely not capture any resulting exceedances, and the exceedances will not be appropriately responded to. Assurances that exceedances will be monitored appropriately require that this draft permit's monitoring requirements be completely revised; the minimum numbers of samples and frequencies of monitoring must be increased, more parameters must be sampled, and **actual** real-time or continuous monitoring must be required as specified in the above comments.

Specific Comments on the Draft WDRs/NPDES Permit and MMRP

1) Section III.A, Discharge Prohibitions, states the following:
   "In accordance with the Region-wide and Unit/Area-specific Prohibitions in section 4.1 of the Water Quality Control Plan for the Lahontan Region (Basin Plan), unless a specific exemption is granted in writing by the Lahontan Water Board, aquatic pesticides are prohibited from the waters of the Lahontan Region. On January XX, 2022, the Lahontan Water Board adopted Resolution No. R6T-2022-XXXX granting an exemption for the discharge of two residual aquatic herbicides to waters of the Tahoe Keys Main Lagoon and Lake Tallac."
   This statement does not prohibit anything. It appears to be in an inappropriate place in the draft permit.

2) Section V states: "Receiving water limitations (RWLs) are a required part of this Order and are based on water quality objectives contained in the Basin Plan." If that is the case, then monitoring of all WQOs listed in the Basin Plan for Lake Tahoe should be required; it is not. The WQOs specific to Lake Tahoe are: algal growth potential, biological indicators, clarity, electrical conductivity, pH, suspended

[3] In fact, Note 4 in Table E-1 of the MRP states: "Grab sample or multi-probe measurements of temperature, pH, turbidity and dissolved oxygen to be taken **as discrete measurements** from the surface, mid-depth, and near bottom within the water column." (Emphasis added) In addition, only two samples are required for post-event monitoring. Therefore, no real-time monitoring is required in the permit.

sediment, transparency, turbidity, total dissolved solids (TDS), chloride, sulfate boron, total nitrogen, total phosphorus, and total iron. The WQOs that apply to all surface water bodies in the Lahontan region are: Ammonia, Coliform Bacteria, Biostimulatory Substances, Chemical Constituents, Total Residual Chlorine, Color, Dissolved Oxygen, Floating Materials, Oil and Grease, Non-degradation of Aquatic Communities and Populations, pH, Radioactivity, Sediment, Settleable Materials, Suspended Materials, Taste and Odor, Temperature, Toxicity, and Turbidity. The draft permit only includes 5 of the 31 constituents on the above two lists. This must be corrected. The monitoring requirements of a permit must be sufficient to determine permit compliance / non-compliance. (*See*, 40 C.F.R. § 122.44(i)(1) (every permit "shall include" monitoring "[t]o assure compliance with the permit limitations"]; *NRDC v. County of L.A.* (9th Cir. 2013) 725 F.3d 1194, 1209 [same].)

3) The receiving water limitations for endothall, triclopyr and rhodamine WT in section V.A.1 are too high; toxic effects are known to occur at levels below these limitations. The levels of these chemicals in the treatment areas and receiving waters outside the turbidity curtains should be measured and reported for compliance purposes based on the method detected limits (MDLs) of these chemicals, not the MCLs. (MDLs are defined as the **minimum measured concentrations of a chemical** which can be reported with 99% confidence as distinguishable from method blank results.)

   The triclopyr RWL of 400 ug/l is based on the USEPA drinking water dietary exposure limit. Triclopyr is toxic to aquatic life at concentrations far lower than the drinking water level, 400 ug/l (0.4 mg/l). As stated by Leslie Touart, PhD[4] with Beyond Pesticides: "*Triclopyr TEA [triethylamine salt] breaks down rapidly to triclopyr acid and TCP [3,5,6-trichloro-2-pyridinol]. The chronic toxicity of **TCP is of serious concern with a demonstrated NOAEC occurring at 0.058 mg a.i./L** for the D. magna 21-day life cycle test.[5] Based on a field dissipation half-life of 7 days, this chronic aquatic invertebrate LOC would potentially be exceeded for greater than 30 days during the test program. Therefore, there is potential for adverse aquatic life*

[4] **Leslie Touart, PhD** is currently Beyond Pesticides' senior science and policy analyst and president of Equiparent Consulting providing consulting services to assist with ecotoxicity test data review, risk assessment, and regulatory compliance. He is a retired senior biologist from the US Environmental Protection Agency. He earned his doctorate in environmental biology and in public policy from George Mason University. He served in the Office of Research and Development performing marine organism toxicity tests and then in the Office of Pesticide Programs performing ecological risk assessments and developing test guidelines from molecular-based in vitro assays to large community-based and ecosystem-level aquatic mesocosms. He spent his last 18 years with the Agency in support of the Endocrine Disruptor Screening Program and oversaw the validation efforts for all the ecological test methods in the program. He was very active internationally with the Organization for Economic Cooperation and Development in test guidelines validation and harmonization. His efforts continue in advancing probabilistic ecological risk assessments, endocrine toxicology and international outreach.

[5] *https://www.regulations.gov/document/EPA-HQ-OPP-2014-0576-0026*

impacts from triclopyr TEA usage in the weed control test program." (Emphasis added) The report cited in footnote #4 also indicates that TCP's chronic toxicity NOAEC (No Observed Adverse Effect Concentration) for early life stage testing of Rainbow Trout was 0.178 mg a.i./L and LOAEC (lowest observed adverse effect concentration) was 0.278 mg a.i./L, **both of which are lower than the drinking water limit used for the receiving water limitations in the permit, 0.4 mg/l**. Therefore, the receiving water limit of 400 ug/l of triclopyr is not protective of toxicity effects and the receiving water limitation for triclopyr in the table should be changed to the Method Detection Limit (MDL). Again, monitoring must be sufficient to determine permit compliance. (*See*, 40 C.F.R. § 122.44(i)(1) (every permit "shall include" monitoring "[t]o assure compliance with the permit limitations"]; *NRDC v. County of L.A.* (9th Cir. 2013) 725 F.3d 1194, 1209 [same].)

4) Section V states: "Within the treatment area, the discharger must demonstrate compliance with receiving water limitations within 21 days after the application event." Compliance with the above-cited requirement in the draft permit appears to be based on two consecutive samples, taken no more than a week apart, that both result in herbicide levels less than the MCLs for drinking water (not just whether it is detected). Compliance is also only based on one sampling location per treatment area. First, a single sample can easily be subjected to sampling bias and/or error. Certainly, considering the lack of attention and responsiveness to addressing the issue of boats going in and out of the treatment area, there should be more than two samples required as well as more sampling locations than just one per treatment area. Second, requiring a second sample only after maximum contaminant or drinking water levels of 100 and 400 ug/l for endothall and triclopyr, respectively, are reached is not protective of beneficial uses (see specific comment 3). Third, the RWLs in the main body of the draft permit require respective instantaneous maximums of 100 ug/l and 400 ug/l for the two herbicides, but Table E-1 states that a composite is required. EPA recommends that instantaneous limits be developed for pollutants that cannot be composited[6].

   Furthermore, later in the draft permit, section III.A. of Attachment E states: "The discharger must demonstrate compliance with receiving water limitations **at all times** outside of the treatment areas." Yet, only one sample is required, and more samples are required only after maximum contaminant or drinking water levels for the herbicides are reached. The additional samples are required only every 7 days until compliance is achieved. Post-event monitoring should be on a daily basis. As stated in the General Comments, but warrants repeating, the lack of monitoring on a daily basis is clearly an allowance to exceed permit RWLs for the period of time between samples. This allowance constitutes a "mixing zone" but yet the draft permit

[6] https://www3.epa.gov/npdes/pubs/final_local_limits_guidance.pdf

does not fulfill any of the mixing zone policy requirements stated in the Basin Plan starting on page 4-2.

Sampling requirements in this draft permit are woefully inadequate for this first-time discharge of herbicides to an Outstanding National Resource Water and even more inadequate for a "test" project. The discharger certainly cannot possibly determine compliance with receiving water limitations "at all times" if monitoring satisfies only these very minimal requirements.

There should be a minimum of 3 samples within the treatment area and 3 in each receiving water area immediately outside a treatment area. The RWLs in Table 4 should be the method detection limits, not drinking water MCLs. The monitored parameters should include all the WQOs listed in specific comment #2 and be tested daily and, for some parameters, continuously as stated would be the case in the DEIR/DEIS.

5) The WQOs listed in section V.A.2 should be included in the monitoring plan, including both total nitrogen and phosphorus (for the Biostimulatory Substances WQO), suspended sediment, toxicity, chlorophyll a (for the Algal Growth Potential WQO), and all other the parameters listed in Basin Plan for the Lahontan Region and specifically for Lake Tahoe (see the list in specific comment #2). Acute and chronic toxicity monitoring should be required for both the treatment area and receiving water monitoring.

6) Section VI.C requires the TKPOA to submit "two APAP amendments" to Lahontan to supplement their April 30, 2021 APAP, which is not called an APAP and is not provided to the public on Lahontan's website. The first amendment, which isn't required until **60 days after** the permit is issued, (anticipated in January 2022), must include the BMP Implementation Plan, the Spill Response Plan, and plans to prevent migration of the herbicides to receiving water, to respond to HABs and exceedances of receiving water limits, to mitigate oxygen demand from dead organic matter, and to minimize sediment disturbances during turbidity curtain and aerator installation and removal. <u>It is incredible that the Water Board plans to proceed with approving this project without having first reviewed the Discharger's final BMP Implementation and Spill Response plans, not to mention not providing these plans to the public.</u> <u>All of these plans and contingency measures should have been submitted to Lahontan with the draft permitting documents in mid-September and made available to the public to allow the public enough time to review them and comment before the November 1, 2021 deadline. This failure to make these plans available for Board review and public comment is unacceptable.</u> (*See*, *Waterkeeper Alliance v. USEPA*, 399 F.3d 486, 503 ["The CAFO Rule deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because the Rule effectively shields the nutrient management plans from public scrutiny and comment. . . . This

scheme violates the Act's public participation requirements in a number of respects. "])

The second amendment, which is required **only 30 days prior to the anticipated herbicide discharge in the spring of 2022**, must include the final map showing treatment areas and the proposed dates of treatment. The failure to make these two APAP amendments available for public review and comment is unacceptable. This permit, including the APAP, should be at least as stringent the State Board's General Permit and should be available to the public early enough to allow for public review and comment during the public comment period. Therefore, the second amendment should be provided to the public a minimum of 90 days prior to the discharge and the public should be allowed to provide comments.

7) The procedure for APAP processing, approval and modifications in Section VI.D does not include public participation, which is unacceptable.

8) Section VII of the draft Permit discusses requirements around the use of lanthanum-modified clay to reduce phosphorus levels and minimize HABs. However, here again, Lahontan has not even received TKPOA's LMCAP, and an LMCAP is required only if TKPOA plans to use lanthanum-modified clay to control HABs. The requirement to provide the LMCAP is tied to the required plan to respond to HAB outbreaks, which is not due until **60 days after** the permit is issued. In addition, the LMCAP would only be used if HABs are visually determined to be present. First, visual inspection for the occurrence of HABs does not reliably determine the presence of HABs[7]. Relying on a visual inspection to determine if a HAB will occur will most likely only result in a responsive action rather than a preemptive action, since visual inspection detects an HAB that is already occurring and does nothing to prevent one. Second, HABs have been occurring every summer at the Keys and are almost certain to occur during the CMT. It is unreasonable and senseless to assume that a bloom will not occur and not have a LMCAP ready for review even by Lahontan prior to adoption of the permit, not to mention review by the public. The LMCAP should have been submitted to Lahontan and been made available to the public together with the APAP. Third, it is unreasonable not to be prepared for a bloom by including daily monitoring for phosphorus and nitrogen levels. Fourth, the draft permit ignores the evidence that herbicide use increases the likelihood of harmful algal blooms, including deadly cyanobacteria (Harris et al, 2016)[8]. The current draft permit completely excludes the public from review of these plans and requires inadequate monitoring to anticipate a HAB, which is unacceptable. Also,

[7] "Confirmation of toxins and toxin levels within a bloom cannot be accomplished by visual inspections so samples must be sent to a lab for analysis." https://hnhu.org/health-topic/blue-green-algae-and-harmful-algal-blooms-habs/

[8] Harris, T.D. & Val H. Smith (2016) Do persistent organic pollutants stimulate cyanobacterial blooms? Inland Waters, 6:2, 124-130, DOI: 10.5268/IW-6.2.887

levels of lanthanum in the sediments of the Keys lagoons should be measured before lanthanum is proposed.

9) Section VIII.C.2.a of the draft Permit requires additional investigations when monitoring shows exceedance of any receiving water limitation. However, the RWLs for herbicide levels, 100 ug/l and 400 ug/l, are too high to prevent harm to aquatic life, as documented in the comment on section V.A.1. Also, the list of RWLs in section V.A.2 is incomplete; some of the RWLs for pollutants with WQOs in the Basin Plan for Lake Tahoe are not included. In addition, the requirement that TKPOA "demonstrate compliance with receiving water limitations outside the treatment areas" cannot be satisfied by the minimal sampling frequencies and minimal numbers of sampling locations proposed in the draft permit.

10) Section VIII.C.3.a. of the draft Permit does not specify that all herbicide discharges must cease if there is an exceedance of RWLs. Instead, the draft permit requires "additional investigations," implementation of appropriate BMPs to correct the residual aquatic herbicide, Rhodamine WT or lanthanum-modified clay-induced receiving water limitation exceedance(s) to achieve compliance with the applicable receiving water limitation(s), and evaluation of "the appropriateness of reduced application rates in treatment areas not yet tested." The draft permit should require that all herbicide discharges be halted until Lahontan is satisfied that the likelihood of further exceedances has been minimized to the extent feasible.

11) Section VIII.C.3.a.i. of the draft Permit requires that active aeration systems be installed within treatment areas if dissolved oxygen concentrations are too low or may become too low. How will aeration systems be installed behind turbidity curtains, presumably requiring lowering and raising the turbidity curtains, without the waters in the treatment area and receiving waters mixing? Boats will also enter and exit when applying the herbicides and monitoring pollutants. This possible mixing has not even been discussed in the draft permit. The mixing must be discussed and BMPs developed to ensure that mixing of treated and untreated waters does not occur.

<u>Treatment Area and Monitoring Location Maps – Attachment C</u>

12) The CMT NPDES Monitoring Map shows the locations of "NPDES Compliance Monitoring (Receiving Water Inside of Barriers)" and "NPDES Compliance Monitoring (Receiving Water Outside of Barriers)" and the locations of turbidity curtains. More turbidity curtains should be installed around the many treatment areas, particularly in the western lagoons where there are nine treatment sites and only 4 curtains. Only one site, Site 14, is surrounded completely by turbidity curtains; three of four curtains in the western lagoons surround this site. The number of monitoring locations referred to as Receiving Water Inside the Barriers (red diamonds on the map) is far too small. Many more monitoring locations should be

required to reduce sampling error and/or bias and to more accurately ensure compliance with the RWLs in the permit. These monitoring locations should be "immediately outside the treatment area," where monitoring is required to be located by the State Board's GP (see comments on the MRP). The requirements of this permit should be at least as stringent as the State Board's GP and should undoubtedly be much more stringent considering (a) this is the first-time discharge of herbicides to this ONRW and (b) this is supposedly a "test".

There should be a minimum of three (3) monitoring locations immediately outside each treatment site in each of the 17 receiving water areas adjacent to the treatment sites. Therefore, there should be a total of 51 (3x17) monitoring locations within the lagoons, 3 in each of the following receiving water areas: immediately south of Site 1, immediately north of Site 2, immediately east and west of site 10, immediately north and south of site 11, immediately west of site 5, immediately northwest and south of site 12, immediately west of site 3, immediately west and north of site 13, immediately south of site 14, immediately north and east of site 15, immediately west of site 8, and immediately west of site 9.

Monitoring and Reporting Plan – Attachment E

13) Attachment E, Monitoring and Reporting Program (MRP), section I.C regarding laboratory certification is inadequate and vague, particularly with respect to quality assurance/quality control. The requirements of section I.C should be at least as stringent as the State Board's GP, which are:
"All laboratory analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health in accordance with California Water Code section 13176. Laboratories that perform sample analyses shall be identified in all monitoring reports. The Discharger shall institute a Quality Assurance-Quality Control Program for any onsite field measurements such as electric conductivity, pH, turbidity, and temperature. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by the State Water Board and the appropriate Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to United States Environmental Protection Agency (U.S. EPA) guidelines or to procedures approved by the State Water Board and the appropriate Regional Water Board."

14) Section II.A.1, 2 and 3 of the MRP refer to "the Discharger's APAP and LMCAP" for specifications on where and when samples are required to be taken. The specifics of the sampling protocols should be specified more clearly and unambiguously in the permit, be consistent with the MMRP Order, and all plans should be provided to the public for review and comment a minimum of 90 days prior to the discharge.

15) Section II.A.1 of the MRP states that background samples must be collected "just prior to (within 7 days in advance of) the application event." What is the justification

for allowing sampling up to 7 days before the application event when the State Board's GP requires that background samples be collected no earlier than "up to 24 hours in advance of" the application event?

16) Section II.A.2 of the MRP requires event monitoring "outside the treatment areas" rather than "immediately outside of the treatment area" as in the State Board's GP. The event monitoring is far too critical to allow the Discharger complete discretion over the monitoring locations. The permit should specify "immediately outside of the treatment area" as the State Board's GP does.

The language in this section also requires event monitoring "samples must be collected at receiving water monitoring locations outside of the treatment areas specified in the Discharger's APAP and LMCAP immediately after the application event, but after sufficient time has elapsed such that treated water could have exited the treatment area." The potential for mixing of treatment area waters and receiving waters due to entering and exiting the curtained-off treatment area is ignored in this permit and in other documents. Additionally, only one treatment area is surrounded by turbidity curtains. There should be monitoring immediately outside the treatment area and immediately after any breach in the curtained treatment area. Furthermore, this monitoring should be daily with at least 3 sampling locations required immediately adjacent to the treatment area for a minimum of 30 days to ensure that the concentrations in receiving waters are in compliance with RWLs a**t all times during and after treatment events as required in Chapter 4 of the Basin Plan**[9]. The RWLs should also be set to the MDLs for the chemicals, not to higher levels, which are not protective of beneficial uses, as stated in the comment on section V.A.1.

17) The post-event monitoring requirements of section II.A.3, that samples be collected "at the treatment area" and at "receiving water locations specified in the Discharger's APAP and LMCAP" within seven (7) days after the application event, are not sufficiently rigorous. First, "at the treatment area" is far too vague and ambiguous. Is the water supposed to be sampled within the treatment area, within the application area inside the treatment area, outside the application area but still within the treatment area, or outside the treatment area? Second, sampling within 7 days of application is far too infrequent. Post-monitoring sampling should be sufficient to accurately determine concentrations of all pollutants with RWLs and all concentrations of herbicides and their breakdown products within the two zones immediately following the event and daily until no residual herbicides are detected in the application area. The current draft permit requires a minimum of two post-event

[9] "Project implementation, with its associated control measures and compliance monitoring, must demonstrate compliance with Basin Plan Water Quality objectives, effluent limitations, and receiving water limitations, which must be maintained (a) in the receiving water at all times during and after the treatment event, and (b) within the treatment area after completion of the aquatic pesticide treatment event." Lahontan Basin Plan, page 4.1-7

samples, which is an insufficient number of samples to ensure that this first ever use of herbicides in Lake Tahoe is not causing pollution that violates WQOs. It is also inadequate to comply with antidegradation regulations.

18) The number of monitoring locations in treatment areas specified in Section II.B of the MRP is very inadequate. The sizes of the treatment areas are about 1.0 to 1.5 acres (about 43,000 to 65,000 square feet). The MRP does not discuss the possible variability in parameter concentrations over such large areas with shapes, complex irregular edges (created by docks in the Tahoe Keys lagoons), depths, wind exposure, etc., similar to the Tahoe Keys lagoons, and how these factors may influence the mixing which reduces variability of concentrations. If there is any information about typical variability, the MRP does not cite it. Studies which attempt to develop general rules for reliably estimating the typical averages and variabilities of concentrations within waterbodies resembling the treatment areas would presumably require repeated sampling at many locations in the waterbodies. Assertions that sampling at one location in such large areas is sufficient to yield sufficiently reliable information about concentrations in the areas defy common sense. Sampling at a single monitoring station in a treatment area yields zero information about the variability of the sampled parameters within the treatment area. Sampling at a single monitoring station also provides no insurance against sampling and analysis errors[10].

    Three monitoring locations are frequently recommended, an attempt to take into account both how much accuracy is needed and sampling and analysis costs. Sampling at three monitoring locations within treatment areas may still be inadequate, but is vastly superior to sampling at a single location. Location factors affecting concentrations in treatment areas may include distances from the sides and ends of the treatment area. It is evident that three sampling locations cannot provide information about the effects of multiple factors or much information about the effects of any single factor, but the chosen sampling locations should not be nearly identical with respect to any of the obvious factors. The current draft permit requires an insufficient number of monitoring locations to ensure that this first ever use of herbicides in Lake Tahoe is not causing pollution that violates WQOs. The number of monitoring locations is also inadequate to comply with antidegradation regulations.

19) Section II.B.2 of the MRP should read “Receiving water monitoring locations must be located immediately outside of the treatment area boundary…” These locations

[10] A sampling error is a statistical error that occurs when a sample does not represent the entire population of data and, therefore, the sample does not represent the results that would be obtained from the entire population. Sampling bias occurs when some members of a population are systematically more likely to be selected in a sample than others. Sampling bias is a threat to external validity – it limits the generalizability of your findings to a broader group of people.

should be specified in this permit. The next sentence should specify six (6) instead of 2 monitoring locations if the treatment area has receiving waters on each side, for the same reason as cited above. The last sentence in this section, which requires only ONE sampling location for receiving waters located between two treatment areas, is far too lenient, considering the requirement in the State Board's GP that monitoring occur **immediately** outside the treatment area and considering the comments made previously on section II.B. Therefore, this sentence should state that six (6) samples be taken in receiving waters located between two treatment areas, three (3) immediately outside each of the two treatment areas that bound the receiving water.

20) Section II.B.4 of the MRP does not specify the timing or frequency of bioassessments or refer the reader to specifications elsewhere in the project documents. Bioassessments should be taken immediately preceding application and within one week after treatment inside and outside the treatment area. Bioassessments should be taken monthly until the bioassessments indicate conditions similar or better than the results taken prior to the herbicide discharge.

21) Section II.B.5 of the MRP should specify a minimum of three (3) surface water monitoring locations and three (3) sediment monitoring locations, for the reasons cited previously.

22) Section III.A states that compliance with the RWLs "will be determined by assessment of the results of the event and post-event monitoring" and that TKPOA "must demonstrate compliance with receiving water limitations at all times outside the treatment areas". However, the minimal number of parameters required to be monitored (not all of the parameters in the Basin Plan are in the permit), the minimal number of monitoring locations, the fact that these locations are not "immediately" outside the treatment area, and the minimal frequency of monitoring (2 samples a maximum of 7 days apart) are all insufficient for <u>determination of compliance "at all times" outside the treatment areas</u>. The permit needs to add the following monitoring requirements:

    a. Additional parameters, including chronic and acute toxicity testing, chlorophyll-a, electrical conductivity, suspended sediment, transparency, total dissolved solids, chloride, sulfate, boron, total nitrogen, total phosphorus, total iron, floating materials, oil and grease, taste and odor.
    b. Three (3) monitoring locations immediately adjacent to each treatment area and on either side of the treatment area if applicable for a total of 51 monitoring locations inside the turbidity curtains and nine (9) outside the turbidity curtains in the lagoons (see the comment on Attachment C for more precise specification of these locations).

c. The permit should require continuous monitoring as stated in the DEIR/DEIS and as required for antidegradation purposes, instead of sampling at intervals of up to 7 days.

23) Table E-1 should include all the parameters cited in the comment on section III.A for the reasons cited there.

24) The monitoring frequencies in Table E-1 are insufficient (see comment on section III.A).

25) Biological monitoring is no less important than other monitoring. Lahontan should have required preparation of a plan for the biological monitoring required by Section IV.A and submission of this plan at the same time as the draft permitting documents. This plan should have specified which protocols in the USEPA National Lake Assessment Field Operations Manual or the State's Surface Water Ambient Monitoring Plan would be implemented. The BMI sampling protocol that would be used is presumably the protocol used in the 2019 Fish and Benthic Macroinvertebrate Surveys in Tahoe Keys Lagoons (assuming this protocol was appropriate). However, the report on the 2019 Surveys is one of the reports of background data that have not been made available to the public, as noted in general comment 3, and should have been made available. The statement of biological monitoring requirements in Section IV.A must be corrected. The biological monitoring plan should have been made available with the other documents for public review and comment.

    The biological monitoring required by Section IV.A is exceedingly insufficient. The bioassessments required by Section IV.A of Attachment E should be performed more frequently than annually and, if results are different from pre-event bioassessment results by the end of year two, then monitoring should continue for more than two years. The claims in the antidegradation analysis that the duration of the project's impacts is limited to "weeks to months, not years" cannot be verified by the minimal amount of bioassessment required by Section IV.A. Bioassessments should be performed during every year of the project, before project activities begin and then monthly during the project season, until restoration of non-target aquatic life and benthic communities within treatment areas has been certified.

26) Section IV.B of Attachment E requires that sediment be sampled only twice in each treatment area: a background sediment sample and a post-event sediment sample "21 days after application or later. This is inconsistent with Footnote 4 following Table E-4, which states "To address variability in sediment quality, a minimum of two samples from each monitoring location for each monitoring event (background, event and post-event) must be analyzed and reported." Which requirement is the correct requirement?? Also, there should at least be a requirement that, if the

parameters listed in Table E-4 are detected, weekly sampling continues until herbicide residuals are no longer detected. The sentence “sediment samples must be collected 21 days after application” should end at that phrase. The meaning of the remaining part of the sentence, “or at a date no later than required to analyze and provide a Sediment Monitoring Report with the two (2) year post-biological monitoring report and certification”, is nebulous and allows uncertainty about when sampling should occur. Also, what is the justification for sampling 21 days after application and requiring only 2 samples for each monitoring event? The sediment should be sampled in all monitoring locations at least weekly until no detectable levels of herbicide or residue are detected. The sediment should be sampled as close to the application date as would provide meaningful data, not up to two years from the application of herbicides, particularly to support claims that no long-term degradation will occur as a result of this project.

27) Section V.C of the MRP states that the annual report must be provided by March 1 of the year after application. Although March 1 is the due date in the State Board’s GP, considering that this required date is almost an entire year after the application event is planned and that the supposed purpose of the herbicide discharge is a “test,” then it certainly seems prudent and appropriate for the Water Board to require interim reports at least on a semi-annual if not quarterly basis.

28) Section V.G.1 of the MRP requires a report be provided orally to Lahontan within 24 hours if “any noncompliance, including any unexpected or unintended effect of a discharge, that may endanger public health or the environment.” A report that contains the eight categories of required information listed in V.G.1.a-h is likely to be far too lengthy and detailed for error-free oral transmission. Written reports should be required. What procedures would Lahontan use to inform the public of the existence of these reports and make them available?

29) Section V.G.2 of the MRP requires a five-day written report that contains more specific information about the noncompliance event that was reported within 24 hours. However, the list of nine requirements of this written 5-day report concludes with the following statement: “Lahontan Water Board staff may waive the above required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. Such a waiver must be provided in writing.”

    This statement should be deleted. Lahontan staff should NOT be allowed to waive any written noncompliance report. There are 16 items of information required in section V.G.1 and 2 and this information should be provided in written form to Lahontan. Furthermore, Lahontan should specify in the permit how it intends to release this information to the public.

30) The summary of reports due in Table E-6 is another example of the lack of transparency. As previously stated, all plans, including the APAP and LMCAP, should be made available to the public within the public comment period. Lahontan Water Board staff should have made the APAP available to the public when they received the draft APAP in April 2021. Allowing the final APAP and LMCAP to be submitted 30 days prior to discharge is completely unacceptable.

Fact Sheet – Attachment F

31) The State Board's GP includes Notification Requirements in Section II of the Fact Sheet, Attachment D. Why does this current draft permit's Fact Sheet not include a section on Notification Requirements? The Fact Sheet should include a description of the permit application, the fee, and the public notification requirement in the Notification Requirements section.

32) Page F-5 states: "The lagoon water treatment and water circulation facilities were built for water quality improvements following construction of the Facility. The lagoon water treatment facility using chemical coagulation and clarification is not currently in operation. The water circulation facility is operational and Lahontan Water Board requirements for its operation are specified in Order No. R6T-2014-0059 issued to the Discharger." What actions were taken by the Water Board previous to Order No. R6T-2014-0059? The history of Lahontan's actions regarding the lagoon waters, which are waters of the state and the U.S., should be included in the Fact Sheet.

33) Section II.A includes the following statement:
"The Discharger has developed, implemented, and continues to refine the NPS Plan to address potential land-based sources of nutrients contributing to aquatic weed infestations and harmful algal bloom outbreaks."
Yet, Tahoe Keys homeowners' yards and TKPOA's grounds surrounding the lagoons are dominated by verdantly lush, green lawns that are no-doubt heavily fertilized. Lahontan has done little through its non-point source programs to control and reduce the discharges from the many acres of green lawns that are directly adjacent to the lagoons.

34) This section further states: "The Discharger has been implementing seasonal harvesting and other mechanical controls since the mid-1980s with limited effect in terms of controlling the aquatic weed infestations." The section continues with a description of how much worse the situation has become since 2014. Later on in this page, F-6, the following statement is made: "In addition, the current primary control method, aquatic weed harvesting, produces large quantities of weed fragments. These fragments are capable of propagating new plants and may be transported by wind, aquatic animals, waterfowl, and boat traffic from the lagoons into other areas of Lake Tahoe." The Fact Sheet acknowledges (eventually) that the weed harvesting

has actually made the problem worse by creating weed fragments that boaters from the Keys distribute around the lake, but it does not discuss why this harvesting was allowed to continue. Boating from the Keys is likely the predominant source of infestations at many locations around the Lake and is obviously the sole source of the Tahoe Keys Complex infestation in the Lake just outside the West Channel. The harvesting should have been eliminated years ago, but these practices were allowed to continue so that Keys boat owners could boat from their backyard boat docks to the lake. This worsening situation is of the TKPOA's own making, all appearing to be designed to leave the Water Board with little choice but to permit herbicide discharges because the problem has become so untenable and out-of-control. The Fact Sheet should be clearer about the historical factors that have led up to the current situation. The Fact Sheet must address the legacy of this 60-year-old development and its 172 acres of largely stagnant artificial Keys lagoons where the build-up of muck and nutrient-laden sediment will continue to be the underlying cause of the invasive weed explosion each year.

35) This section further states:
"TKPOA is currently testing laminar flow aeration and ultraviolet light treatment methods on a limited scale in the Main Lagoon. Due to the size, density, and dominance of the infestation in the Tahoe Keys Lagoons, routinely implemented control methods have produced limited results."
A detailed description of all the past implementations of these control methods and a summary of the results should be added to this section. Why haven't the results been made public? This is a completely unsatisfactory response to the requirement in the Basin Plan that the ineffectiveness of non-chemical methods be demonstrated before herbicides are permitted.

36) The last paragraph of section II.A discusses the bubble curtain at the entrance to the main lagoon but fails to mention that it did not work for 2 critical months during the summer of 2020. The paragraph also does not mention that the floating bins' fragment-capturing performance was so unsatisfactory that the fragments were captured by manual skimming during the summer of 2021. Estimating the effectiveness of the bubble curtains is difficult; the operation of a double bubble curtain in 2021 will improve estimation.

37) Section II.B of the Fact Sheet states that the purpose of the test is comparison of herbicide treatments and combinations of herbicide and non-chemical treatments with non-chemical treatments. The Fact Sheet fails to mention that even in a supposedly experimental situation such as the CMT, the Basin Plan requires that non-chemical methods must be demonstrated to be ineffective <u>before</u> any discharge of herbicides is permitted. Neither Lahontan nor TKPOA has demonstrated this.

38) Page F-8, under section II.B.1, repeats the requirement that the "discharger must demonstrate compliance with receiving water limitation at all times outside of the treatment areas" yet the permit does not include all the WQOs for Lake Tahoe that are used to determine compliance with this requirement. Also, unless the minimal amount of sampling required in this permit is increased to at least the suggested levels in these comments, this requirement will be meaningless.

39) Section II.B.1, under Triclopyr, states that "Aquatic life toxicity endpoints are greater than the drinking water dietary exposure limit and proposed aquatic herbicide treatment concentrations[6]." This is an inaccurate statement. The footnote refers to this document: *Triclopyr (Acid, Choline salt, TEA salt, BEE): Draft Ecological Risk Assessment for Registration Review, September 30, 2019, USEPA, EPA-HQ-OPP-2014-0576-0026*. However, the referenced document states the following:

> "The chronic toxicity of TCP, a major degradate of the four triclopyr active ingredients is similar to that of triclopyr BEE, with the lowest NOAEC occurring at 0.058 mg a.i./L for D. magna."

The referenced document also states that TCP's chronic toxicity NOAEC (No Observed Adverse Effect Concentration) for the 60-d early life state for Rainbow Trout was 0.178 mg a.i./L and LOAEC (lowest observed adverse effect concentration) was 0.278 mg a.i./L. All of the above levels are lower than drinking water limit used for the receiving water limitations in the permit of 0.4 mg/l. Therefore, the statement in the Fact Sheet cited above is inaccurate and should be corrected to note the above citations.

40) Section II.B.2 refers to background levels of lanthanum in water body sediments globally, but provides no data as to the background levels in sediments in the Keys. Levels of lanthanum in the sediments of the Keys lagoons should be measured before discharge of lanthanum-modified clay is proposed.

41) The same section states: "Once lanthanum-modified clay has bound with the phosphate in the water column and any phosphate released from the sediments, it forms the insoluble mineral, rhabdophane. The low solubility product of rhabdophane makes it unlikely under environmental conditions that either the phosphorus or the lanthanum will be released over time." This seems to imply that the discharge of lanthanum will have little to no adverse effects. However, one research document noted that "not much is known about the environmental impacts of lanthanum (III)-containing materials (LM) for containing phosphate in the aquatic environment." This same study indicated that ">70 papers have been published on this topic in the peer-reviewed literature, but mechanisms of phosphate removal by LM as well as potential environmental impacts of LM remain unclear.[11]" This study recommends

[11] Emerging lanthanum (III)-containing materials for phosphate removal from water: A review towards future developments. YueZhi[ab]ChuhuiZhang[b]RuneHjorth[c]AndersBaun[d]Owen W.Duckworth[e]Douglas F.Call[b]Detlef

"additional research dedicated to understanding La release from LM under diverse environmental conditions as well as long-term exposures on ecological organisms, particularly primary producers and benthic organisms. Further, site-specific monitoring could be useful for evaluating potential impacts of LM on both biotic and abiotic systems post-application."

42) Section II.B.2 also refers to the application rate for lanthanum being "calculated based on the amount of phosphorus that is to be removed from the water column…" yet no data on the range of phosphorus levels that are present in the Keys' waters are cited.

43) The documents listed on page F-12 have not been made available to the public. These documents should have been made available during the Draft EIR/EIS phase of this project, but were not.

44) Page F-14, under Antidegradation Policy, states: "The permitted discharge must be consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16." Resolution No. 68-16 states: "the baseline water quality shall be maintained unless poorer water quality is necessary to accommodate important economic or social development **and is considered to be of maximum benefit to the people of the State**." This project benefits only the property owners of TKPOA by facilitating boating from their backyard docks into Lake Tahoe. There are other less toxic, more expedient and less costly ways to prevent weeds from leaving the Keys and spreading throughout the lake, such as a barrier across the west channel, but TKPOA and the agencies have refused to consider this or even examine this as an alternative in the DEIR/DEIS. This permit does not satisfy antidegradation provisions of State Water Board Resolution No. 68-16 and, therefore, should not be approved. See the comments on the antidegradation analysis below.

45) Two statements Pages F-17 and F-18 state: "The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*."" And, "The Basin Plan further states that, to protect all beneficial uses, the Lahontan Water Board may apply limits more stringent than MCLs." This permit, however, has applied RWLs that exceed chronic toxicity levels for triclopyr in D. magna 21-day life cycle test by 700% as previously stated in the comment on section V.A.1 (specific comment #3). How can that be interpreted as compliance with the above narrative objective that all waters must be maintained free of toxic substances? The Water Board should apply limits more stringent than

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R.U.Knappe[b]Jacob L.Jones[f]KharaGrieger[g] Environmental International 145 (2020) 106115
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MCLs, but does not propose to. The Method Detection Limit (MDL), rather than the MCL, should be the RWLs for both endothall (1.79 ug/l) and triclopyr (0.25 ug/l) [12] to satisfy the narrative objective.

46) Page F-28 states: "This Order contains receiving water limitations based on the Basin Plan's numerical and narrative water quality objectives for bio-stimulatory substances, chemical constituents, color, temperature, floating material, settleable substances, suspended material, tastes and odors, and toxicity." This statement is not correct. The Order contains RWLs for only two of these objectives, chemical constituents and temperature. As previously stated, all of these water quality objectives should be included in the sampling plan, but are not. The omission of these water quality objectives must be corrected. The revised monitoring plan must include toxicity testing, both acute and chronic.

47) The rationale for the RWLs for endothall and triclopyr are discussed on page F-29. For instance, page F-29 states that the "400 µg/l triclopyr receiving water limit is based on triclopyr pesticide tolerances, specifically triclopyr dietary exposure from drinking water." Why are the RWLs for these chemicals based on the drinking water levels when these chemicals are supposedly not going to reach the drinking water wells? Why isn't the RWL for triclopyr based on the toxicity levels shown to be **0.058 mg a.i./L** toxicity level for the D. magna 21-day life cycle test[13]?

48) The MRP goals of section VI.A cannot be attained by the minimal monitoring that is currently proposed.

49) Section VI.C on page F-32 lists receiving water monitoring requirements for temperature, pH, turbidity, dissolved oxygen, and chemicals/chemical residues. However, that is not the entire list of water quality objectives in the Basin Plan for Lake Tahoe. The WQOs that apply to all surface water bodies in the Lahontan region are: Ammonia, Coliform Bacteria, Biostimulatory Substances, Chemical Constituents, Total Residual Chlorine, Color, Dissolved Oxygen, Floating Materials, Oil and Grease, Non-degradation of Aquatic Communities and Populations, pH, Radioactivity, Sediment, Settleable Materials, Suspended Materials, Taste and Odor, Temperature, Toxicity, and Turbidity. The WQOs specific to Lake Tahoe are: algal growth potential, biological indicators, clarity, electrical conductivity, pH, suspended sediment, transparency, turbidity, total dissolved solids (TDS), chloride, sulfate boron, total nitrogen, total phosphorus, and total iron. The draft permit only includes 5 of the 31 constituents on the above two lists. This must be corrected.

[12] The required method for detecting endothall under 40 CFR Part 136, Appendix B is Method 548.1. Under Method 548.1, the Method Detection Limit (MDL) for endothall is 1.79 ug/l using the chromatographic/mass spectrometric (GC/MS) method and 0.7 ug/l using the gas chromatograph with a flame ionization detector (FID) method. Triclopyr MDL based on https://pubs.usgs.gov/wri/2000/wri004106/pdf/wrir.00-4106.tab3.pdf.

[13] *https://www.regulations.gov/document/EPA-HQ-OPP-2014-0576-0026*

50) Section VI.D, Other Monitoring Requirements, provides language that is not the basis for what is in the Order, does not explain the basis for the Order. Instead, it contains the language of the Order. Also, as previously stated, it is completely unacceptable to (a) not disclose the APAP and LMCAP to the public, (b) not allow the public to provide comment on these plans, and (c) not even require that they be submitted to the Water Board before proceeding with adoption of this Order.

Attachment G – Antidegradation Analysis

51) Lake Tahoe is an Outstanding National Resource Water (ONRW). USEPA's Antidegradation Policy 40 CFR § 131.12 (a) clearly applies and states:

> **"(1)** Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
> **(2)** Where the quality of the waters exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.
>
> > **(i)** The State may identify waters for the protections described in paragraph (a)(2) of this section on a parameter-by-parameter basis or on a water body-by-water body basis. Where the State identifies waters for antidegradation protection on a water body-by-water body basis, the State shall provide an opportunity for public involvement in any decisions about whether the protections described in paragraph (a)(2) of this section will be afforded to a water body, and the factors considered when making those decisions. Further, the State shall not exclude a water body from the protections described in paragraph (a)(2) of this section solely because water quality does not exceed levels necessary to support all of the uses specified in section 101(a)(2) of the Act.
> > **(ii)** Before allowing any lowering of high water quality, pursuant to paragraph (a)(2) of this section, the State shall find, after an analysis of alternatives, that such a lowering is necessary to accommodate important economic or social development in the area in which the waters are located. The analysis of alternatives shall evaluate a range of practicable alternatives that would prevent or lessen the degradation

associated with the proposed activity. When the analysis of alternatives identifies one or more practicable alternatives, the State shall only find that a lowering is necessary if one such alternative is selected for implementation.

(3) Where high quality waters constitute an **outstanding National resource**, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that **water quality shall be maintained and protected**." (Emphasis added)

USEPA's Water Quality Handbook, Chapter 4, Antidegradation states on page 9:

"In addition, water quality may not be lowered to less than the level necessary to fully protect the "fishable/swimmable" uses and other existing uses. **This provision is intended to provide relief only in a few extraordinary circumstances where the economic and social need for the activity clearly outweighs the benefit of maintaining water quality above that required for "fishable/swimmable" water, and both cannot be achieved. <u>The burden of demonstration on the individual proposing such activity will be very high</u>**. In any case, moreover, the existing use must be maintained and the activity shall not preclude the maintenance of a "fishable/swimmable" level of water quality protection.

The antidegradation review requirements of this provision of the antidegradation policy are triggered by any action that would result in the lowering of water quality in a high-quality water. Such activities as new discharges or expansion of existing facilities would presumably lower water quality and would not be permissible **unless the State conducts a review consistent with the previous paragraph**. In addition, no permit may be issued, without an antidegradation review, to a discharger to high-quality waters with effluent limits greater than actual current loadings if such loadings will cause a lowering of water quality (USEPA, 1989c)." (Emphasis added)

As described further below, the State (Lahontan) has clearly not conducted or presented a review that this "test" is one of those "few extraordinary circumstances where the economic and social need for the activity clearly outweighs the benefit of maintaining water quality above that for "fishable/swimmable" water." In fact, as stated under the General Comments, the very purpose of "testing" aquatic pesticides in this project is to determine whether they should be used annually. **This reasonably foreseeable consequence, alone, should eliminate the option of discharging pesticides to the Keys altogether.** Indeed, the proposed project is nothing like the examples of "short-term" projects set forth by EPA Guidance, which generally include things like minor replacements and repairs. Similarly, the examples cited by the State Water Board APU 90-004 that would permit a "simple" anti-degradation analysis do not apply here ("e.g., confined to the mixing zone," "e.g., will

cease after a storm event is over," or "minor increase in the volume of discharge subject to secondary treatment.")

The clear intent of the short-term nature of the exceptions allowed under the federal antidegradation regulations are upended by this supposed "test" because Lahontan provides no evidence to support the short-term nature of the impacts. On the one hand, Lahontan appears to believe that water quality will not be degraded by the use of herbicides given Lahontan's claims of not needing to perform a full antidegradation analysis due to the short-term nature ("weeks to months, not years") of the impacts. However, in reality, Lahontan doesn't really know what the long-term impacts are, which is clear by their question posed to the Tahoe Science Advisory Council: "*Will implementing the proposed monitoring plan provide sufficient data and analyses to assess whether non-target biological communities (including macroinvertebrates, macrophyte, and fish populations) have fully recovered/restored following pesticide application?*" The primary method to determine adequacy (not whether the species will recover, but whether the monitoring will indicate recovery) is based on **long-term annual monitoring, on the order of years, not months**; e.g., annual benthic macroinvertebrate and macrophyte evaluations are proposed for 3 years, and beyond (5 years if indices do not show recovery) based on the Discharger's Revised Monitoring and Reporting Plan, June 14, 2021. Therefore, Lahontan appears to acknowledge that long-term impacts are indeed possible. Yet, the antidegradation "analysis" provided in the draft permit entirely assumes only short-term impacts without providing any evidence to support this claim (chemical half-lives do not prove long-term impacts will not occur).

State Board's Antidegradation Policy established in Resolution No. 68-16 clearly applies to this draft Order as well. The findings necessary to allow degradation under the Policy are stated in Asociacion de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Bd. (2012) 210 Cal.App.4th 1255, 1278-1279, citing (State Bd., Guidance Mem. (Feb. 16, 1995) p. 2.):

> "When the state's antidegradation policy is triggered, as here, Resolution No. 68-16 provides that the Regional Board is authorized to allow the discharge of waste into high quality waters **only if it makes specified findings**. The State Board has described these findings as a two-step process. "The first step is if a discharge will degrade high quality water, the discharge may be allowed if any change in water quality (1) will be consistent with maximum benefit to the people of the State, (2) will not unreasonably affect present and anticipated beneficial use of such water, and (3) will not result in water quality less than that prescribed in state policies (e.g. water quality objectives in Water Quality Control Plans). The second step is that any activities that result in discharges to such high quality waters are required to use the best practicable treatment or control of the discharge necessary to avoid a pollution or nuisance and to maintain the highest

water quality consistent with the maximum benefit to the people of the State." (Emphasis added)

Maximum benefit to the people of the State

The State Board's guidance memorandum defines the term "maximum benefit to the people of the State" as follows: "Before a discharge to high quality water may be allowed, it must be demonstrated that any change in water quality 'will be consistent with the maximum benefit to the people of the state.' This determination is made on a case-by-case basis and is based on considerations of reasonableness under the circumstances at the site. Even assuming that instream beneficial uses will be maintained and protected, it must be demonstrated, under the second part of the federal antidegradation policy, that any reduction in water quality is "necessary to accommodate important economic or social development." 40 C.F.R. §131.12(a)(2).'

The antidegradation analysis in the draft permit claims that the water quality degradation will be to the maximum benefit of the people because the discharge of pesticides will (1) "improve water quality and beneficial use attainment through reduction of aquatic invasive and nuisance plants," (2) protect greater Lake Tahoe from the proliferation of invasive weed infestations from the Keys and that this "may save taxpayers from future costs associated with control of these species," (3) inform resource managers conducting similar projects at the Lake, and (4) protect the "Outstanding Features of the ONRW" that are threatened by the infestations, citing protection of a "$5 billion recreation-based economy" that will be preserved.

However, the draft permitting documents do not provide evidence for these claims. Everywhere in the country where aquatic herbicides are used to control aquatic weeds require repeated application, thereby rendering these waters permanently degraded, not improved upon. The evidence that water quality and beneficial use attainment will be improved has not been presented. This evidence cannot be presented because discharge of these pesticides violates two of the water quality objectives in Lahontan's Basin Plan, Toxicity and Chemical Constituents; Lahontan is not proposing exemptions for these water quality objectives. The protection of greater Lake Tahoe from the proliferation of these weeds can more easily and efficiently be accomplished, saving taxpayers far more, by closing off the Keys with a barrier in the West Channel, an alternative that Lahontan and the Discharger refused to analyze when the Sierra Club and others proposed it during the scoping phase.

The evidence that this project will save a $5 billion recreation-based economy has not been presented and most likely cannot be presented since the Keys are private boat docks in the backyards of homeowner's houses, 85% of whom don't even live at the Lake. Boating is a small proportion of the overall recreation economy in Lake Tahoe. Boating from the private backyards of the Keys homeowners is an even smaller proportion of that recreational economy pertaining to just boating. Of all the

recreational boating at the Lake, the Keys is a very small part. The burden is on Lahontan to provide evidence to the contrary and they have not done that.

Even if evidence is presented regarding the percentage of support to the greater Lake Tahoe economy from the Keys' private boating community, demonstration that this discharge is to the maximum benefit to the people cannot be made because these private homeowners (85% of whom are second homeowners) are not the majority of people at the Lake, and certainly not the majority of people who visit the Lake from the entire country and from around the world. The group of people that will have the maximum benefit from this project are the private homeowners at the Keys. As someone who even has a boat docked at the Keys stated: "Why is a real estate development (the Keys) being put above the protection of Lake Tahoe? The convenience of boating from your home should not damage the entire lake. These weeds will never be "under control" to continue this privilege."

Lahontan's (and TRPA's) long-term strategy appears quite clear from these statements in Attachment G: "This may save taxpayers from future costs associated with the control of these species." And, "Inform private, state, and federal aquatic resource managers conducting similar aquatic invasive species control projects on Lake Tahoe." Lahontan clearly intends to make aquatic herbicide use an on-going long-term use not just at the Keys, but throughout Lake Tahoe. This "test" project is clearly just a foot-in-the-door to allowing on-going use even though that would clearly, then, violate antidegradation regulations by the very nature of its on-going treatments. The antidegradation "analysis" is entirely too perfunctory, does not provide a factual basis for its analysis and is wholly inadequate.

Beneficial Uses and Water Quality

Requirements (2) and (3) in the first step of the 2-step process cited in the State Board's Guidance Memo are also not satisfied. Lahontan has not provided evidence that "present and anticipated beneficial use" will not be unreasonably affected. In fact, they basically admit that the possibility exists. Lahontan also fails to provide evidence that the project "will not result in water quality less than that prescribed in state policies (e.g. water quality objectives in Water Quality Control Plans)." In fact, as previously stated, the very act of discharging aquatic herbicides violates at least two water quality objectives (toxicity and chemical constituents) that Lahontan has not provided exemptions for. Furthermore, the draft permit allows essentially a "mixing zone" but does not fulfill any of the mixing zone policy requirements in the Basin Plan.

Best Practicable Treatment or Control

The second step is that any activities that result in discharges to such high quality waters are required to use the best practicable treatment or control of the discharge necessary to avoid a pollution or nuisance and to maintain the highest water quality

consistent with the maximum benefit to the people of the State. As stated throughout these comments, the monitoring required in the draft permit is entirely inadequate to claim an avoidance of pollution or nuisance and to maintain the highest water quality.

Socioeconomic and Public Benefits

State Board's Guidance Memo, February 16, 1995, further states the following:

> "Factors to be considered include (1) past, present, and probable beneficial uses of the water (specified in Water Quality Control Plans); (2) economic and social costs, tangible and intangible, of the proposed discharge compared to the benefits, (3) environmental aspects of the proposed discharge; and (4) the implementation of feasible alternative treatment or control methods. With reference to economic costs, both costs to the discharger and the affected public must be considered. "Cost savings to the discharger, standing alone, absent a demonstration of how these savings are necessary to accommodate 'important social and economic development' are not adequate justification" for allowing degradation. See SWRCB Order No. WQ 86-17, at 22, n. 10. With respect to social costs, consideration must be given to whether a lower water quality can be abated through reasonable means."

The draft permit does not provide any economic impact analysis or provide any evidence of the economic or social costs of the proposed discharge compared to the benefits. Lahontan clearly has not considered "whether a lower water quality can be abated through reasonable means" because it has not fully evaluated non-chemical methods such as LFA and UV light and found them to be ineffective and infeasible, as required by the Basin Plan. Furthermore, with respect to the environmental aspects of the proposed discharge of herbicides, the DEIR/DEIS concluded that testing non-chemical methods is the environmentally superior alternative project. Even if maintaining navigation from private boat docks in the Keys lagoons by using herbicides were important to social and economic development, any cost savings from herbicide use would not be necessary to accommodate it. The State Board has stated: "Cost savings alone, absent any demonstration as to how these cost savings are necessary to accommodate important social and economic development, are not a sufficient basis for determining consistency with the federal antidegradation policy. (State Board Order No. WQ 86-17, at 22, n. 10)

Lahontan has also not provided an economic analysis considering the costs of **other means to protect Lake Tahoe** from the Keys' unnatural waterways which will continue to provide ideal growing conditions for invasive weeds which boating from the Keys is spreading around Lake Tahoe. Clearly the most cost-efficient and environmentally beneficial method of protecting greater Lake Tahoe waters from the invasive weeds spread from the Keys would be to block off the lagoon's West Channel from the Lake, which the Sierra Club and others proposed during the scoping phase of the project. The request to analyze this alternative was ignored

and it was not analyzed in the DEIR/DEIS. Lahontan's draft permit and supporting documents lack the evidence necessary to support the proposed degradation of an ONRW, where "water quality shall be maintained and protected."

Furthermore, the monitoring in the NPDES permit is so deficient that it cannot be used to determine whether or not the requirement in Resolution 68-16 that beneficial uses will be protected is satisfied. Because the draft permit does not include adequate monitoring, as stated throughout this comment letter, Lahontan will not be able to accurately detect degradation in water quality resulting from the discharge and will be unable to make any substantiated finding that allowing the degradation is consistent with maximum benefit to the people of the State.

Comments on the MMRP

52) Impact Issue EH-2 in Table ES-1 of the DEIR/DEIS is "Detectable Concentrations of Herbicides and Degradants in Receiving Waters"., The MMRP asserts that this impact will be mitigated by a Spill Prevention and Response Plan that will be submitted for review by Lahontan at a later date. The public should be granted ample opportunity to comment on this plan (at least 30 days); this draft permit does not make provision for public review and comment.

Any detectable concentration of Herbicides and Degradants (i.e., the very act of discharge) violates the Toxicity and Chemical Constituents water quality objectives and therefore are significant and unavoidable impacts. Significant and unavoidable impacts require statements of overriding considerations. The DEIR/DEIS did not contain statements of overriding considerations.

Furthermore, because the discharge of herbicides violates the Toxicity and Chemical Constituents WQOs, constituent-specific exemptions to waste discharge prohibitions 1 and 2 in the Basin Plan, Chapter 4.1-1 are required[14]. As stated in the Staff Report and Substitute Environmental Documentation for the 2011 Basin Plan amendment: "When an exemption to the prohibition on pesticide use in water is granted, pesticides are discharged into water and additional water quality objectives, such as those listed above [including Toxicity and Chemical Constituents], may be exceeded. Consequently, the Water Board may also need to grant the pesticide discharger constituent-specific exemptions to waste discharge prohibitions 1 and 2 (Basin Plan, Chapter 4.1-1)." The permitting documents released on September 15, 2021 do not include exemptions to these waste discharge prohibitions for violation of water

[14] Basin Plan, page 4.1-7 states: "Project implementation, with its associated control measures and compliance monitoring, must demonstrate compliance with Basin Plan Water Quality objectives, effluent limitations, and receiving water limitations, which must be maintained (a) in the receiving water at all times during and after the treatment event, and (b) within the treatment area after completion of the aquatic pesticide treatment event. (Exemptions to the prohibition on violating narrative or numeric water quality objectives may be granted for specific water quality objectives….)"

quality objectives. The MMRP must explain the detailed reasons why no constituent-specific exemptions to waste discharge prohibitions 1 and 2 have been included.

53) Impact Issue EH-3 in Table ES-1 of the DEIR/DEIS is "Protection of Drinking Water Supplies." The MMRP states this impact will be partially mitigated by mitigation EH-3b, use of Rhodamine WT dye as a tracer for herbicides and contingency plans that include shutting off the wells and distributing bottled drinking water to all users if herbicides are detected. The contingency plans have not been made available to the public for review and comment. In addition, all mitigation must be feasible and fully enforceable, and all feasible mitigation must be imposed by lead agencies. (CEQA Guidelines, § 15041.) Implementation of this mitigation would require a very large effort, which may not be feasible. The applicant should be required to demonstrate feasibility. Also, this measure will not mitigate the effects on skin from showering in water tainted with herbicides. "If any suggested mitigation is found to be infeasible, the lead agency must explain why and support that determination with substantial evidence, presented in their findings and a statement of overriding considerations. (CEQA Guidelines, §§ 15091 and 15093.)" (AEP, CEQA Portal)

54) Impact Issue EH-3 in Table ES-1 of the DEIR/DEIS is "Protection of Drinking Water Supplies". Mitigation EH-3d, "West Channel Monitoring and contingencies", specifies the responses to detections of herbicides in receiving waters outside turbidity curtain barriers and to detections in the Main Lagoon within 500 feet of the West Channel. However, because monitoring in receiving waters is required only every 48 hours, there are significant risks of herbicides not being detected in the lengthy intervals between sampling. Herbicides would be monitored in the Main Lagoon only if monitoring in receiving waters detects herbicides, and then only every seven days. Hence there is an obvious risk of herbicides in the Main Lagoon not being detected. The adequacy of such infrequent monitoring must be justified. Daily monitoring should be required.

This infrequent monitoring is another example of the inadequate monitoring requirements in the NPDES permit and the MMRP. Monitoring for a project that is testing control methods which the applicant plans to apply on a much larger scale in a Tier III ONRW and the adequacy of mitigations for impacts of these methods should be much more intensive.

Also, why is Figure 1 in the MMRP so much different than Attachment C in the draft permit? There should be consistency between all monitoring required and there definitely no consistency between the two draft Orders or even within the draft NPDES Order.

55) Mitigation EH-3g states that double turbidity curtain barriers would be installed to confine the herbicide applications and ensure that herbicide residues and chemical transformation products do not migrate toward the West Channel connecting the

West Lagoon to Lake Tahoe. Boats will enter and exit the curtained-off areas to apply herbicides and perform monitoring and other tasks. There is no discussion in EH-3g or elsewhere in the permit of how mixing of waters inside and outside the curtained-off areas when boats enter and exit will be prevented. Mitigations for this mixing must be specified.

Monitoring of aluminum during and after installation and removal of the turbidity curtains should be required because aluminum is extremely toxic to aquatic organisms. The curtains, which are weighted on the bottom, will undoubtedly stir up the muck on the bottoms of the lagoons, which contains high concentrations of aluminum. The high concentrations exist because large quantities of aluminum sulfate (alum) were dumped into the lagoons during the building of the Keys to settle out the fine sediments in the water.

Also, turbidity curtains notoriously fail to completely prevent mixing of waters behind the curtains with waters outside the curtains, particularly if there are stormwater outlets behind the curtains. Stormwater inflows typically exert high enough pressure on the curtains to overwhelm them and allow mixing. Therefore, the permit should require more frequent (daily) receiving water monitoring adjacent to the curtains not just when they are installed and removed, but while they are installed. The more frequent monitoring should include testing for aluminum.

56) Impact Issue EH-4 in Table ES-1 of the DEIR/DEIS is “Introduction of Toxic Substances into the Environment.” The MMRP states that this impact will be mitigated by the Spill Prevention and Response Plan. The comments above regarding the lack of a 30-day public comment period and the lack of constituent-specific exemptions apply to this mitigation measure as well.

Furthermore, the DEIR/DEIS states in EH-4 that "the herbicides proposed for testing would not have acute or chronic toxicity to fish or invertebrates, and even minimal dilution would prevent concentrations from exceeding drinking water criteria at drinking water intakes (see EH-3)." <u>This statement is not accurate</u>. As previously stated, chronic toxicity effects on D. magna are noted from concentrations below the RWLs in this draft permit, which are based on USEPA drinking water standards. This statement ignores these toxicity results. The MMRP does not provide any meaningful, effective measures to mitigate this significant impact.

Section 7.0 of the MMRP requires that spills be reported in the Annual Report, which is due on March 1, nearly one year after the treatment. Spills should be reported during the implementation season. In addition, any spills or exceedances should be publicly noticed and the details of and responses to the spill or exceedance be made available for public review.

57) Impact Issue EH-5 in Table ES-1 of the DEIR/DEIS is “Short-term Increases in Aluminum Concentrations.” The MMRP states that “Turbidity would be monitored to ensure that sediment disturbance and the consequent potential for mobilization of aluminum into the water column is minimized.” If the impact to be mitigated is short-term increases in aluminum concentrations, simultaneous monitoring of aluminum should obviously be required. The adequacy of mitigations for increases in aluminum concentrations can be determined only if aluminum is monitored. Aluminum monitoring should also be required because aluminum is extremely toxic to aquatic organisms, as previously noted. The MMRP also states “Implementation of BMPs would be tied to real-time monitoring of turbidity during project activities having the potential to disturb sediments, with BMPs triggered by exceedances of permit turbidity limits.” (Emphasis added) What BMPs would be implemented if turbidity maximums are reached? There are no specific BMPs for mitigating turbidity exceedances in the draft permit, the MMRP, and TKPOA’s application and APAP.

Section 2.0 of the MMRP, “Turbidity Monitoring”, contains inconsistencies. The first paragraph of Section 2.0 of the MMRP states that turbidity monitoring will be done in conjunction with herbicide application, installation of turbidity curtains, installation of Laminar Flow Aeration (LFA) or other aeration devices, in the use of lanthanum modified clay, and the installation and removal of bottom barriers,” but does not include any specification of the monitoring, except for the installation and removal of turbidity curtains. Section 2.1 of the MMRP specifies that turbidity monitoring “during the installation and removal of turbidity curtains” be done by “either a calibrated hand-held turbidity field meter, real-time continuous data logger, or visually from the immediate area,” thereby voiding the requirement of “real-time” monitoring, and goes on to require “grab samples” and “visual monitoring.”

58) Similarly, section 3.0 of the MMRP, “Water Quality Parameters,” contains inconsistencies. Table ES-1 refers to “real-time monitoring” for DO, temperature and pH in numerous locations. However, section 3.0 states “If continuous data loggers are **not used**, monitoring and measurements will be done 3 days each week (typically Monday, Wednesday, Friday).” The DEIR/DEIS references “real-time monitoring” for either pH, DO or temperature 31 times. The mitigation measure was clear in the DEIR/DEIS that real-time monitoring would be employed. The MMRP should be revised to reflect this requirement and the MRP in the NPDES should be consistent with the MMRP.

59) Impact Issue WQ-2 in Table ES-1 of the DEIR/DEIS is “Sediment Disturbance and Turbidity”. The comments on mitigation of turbidity-curtain related impacts by mitigation EH-3g also apply to the mitigations of this impact.

60) Issue WQ-5 in Table ES-1 of the DEIR/DEIS is “Changes in Dissolved Oxygen Concentrations.” Mitigation WQ-5b specifies that deployment of aeration would

occur in these circumstances if real-time DO monitoring indicated the need: (1) after herbicide or UV-light treatment; (2) after plant dieback from herbicide or UV-light treatment; (3) if DO does not meet permit requirements. The requirements for DO monitoring in section 3.0 of the MMRP are inconsistent. The first paragraph states that monitoring "by using a calibrated continuous water quality data logging device, or other hand-held multiparameter meter" is required. The second paragraph contradicts this requirement, stating detailed monitoring procedures to be followed "if continuous data loggers are not used". Inconsistent specifications of permitted monitoring methods should be resolved by requiring the use of the monitoring method or methods that collect more complete data.

61) The mitigation for WQ-6 and WQ-7 should be daily monitoring of TP and TN during the test. Impact Issues WQ-6 and WQ-7 in Table ES-1 of the DEIR/DEIS are "Increases in Total Phosphorus Concentrations" and "Increases in Lagoon Water Total Nitrogen Concentrations," respectively. Decaying aquatic plants killed by the treatments release phosphorus and nitrogen to the water column. The only mitigation required by the MMRP is early timing of the test to minimize the biomass of decaying vegetation. The draft permit requires monitoring of TP only if lanthanum-modified clay is discharged to reduce phosphorus after "visual inspection of a treated area indicates a possible HAB." The draft permit does not require monitoring of TN. The mitigation for WQ-6 and WQ-7 should include daily monitoring of TP and TN during the test in order to anticipate a HAB before it occurs.

Impact Issue EH-6 in Table ES-1 of the DEIR/DEIS is "Harmful Algal Blooms (HABs)". HABs would be mitigated by early timing of the test, aeration, and the use of lanthanum-modified clay. The use of lanthanum-modified clay, however, is only contingent upon "visual inspection of a treated area indicates a possible HAB." Visual inspection for the occurrence of HABs does not reliably determine the presence of HABs[15]. The use of aeration for mitigation is inadequate because it does not address the rapid addition of nutrients from the dead weeds to the water column. This pulse of nutrients will promote the rapid development of HABs, including deadly cyanobacteria.

The MMRP and the DEIR/DEIS has ignored the cyanobacteria-related risks from herbicide use, including: (a) cyanobacteria become resistant to herbicides where their use is prevalent (Narusaka et al. 1998), (b) Cyanobacteria have a higher tolerance to herbicides than other phytoplankton, therefore their abundance will increase with herbicide use (Powell et al. 1991, Forlani et al. 2008, Perez et al. 2011, Pannard et al 2009), (c) Cyanobacteria's use of nutrients bound to herbicides

[15] "Confirmation of toxins and toxin levels within a bloom cannot be accomplished by visual inspections so samples must be sent to a lab for analysis." https://hnhu.org/health-topic/blue-green-algae-and-harmful-algal-blooms-habs/

stimulate their growth (Bai et al. 2014), and (d) The presence of herbicides in elevated water temperatures increases cyanobacteria growth (Berard et al, 1999)[16].

62) AQU-1, "Effects on Non-Target Aquatic Macrophyte Species" in the MMRP relies on spring macrophyte surveys as mitigation for potentially significant impacts and states that "Spring macrophyte surveys would be used as a basis to adjust testing site boundaries to better target dense beds of target species and avoid native plant communities." The survey report should be made available for public review. It appears that adjustments of testing site boundaries and the benefits of adjustment are likely to be limited. The results of the surveys should be available to the public.

63) Mitigations of Aquatic Biology and Ecology Impacts AQU-2 through AQU-9 in the DEIR/DEIS are not included in the Summary Table or mentioned in the MMRP, although Table 5-1 of the DEIR/DEIS states that all of these impacts have "No significant unavoidable effects after mitigation." (Emphasis added)

64) The DEIR/DEIS also identified "potential direct and indirect effects to the benthic macroinvertebrate community" (AQU-5), but minimized the impacts because of the temporary and localized nature of the treatment and stated "no mitigation is required." Monitoring of the potential direct and indirect effects to the benthic macroinvertebrate community should be required. The bases for this requirement are (a) the "paucity of data" with regard to effects of pesticides on benthic macroinvertebrates according to one study[17], and (b) a study reporting that "pesticides were potentially toxic to nontarget aquatic life in about half of the sampled streams."[18] Monitoring for a project that is testing control methods which the applicant plans to apply on a much larger scale in a future project in this Tier III ONRW should include intensive monitoring of these effects.

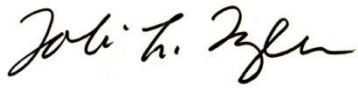
65) Section 6.0 of the MMRP state that "Examples of monitoring data that could indicate a condition requiring notification of the Water Board include… Rhodamine WT dye testing triggers an analysis for pesticide sampling." This appears to indicate that pesticide sampling will not occur unless the dye is detected assumably through visual monitoring. Again, the monitoring in the Attachment E of the draft permit and the MMRP is inconsistent and unclear. Monitoring of herbicides and its degradants must be monitored as indicated throughout these comments.

[16] All citations are referenced in the Sierra Club comments on the DEIR/DEIS, September 3, 2020

[17] *Chronic Pesticide Toxicity to Macroinvertebrate Benthos in Lake and Stream Sediment*; J Bagdon, E Hesketh - 2015 - researchgate.net

[18] *Complex mixtures of dissolved pesticides show potential aquatic toxicity in a synoptic study of Midwestern U.S. streams*. https://www.sciencedirect.com/science/article/abs/pii/S0048969717315735?via%3Dihub

Thank you for your consideration of these comments. If you have any questions, please feel free to contact me.



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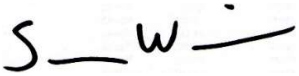

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