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Submitted electronically to DEQWPBPublicComments@mt.gov & jkenning@mt.gov

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Water Protection Bureau
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Re: Comments Opposing Proposed Terms for Renewal of MPDES Permit No. MT0022641, the City of Helena's WWTP, PN #MT-21-16

Dear Mr. Kenning & Department Staff:

Upper Missouri Waterkeeper submits this comment letter in response to the Department's proposed renewal of a discharge permit for the City of Helena's WWTP (hereinafter the "Permit"). For the reasons discussed below DEQ cannot lawfully renew the permit as-proposed, and we request that DEQ withdraw the Permit and conduct the requisite pollution control and degradation analyses, including incorporating applicable numeric nutrient criteria, before offering this discharge permit again for public comment and decisionmaking.

About Us

Upper Missouri Waterkeeper (hereinafter "Waterkeeper") is a non-profit, membership-based 501(c)3 advocacy organization dedicated to protecting and improving fishable, swimmable, drinkable water and healthy rivers throughout the 25,000 sq. miles of Southwest and West-Central Montana's Upper Missouri River Basin. This river basin includes more than a dozen urban, suburban, and rural watersheds, including Prickly Pear Creek and the larger Lake Helena watershed where the proposed permit would authorize pollution.

Our supporters live, work, or recreate in dozens of waterways across the Basin, including Prickly Pear Creek and Lake Helena. Members enjoy recreating in Lake Helena, value the natural amenities provided by Prickly Pear Creek, and have a strong interest in sound governance and responsible decisionmaking. Our members are expressly supportive of Waterkeeper's advocacy demanding government accountability and thoughtful, science-based decisionmaking by public officials that protects local water resources and complies with federal and state law, and are concerned by decisions – such as the proposed permit renewal - that fail to apply mandatory science-based pollution control criteria and the negative effects that weak or irresponsible pollution permit decisions incite on local water resources in the Lake Helena watershed.

I. The Lake Helena Watershed and Prickly Pear Creek Are Chronically Challenged by Nutrient Pollution

A. Nutrient Pollution

EPA and Montana have long understood that nitrogen and phosphorus pollutants ("nutrients") in lakes, rivers, and streams cause serious water quality problems. Nutrient pollution feeds algal blooms that choke waterways, deplete oxygen for fish and aquatic organisms, and change the balance of ecosystems. At its worst, nutrient pollution can result in toxic or hazardous algal blooms, which can sicken humans and animals, negatively affect property values, and contaminate drinking water sources, which can drastically increase treatment costs and subsequently increase consumer utility bills. According to EPA the primary sources of nutrient pollution to our waters are fertilizer, manure, sewage discharges, detergents, stormwater, cars and power plants, failing septic systems, and pet waste. Montana DEQ has ranked nutrients as top 5 pollutants of concern leading to impairment of Montana's surface waters in several recent Integrated Reports.

Nutrient pollution has diverse and far-reaching effects on the economy, impacting many sectors that depend on clean water. In Montana, the outdoors-based economy - arguably the largest single GDP contributor in the state estimated at more than 4 billion annually - is directly reliant upon clean water and healthy rivers because of the aesthetic qualities and trophy fisheries that such water resources create.

Recognizing the negative effects and increasing threat that nutrient pollution and noxious algal blooms pose to Montana's surface waters, in July 2014 DEQ adopted protective water quality standards for nutrients in DEQ Circular 12-A. Based upon a large body of scientific work, 12-A sets stringent numeric criteria for phosphorus and nitrogen to protect all designated uses such as health, fishing, and recreation, in most waters of Western Montana, including Prickly Pear Creek. These phosphorus and nitrogen concentrations are tied to Montana's ecoregional approach, with the water quality criteria calling for total instream phosphorus and nitrogen concentrations in surface waters of the Prickly Pear Creek to not exceed .03 mg/L and .3 mg/L respectively.

These and related regulatory criteria and are meant to ensure a precautionary approach to water pollution control such that no degradation of surface or ground water resources occurs, as required by Montana's Nondegradation Policy under 75-5-301 MCA, the federal Clean Water Act, and as envisioned by Montana's constitutional guarantee of a "clean and healthful environment" under Article II, Section 3 and Article IX, Section 1. When DEQ fails to be anticipatory and exercise its discretion to require best available science, fails to perform a hard look at the propensity of proposed discharges to exacerbate degradation in receiving waters, and fails to incorporate lawful pollution limits that better protect receiving waters from degradation all as described below, DEQ runs afoul of its duties under the CWA, the MWQA, and the Montana Constitution's guarantee of a 'clean and healthful' environment.

B. Receiving water Prickly Pear Creek and downstream Lake Helena suffer from nutrient impairment and possess TMDLs, and Prickly Pear Creek remains on DEQ's 2020 Integrated Report

Permit renewal documents do not contest the legal and practical reality that receiving waters (Prickly Pear Creek and downgradient Lake Helena) are impaired for several pollutants of concern and possess binding TMDLs. Prickly Pear Cr remains on DEQ's 2020 Integrated Report as impaired for several pollutants of concern that are discharged by the Permit. Furthermore, the Fact Sheet demonstrates that ambient receiving waterway concentrations of several pollutants of concern, including especially nutrients, already exceed water quality standards. Similarly, the Fact Sheet demonstrates that several parameters in proposed discharges are, based on their concentrations and volume relative to receiving water, likely to violate water quality standards. Despite these realities the Permit fails to adequately assess the degradation potential of nutrient discharges, proposes arbitrary mixing zones for toxic parameters, and fails to impose best available science-based limits on metals of concern.

II. The proposed permit does not satisfy mandatory requirements to ensure discharges do not cause or contribute to violations of water quality standards, and does not satisfy DEQ's anticipatory and preventative duties to exercise its authority to protect a 'clean and healthful environment.'

A. Legal Framework

The Clean Water Act, 33 U.S.C. §§ 1251–1387, "is a cornerstone of the federal effort to protect the environment." *Waterkeeper Alliance, Inc. v. U.S.Envtl. Prot. Agency*, 399 F.3d 486, 490 (2d Cir. 2005). Congress passed the Act with the goal of not just reducing, but eliminating, all water pollution. Id. (*citing* 33 U.S.C. § 1251(a)(1)). To achieve this goal, the CWA prohibits the "discharge of any pollutant" from a point source—"any discernible, confined and discrete conveyance"—to navigable waters "except in compliance with law." 33 U.S.C. §§ 1311, 1362. Discharges of polluted water from vessel ballast tanks are "point source" discharges subject to the CWA's general prohibition. *See Nw. Envtl. Advocates v. U.S. E.P.A.*, 537 F.3d 1006, 1021 (9th Cir. 2008).

The main way to achieve compliance with the CWA's general pollutant discharge prohibition is by obtaining an NPDES permit. 33 U.S.C §§ 1311(a), 1342. Every NPDES permit must establish "effluent limitations" for the pollutants being discharged. *Waterkeeper Alliance*, 399 F.3d at 491 (*citing S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 102 (2004)). Technology-based effluent limitations ("TBELs") are based on "a series of increasingly stringent technology-based standards," depending on the type of pollutant being discharged. *NRDC v. U.S. E.P.A.*, 822 F.2d 104, 123–24 (D.C. Cir. 1987); *see also Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 219–21 (2009). The most stringent technology-based standard is known as "best available technology economically achievable" ("BAT"), which requires "implementation of pollution controls to the full extent of the best technology which would become available." *NRDC v. U.S. E.P.A.*, 822 F.2d at 123–24.

The CWA's technology-based standards are designed to be "technology- forcing." *See NRDC v. U.S. E.P.A.*, 822 F.2d at 123 ("[T]he most salient characteristic of this statutory scheme, articulated time and again by its architects and embedded in the statutory language, is that it is technology-forcing."). In *NRDC v. U.S. E.P.A.*, the D.C. Circuit emphasized that the CWA seeks "not only to stimulate but to press development of new, more efficient and effective technologies," which is the "essential purpose of this series of progressively more demanding technology-based standards." *Id*. Underscoring this point, the Supreme Court has explained that "Congress wished to mandate the greatest feasible reduction in water pollution" with the BAT standard because the "plain language" of the CWA "requires the EPA to set 'effluent limitations [which] shall require the elimination of discharges of all pollutants if the Administrator finds . . . that such elimination is technologically and economically achievable[.]'" *Entergy Corp*., 556 U.S. at 219 (quoting 33 U.S.C. § 1311(b)(2)(A)).

If the TBELs in an NPDES permit are not sufficient to meet established water quality standards, permits must also contain water quality-based effluent limitations ("WQBELs") to ensure compliance with water quality standards. *See* 33 U.S.C. §§ 1311(b)(1)(C), 1342(a)(2). EPA "is under a specific obligation to require that level of effluent control which is needed to implement existing water quality standards without regard to the limits of practicability." S. Rep. No. 92-414, at 43 (1971). Because WQBELs are set irrespective of costs and technology availability, they further the technology-forcing policy of the CWA. *See NRDC v. U.S. E.P.A.*, 859 F.2d 156, 208 (D.C. Cir. 1987) ("A technology-based standard discards its fundamental premise when it ignores the limits inherent in the technology. By contrast, a water quality-based permit limit begins with the premise that a certain level of water quality will be maintained, come what may, and places upon the permittee the responsibility for realizing that goal."); *see also Riverkeeper, Inc. v. U.S. E.P.A.*, 475 F.3d 83, 108 (2d Cir. 2007) (Sotomayor, J.) (referencing the Act's "technology-forcing imperative"), rev'd sub nom by Entergy Corp, 556 U.S. 208.

WQBELs must be set at a level that achieves water quality standards developed by the states for waters within their boundaries. See 33 U.S.C. § 1313(a)(3), (c)(2)(a); 40 C.F.R. Part 131; *PUD No. 1 of Jefferson Cnty. v. Wash. Dept. of Ecology*, 511 U.S. 700, 704–707 (1994). Such standards consist of designated uses for waters and water quality criteria (both numeric and narrative) necessary to protect those uses. 33 U.S.C. § 1313(c)(2)(a); 40 C.F.R. §§ 131.10– .11. Under the CWA's "antidegradation policy," state standards must also protect existing uses of waters and prevent their further degradation. 40 C.F.R. § 131.12. EPA must approve each state's standards. *See* 33 U.S.C. § 1313(a)(3). Even where a state has not established numeric criteria for a particular pollutant, NPDES permits must still ensure compliance with designated uses, anti-degradation policy, and applicable narrative water quality criteria impacted by that pollutant.

EPA's regulations mirror the statutory requirement for WQBELs. 40 C.F.R. § 122.44(d). NPDES effluent limitations must control all pollutants that are or may be discharged at a level "which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i). WQBELs in NPDES permits must be "derived from" all applicable water quality standards. 40 C.F.R. § 122.44(d)(1)(vii). WQBELs are typically expressed numerically, but when "numeric effluent limitations are infeasible," a permit may instead require "[b]est management practices (BMPs) to control or abate the discharge of pollutants." 40 C.F.R. §

122.44(k)(3). However, "[n]o permit may be issued: . . . [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." 40 C.F.R. § 122.4(d).

When EPA or states establish WQBELs, they must translate applicable water quality standards into permit limitations. *See Trustees for Alaska v. U.S. E.P.A.*, 749 F.2d 549, 556–57 (9th Cir. 1984) (holding that a permit must do more than merely incorporate state water quality standards—it must translate state water quality standards into the end-of-pipe effluent limitations necessary to achieve those standards). As the D.C. Circuit put it, "the rubber hits the road when the state-created standards are used as the basis for specific effluent limitations in NPDES permits." *American Paper Inst., Inc. v. U.S. E.P.A*, 996 F.2d 346, 350 (D.C. Cir. 1993). Although numeric criteria are easier to translate into a permit limitation, permit writers must also translate state narrative standards. See id.

EPA has explained that a WQBEL is "[a]n effluent limitation determined by selecting the most stringent of the effluent limits calculated using all applicable water quality criteria (e.g., aquatic life, human health, wildlife, translation of narrative criteria) for a specific point source to a specific receiving water." EPA, NPDES Permit Writers' Manual, Appendix A at A-17 (Sept. 2010).

DEQ's water quality MPDES permit program is subject to federal requirements and limitations under the CWA. *See* 33 U.S.C. § 1251, *et seq.* The Montana Water Quality Act, which houses DEQ's MPDES permit program, requires strict conformance to the federal CWA and EPA's regulations, and policy and guidance must inform Montana's decisionmaking concerning water pollution controls. *N. Cheyenne Tribe v. Mont. Dep't of Envtl. Quality*, 2010 MT 111, ¶ 39, 356 Mont. 296, 234 P.3d 51; *see also* 40 C.F.R. § 123.25(a). DEQ may not make MPDES permit decisions that violate requirements of the CWA.

B. The Permit's nutrient WQBEL analyses are fatally flawed

The implementation of WQBELs in MPDES permits relies directly upon DEQ's adherence to and application of water quality standards. Upon EPA approval, a state's standards take effect and, conversely, standards are ineffective as a matter of law unless and until they are approved by EPA. 33 U.S.C. § 1313(c). In July 2014, DEQ published water quality standards for nutrients in DEQ Circulars 12-A. Based upon a large body of scientific work, including extensive work and guidance from EPA's nutrient guidance, Circular 12-A sets numeric criteria for phosphorus and nitrogen as specified in MCA § 75-5-103(2), to protect all designated uses such as fishing, health, and recreation, in most waters of Western Montana. EPA approved Montana's numeric nutrient criteria in DEQ Circular 12-A in February 2015, finding that such criteria are necessary to protect the designated uses of Montana's wadeable streams and certain additional waters.

Circular 12-A's numeric nutrient standards include pollutant concentration limits, geographical areas where the standards apply, and the period od application (i.e., seasonality)/. The limits on phosphorus and nitrogen pollutants are tied to Montana's ecoregional characteristics, and the resulting water quality criteria for total in-stream phosphorus concentrations ranging from 25 to

150 micrograms per liter, and total nitrogen concentrations ranging from 250 to 1300 micrograms per liter.

i. DEQ may not apply rules or make decisions that violate federal water pollution control law under the Clean Water Act

DEQ documentation in support of the proposed Helena WWTP permit renewal fail to apply Montana's numeric nutrient criteria in its WQBEL analysis. Instead of applying appropriate ecoregional numeric nutrient criteria the Fact Sheet applies narrative standards prohibiting, generally, discharges that will create conditions producing undesirable aquatic life. This failure to apply the EPA-approved numeric nutrient criteria is arbitrary, capricious, and violates DEQ's mandatory duty to faithfully apply requirements of the CWA. Unless and until EPA approves the removal or amendment of Circular 12-A criteria, those criteria are binding in permit decisions and must be applied by DEQ in this Permit renewal.

ii. Proposed discharges are likely to degrade Prickly Pear Creek and contribute nutrient pollution in harmful concentrations and quantities to downstream Lake Helena, impairing the ability of these waters to attain beneficial uses

The Permit renewal and Fact Sheet appear to rely both on narrative nutrient standard and on the existence of a Lake Helena Planning Area TMDL and applicable WLAs for Prickly Pear Creek. Commenters do not contest the validity of incorporating the assumptions underpinning WLAs into MPDES permits, but do contest DEQ's failure to provide the requisite analysis and an affirmative demonstration pursuant to 40 CFR 122.44 that the proposed nutrient discharges from the WWTP will not cause or contribute to violations of water quality standards in Prickly Pear Creek and, if as we assert that WWTP discharges cause or contribute to such violations, we contest DEQ's failure to impose effluent limits necessary to prevent such violations. Effluent limits based upon an analysis under 40 CFR 122.44 can be more stringent than and when necessary to protect designated uses, subsume, less stringent assumptions underpinning an applicable WLA. We also contest the lawfulness of DEQ's failure to implement its numeric nutrient criteria in performing the nutrient WQBELs.

Case in point is the exhaustive scientific record found in the Lake Helena Planning Area TMDLs and the Fact Sheet's own data showing that receiving water quality upstream of the Permit is near natural, background concentrations for nutrients. Yet the Permit allows the same volume and concentrations of nutrients as has been authorized since the 2012 Permit iteration, there is no required improvement in the quality of nutrient effluent discharges to protect impaired, receiving waterway health and quality, and there is no discussion or analysis explaining how these terms will ensure that the facility's discharges will not cause, contribute to, or exacerbate ongoing nutrient-based impairment in Prickly Pear Creek (which remains on DEQ's 2020 Integrated Report) or downstream Lake Helena, and is also nutrient impaired. The fact that an ongoing nutrient credit trading program exists between the WWTP and case-by-case subdivisions and septic polluters is irrelevant to the inquiry of whether, per 40 CFR 122.44, the WWTP requires more stringent nutrient effluent limits to protect receiving water quality and downstream beneficial uses. Here, DEQ failed to perform such an analysis.

The Fact Sheet, Table 7, indicates DEQ did not perform a reasonable potential analysis for total nitrogen or total phosphorus despite the fact that receiving waters are impaired for these pollutants; this failure is unlawful and undermines the validity of the Permit's proposed nutrient effluent limits. The same table also illustrates that DEQ is applying human health criteria for nitrate in drinking water instead of applying numeric nutrient criteria to assess the facilities' propensity to discharge nutrient pollution that compromises the ability of receiving waters to attain designated uses.

The Fact Sheet appears to indicate that DEQ's approach to WQBELs for nutrients starts and ends at the Lake Helena TMDLs and simple recitation of the narrative nutrient criteria. However, the fact that a TMDL calculation has been performed for a waterbody in the past does not authorize DEQ to ignore more recent information about water quality in that waterbody when it analyzes the sufficiency of a polluter's permit conditions during the permit renewal process. DEQ cannot, consistent with regulations of the CWA, rely solely upon the existence of a 2006 TMDL and its assignment of a maximum allocation for nutrient pollution to Prickly Pear Creek when setting permit limits. Instead, DEQ must make a determination that the allocation is sufficiently stringent to ensure that the discharge will not impermissibly contribute to an ongoing water quality violation.

Under Section 301(b)(1)(C) of the CWA and EPA's regulations, it is mandatory for DEQ to include a WQBEL that is more stringent than the WLA if necessary to achieve water quality standards. 33 USC § 1313(b)(1)(C); 40 CFR § 122.44. EPA's regulations state that "[e]ach NPDES permit shall include…any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards…necessary to [a]chieve water quality standards." *Id.* The regulations also state that effluent limitations "must control all pollutants…which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." *Id.* § 122.44(d)(1)(i).

Accordingly, DEQ must incorporate into the Permit – above and beyond TBELs – a WQBEL that is stringent enough to reduce the water quality impairment and help achieve the applicable water quality standards for the waterbody. The WLA established for the facility during the nutrient TMDL process serves as the starting point for determining the stringency of WQBELs during the permitting process. 40 CFR §§ 122.44(d), 130.7(a). The WLA establishes the maximum amount of pollution that can be discharged by a particular facility, but the WQBEL in the facility's permit may be more stringent when needed to protect water quality and should hasten achievement of compliance with water quality standards. *Id.* § 130.2(f), (h), (i).

EPA's regulations are not ambiguous—the overriding question for the permitting authority in setting an effluent limitation is whether water quality standards will be met. The State may not simply authorize a discharge up to the level of a pollutant allocated in a TMDL. This is especially important where the TMDL is more than five years old, relies heavily on uncertain predictions about future water quality and pollutant loading conditions, and where DEQ has available expert numeric nutrient criteria. DEQ must analyze whether the discharge will contribute to a violation of water quality standards under conditions existing at the time of each permit reissuance and with best available data.

Here, to determine whether a more stringent WQBEL is necessary to achieve the necessary nutrient reductions, DEQ must conduct an RPA nutrient analysis and such analysis must use the lawfully binding criteria – the numeric nutrient criteria under Circular 12-A. "When developing water quality based effluent limits" at each permit reissuance, EPA regulations provide that DEQ "shall ensure that:…[t]he level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards." 40 CFR § 122.44(d)(1)(vii)(A). In other words, the benchmark for the adequacy of WQBELs is whether they are sufficiently stringent to help achieve water quality standards, not whether they are identical to WLAs set in a TMDL. As noted by EPA's Environmental Appeals Board:

> While the governing regulations require consistency, they do not require that the permit limitations that will finally be adopted in a final NPDES permit be identical to any of the WLAs that may be provided in a TMDL. . . . TMDLs are by definition maximum limits; permit-specific limits like those at hand, which are more conservative than the TMDL maxima, are not inconsistent with those maxima, or the WLA upon which they are based.

In re: City of Moscow, Idaho, 10 E.A.D. 135, 148, 2001 WL 988721 (EPA Envtl. Appeals Bd. 2001) (emphasis in original).

This approach makes sense because water quality standards are the centerpiece of the Clean Water Act's water quality-based protection scheme. The wasteload allocations are only one of several mechanisms that can help achieve water quality standards— consideration of other mechanisms, such as more stringent limits in NPDES permits, are especially important when those WLAs are based on assumptions of pollutant loading that are nearly 20 years old and when better science concerning the impacts of a facilities' nutrient pollution on local water quality is available. Moreover, DEQ's 2018 TMDL Implementation Evaluation of the Lake Helena Planning Area TMDL specifically recognized that point source nutrient discharge reductions are necessary to help achieve even TMDL goals, including facility upgrades and optimization. Yet DEQ's permit renewal here fails to even mention, much less analyze, the facilities' primary role in degrading Prickly Pear Creek for nutrient impairment and contributing to Lake Helena's ongoing nutrient impairment, and fails to require effluent limits adequate to address these pollution contributions.

In fact, the water quality-based effluent limits imposed through the NPDES permitting program are another, perhaps even more critical, mechanism for achieving standards. TMDLs can appropriately be used by permitting agencies as a justification for tightening effluent limits and for holding them constant once water quality standards have been achieved through full TMDL implementation. When, however, as in this case, water quality standards are not being met, a maximum WLA that allows the status quo of impairment to continue cannot be used to short circuit the water quality-based effluent limits analysis required at each permit reissuance. To hold otherwise would undermine the Act's primary objective to "restore and maintain" water quality. 33 U.S.C. § 1251(a). In other words, permit WQBELs must be set at limits that move a waterbody closer to attainment of standards—not farther away.

In sum, DEQ should have applied its numeric nutrient criteria and made the finding that reasonable potential exists for nitrogen and phosphorus discharges to harm receiving water and violate water quality standards. The failure to do so was arbitrary, capricious, and unlawful. Likewise, DEQ's failure to perform a WQBEL analysis for nitrogen and phosphorus, and failure to recognize the WWTP's reasonable potential to violate nutrient water quality standards, is arbitrary, capricious, and unlawful. DEQ must correct these failures and perform the requisite analyses, and incorporate the results of its findings, in terms of revised effluent limits for nitrogen and phosphorus pollution discharges from the WWTP.

C. The proposed alternative mixing zone for ammonia s unlawful and will impair designated uses of Prickly Pear Creek

ARM 17.30.506(1) requires that a mixing zone will not be granted if it would threaten or impair existing beneficial uses. Further, before any mixing zone is allowed, the permittee must provide analysis to determine whether a mixing zone will be allowed or the conditions which should be applied. An alternative or "source specific" mixing zone must comply with ARM 17.30.518, and must include demonstrations proving compliance with the requirements of ARM 17.30.506, 507, and MCA 75-5-303.

Here, the Fact Sheet states that the Helena WWTP does not qualify for a standard mixing zone under ARM 17.30.516(3) due to the lack of an effluent diffuser and the flow of the receiving water compared to the discharge. DEQ then proposes to grant the WWTP an alternative or source-specific mixing zone for ammonia, despite the fact that the applicant did not perform or provide a mixing zone study for ammonia. Furthermore, the Fact Sheet is devoid of any analysis under ARM 17.30.506, 507, or articulating how the proposed mixing zone would comply with 75-5-303 MCA.

Ammonia is a common cause of fish kills.[1] However, the most common problems associated with ammonia relate to elevated concentrations affecting fish growth, gill condition, organ weights and hematocrit (Milne et al. 2000). Exposure duration and frequency strongly influence the severity of effects (Milne et al. 2000). In most fish, ammonia is excreted by passive diffusion of ammonia across the gills according to its partial pressure gradient (Wilson et al. 1998). Disruption of this gradient causes internal ammonia concentrations to increase, affecting internal organs, nervous system function, and respiration. Salmonids tend to be particularly sensitive in acute exposures associated with episodic sources. Early life stages of fish are more sensitive than juveniles or adults. Hence, effects are more likely to occur during seasons when early life stages are present.

Ammonia in sediments typically results from bacterial decomposition of organic matter that accumulates in sediment. Sediment microbiota mineralize organic nitrogen or (less commonly) produce ammonia by dissimilatory nitrate reduction. Ammonia is especially prevalent in anoxic sediments because nitrification (the oxidation of ammonia to nitrite [NO_2^-] and nitrate [NO_3^-]) is inhibited. Ammonia generated in sediment may be toxic to benthic or surface water biota (Lapota et al. 2000).

[1] EPA, "Ammonia", citations made herein available online at: https://www.epa.gov/caddis-vol2/ammonia

Ammonia also exerts a biochemical oxygen demand on receiving waters (referred to as nitrogenous biological oxygen demand or NBOD). This occurs because dissolved oxygen is consumed as bacteria and other microbes oxidize ammonia into nitrite and nitrate. The resulting dissolved oxygen reductions can decrease species diversity and even cause fish kills. Additionally, ammonia can lead to heavy plant growth (eutrophication) due to its nutrient properties. Algae and macrophytes take up ammonia, thereby reducing aqueous concentrations, but inciting potential noxious aquatic plant growth.

Based upon the record presented by DEQ no mixing zone for ammonia should be allowed in this permit renewal. The applicant did not provide any of the necessary analysis or documentation allowing DEQ to consider allowing a source-specific, alternative mixing zone. DEQ's proposed alternative mixing zone violates the plain language of its own rules because DEQ cannot, on its own initiative and without factual and scientific evidence and analysis, allow an alternative mixing zone that does not affirmatively demonstrate compliance with ARM 17.30.506, 507, and MCA 75-5-303.

Relatedly, no explanation or analysis accompanies the proposed alternative mixing zone for ammonia, rendering it arbitrary and capricious to the extent that DEQ has failed to demonstrate why it will not threaten or impair existing beneficial uses. Indeed, even should the propose mixing zone overcome the procedural errors listed above (which render the proposed mixing zone void and unlawful), DEQ has not adequately explained how the proposed mixing zone for a toxic parameter is appropriate for the discharge and Prickly Pear Creek under MCA 75-5-301(4), ARM 17.30.518(4). These considerations are particularly germane for ammonia mixing zones, which is a toxic pollutant capable of seriously degrading water quality conditions for aquatic life and fisheries in particular, and because ammonia can exacerbate the growth of noxious algal and synergistically degrade water with other nutrient pollutants, and because DEQ's own analysis indicates that both chronic and acute ammonia criteria will be consistently exceeded by the facility.

D. The permit fails to require terms adequate to control copper and zinc discharges to ensure those discharges do not cause or contribute to violations of water quality standards

We are concerned that DEQ's Fact Sheet provides the basis for more stringent effluent limits for Copper and Zinc, but arbitrarily proposes to retain old, weaker effluent limits and to require the permittee to develop a mixing zone study, in essence pushing the permittee to examine "dilution as the solution to pollution" instead of imposing the appropriate, science-based effluent limits and imposing a compliance plan. DEQ's proposed approach is counterintuitive as a policy matter under the MWQA and CWA, whose mutual goals are the reduction and ultimate elimination of pollutant discharges, and is also an abuse of discretion.

DEQ's Fact Sheet provides an evidentiary basis for requiring more stringent effluent limits per the discussion in Section E: Proposed WQBELs. New water quality data indicates that copper should have 13.1 and 5.8 µg/L as compared to the old, 2012 limits of 12 and 9, respectively. So too should zinc limits be 113 and 85 µg/L as compared to old, 2012 limits of 110 and 110. DEQ cannot authorize the permittee to discharge zinc and copper in volumes that would violate its

own best available science and, by its own admission, result in ongoing violations of water quality standards. Instead, DEQ must impose the new, more stringent effluent limits for copper and zinc and exercise its discretion to impose a compliance plan laying out a timetable and suite of activities that the permittee must undertake to come into compliance, thus satisfying its duty to "ensure" discharges will not violate 40 CFR § 122.44.

The proposed permit's weakening of monitoring requirements

We are concerned by the proposal to remove monitoring requirements for temperature, dissolved oxygen, and total dissolved solids. These pollutants are both traditional parameters for wastewater monitoring and helpful in accurately characterizing effluent and impacts on receiving water quality. In particular, temperature and dissolved oxygen are helpful parameters for best understanding the WWTP's propensity to cause or contribute to eutrophication degradation and in terms of effluent's impacts on aquatic life, particularly salmonids and aquatic life standards. In fact, because DO and temperature are both synergistically related to eutrophication issues and protection of aquatic life, both of which are impairments in Prickly Pear Creek, it is inappropriate to remove these monitoring requirements on the basis of the potential to exceed these criteria alone.

Similarly, TDS monitoring is helpful to understanding the water balance in the cells of aquatic organisms. Higher concentrations of suspended solids can serve as carriers of toxics, which readily cling to suspended particles. This is particularly a concern where pesticides are being used on irrigated crops, such as within the Prickly Pear Creek subwatershed. Where solids are high, pesticide concentrations may increase well beyond those of the original application as the irrigation water travels down irrigation ditches. Higher levels of solids can also clog irrigation devices and might become so high that irrigated plant roots will lose water rather than gain it. A high concentration of total solids will make drinking water unpalatable and might have an adverse effect on people who are not used to drinking such water. Levels of total solids that are too high or too low can also reduce the efficiency of wastewater treatment plants, as well as the operation of industrial processes that use raw water. Total solids also affect water clarity. Higher solids decrease the passage of light through water, thereby slowing photosynthesis by aquatic plants. Water will heat up more rapidly and hold more heat; this, in turn, might adversely affect aquatic life that has adapted to a lower temperature regime.

To be proactive in assessing the potential for discharges to create a nuisance or render waters harmful DEQ must first have representative data to inform such a determination. DEQ cannot make an informed finding as to whether discharges create harmful conditions in receiving waters, much less affirmatively determine instream exceedances of criteria or standards, if it does not first require appropriate pollutant monitoring. We therefore strongly urge DEQ to retain all its monitoring requirements for DO, TDS, and temperature.

Conclusion

Thank you for the opportunity to submit comments to the Department and share our concerns that the proposed discharge permit would degrade local water quality. We look forward to the Department's response.

Respectfully submitted-

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