PROTECT OUR WATER
JACKSON HOLE

Teton County Water Quality Master Plan Comments

Public Review Period Comments by Protect Our Water Jackson Hole
Submitted: Thursday, January 18, 2024

Protect Our Water Jackson Hole (POWJH) appreciates the opportunity to provide comments on the Draft Water Quality Master Plan (WQMP). We recognize and appreciate the tremendous amount of work that has gone into the plan on the part of Trihydro, Teton County, the Town of Jackson, Teton Conservation District, and numerous stakeholders. We respectfully offer these comments to improve the quality of the Draft WQMP, correct what we believe are some technical errors, and lay a foundation for future work to implement the WQMP and to protect and restore Teton County's groundwater and surface water.

We provide comments in a format that matches the structure of the WQMP. We have attempted to provide concise and specific comments. We also draw focus to the comments that we view as most important and some that can be most easily implemented.

We also retained the services of Lorenzo Guidolin of Cleantech Consulting LLC to assess the Draft WQMP and Appendix C-2, with a focus on the capacity of the Town of Jackson Wastewater Treatment Plant. Mr. Guidolin has a Master of Science in Materials Science and Engineering from UCLA and nearly 20 years of experience with the water and wastewater treatment industry. This includes experience with GE, a Fortune 100 company.

POWJH offers the following comments on the Draft Water Quality Master Plan. Please click on the Table of Contents to view the comments associated with the general comments, draft report, and appendices)

General Areas

As a 20-year plan, the WQMP still requires a long-term vision. POWJH believes the following areas should be strengthened. Trihydro has recommended several potential water quality actions, but the Teton County Board of County Commissioners must provide the unifying thread of a strong commitment to protect and restore our community's water. The Plan should explicitly state that the County Commission needs to determine a level of protection its constituents require as the blueprint for action. For example, suppose the County Commission wants to seek the strongest level of protection for water protection in vulnerable areas. In that case, that can change the prioritization of mitigation measures and next steps. While there are many positive recommendations, the following still need to be addressed:

1. **Government Cooperation and Funding**: Although Trihydro recommends formalizing a sewer connection program, the County should consider options with the Town of Jackson relating to economies of scale and once-in-a-generation funding opportunities for water and wastewater infrastructure projects available through 2026.

2. **Wastewater Treatment Plants**: Trihydro indicates further analysis is needed. However, this lack of evaluation does not address the primary purpose of the WQMP, which is to improve water quality. We recognize that the Town of Jackson's Wastewater Treatment Plant (WWTP) operates at a level that consistently outperforms the permit requirements. However, setting a "gold standard" for the plant's effluent water quality is important because there is no permit limit on Ammonia (which is toxic to fish and other aquatic organisms at levels below 1 ppm), and increased flow to the plant will undoubtedly increase seasonal nutrient loading in the Snake River. Furthermore, due to sludge accumulation, the WWTP primary treatment lagoons have lost significant treatment capacity. Trihydro also does not address the inability of lagoon systems to reduce effluent nutrients year-round. In addition, an assessment of connecting the Wilson sewer district and other west bank homes to the Aspens/Pines WWTP should be a higher priority.

3. **Small Wastewater Facilities**: Performance standards for new small wastewater facilities must be fine-tuned to ensure an adequate protective standard. In addition, while we applaud the recommendation of advanced septic treatment systems, a targeted goal of sewer connections in Water Quality Protection Overlay Areas would be a better long-term solution.

4. **Impaired waterways**: The Water Quality Protection Overlay modeling did not adequately account for already impaired waterways. Although Fish Creek is impaired, Trihydro did not recommend adequate sewer connections along Fish Creek and its drainage (i.e., tributaries and inflows from nearby properties). No further degradation should be allowed. Allowing new septic systems, even advanced ones, will continue to degrade Fish Creek. In addition, multi-unit and commercial septic systems should not be permitted.

5. **Wetlands:** With the uncertainty of federal jurisdiction over wetlands in light of recent Supreme Court rulings, Teton County should amend its rules to define wetlands broadly and require protections in key wetland areas.

6. **Riparian Buffers**: Riparian areas need to be protected and enhanced along all waterways and sensitive areas, such as ponds (decorative or not), agricultural runoff systems, keeping cattle out of wetlands, and riparian buffers that have developed due to the long history of irrigation. Such protections may be key to protecting and restoring Fish Creek and Flat Creek.

WQMP Draft Report

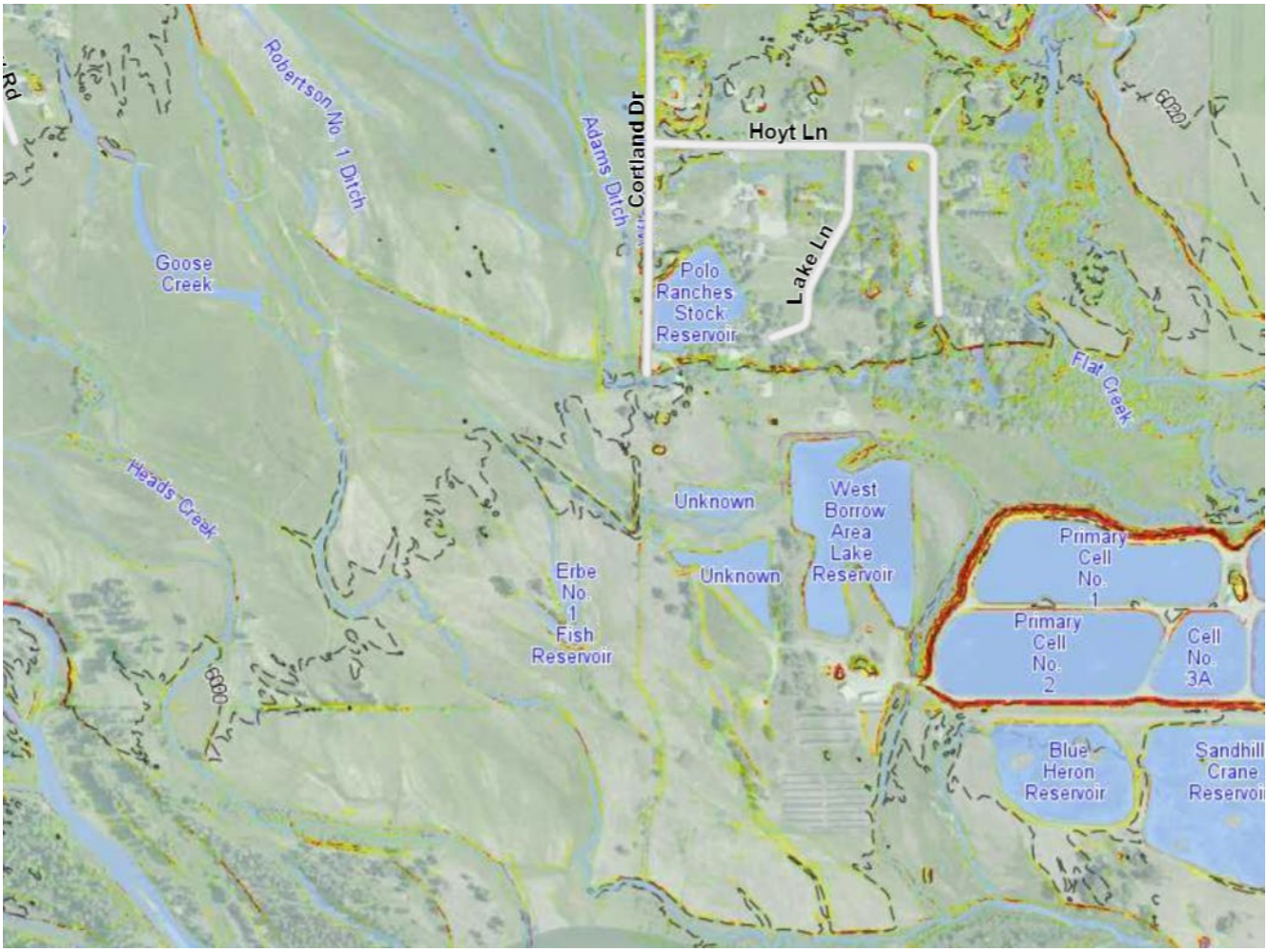
- Page i: The second paragraph of the introduction should mention and briefly describe/quantify the value of Teton County's recreation and tourism-based economy.
- Page i- Last sentence: the word "prevention" seems out of place. Prevention of what? Does Trihydro mean to say "protection efforts"?
- Page 1-1, "Teton County, Wyoming is a growing community with exceptional water resources. Please add the following text: "… facing significant water quality challenges." This addition makes the statement more balanced.
- Page 2-3: Update with actual public comment period dates.
- Page 3-2: The following text correction should be made to reference the correct statutory provision of the Clean Water Act : "Integrated 303(d) and 305(b)..."
- Page 3-2: The following text correction should be made: Continuous discharge, water temperature, specific conductivity, pH, and dissolved oxygen are collected from the Snake River at Moose and Below Flat Creek. (aka "swinging bridge": https://waterdata.usgs.gov/monitoring-location/13018750/#parameterCode=00065&period=P7D&showMedian=true)
- Page 3-3: POWJH began monitoring for enumerated *E. coli* and source tracking for fecal indicator bacteria on Fish Creek in May 2023. With the help of the Teton Conservation District, we launched this DEQ-backed program to inform public notifications from Teton County Public Health and submit data to inform official designated use status. Monitoring will continue in 2024.
- Page 3-3: Section 3.6 should include a statement qualifying PFAS/PFOAS as ubiquitous in the environment as they come from cookware, waterproof outdoor gear, building supplies, and other materials throughout the county.
- Page 3-3: Section 3.7 should be reorganized alphabetically.
    - Change the description of POWJH: Protect Our Water Jackson Hole (POWJH) serves all Teton County residents as a tenacious advocate for restoring and protecting our surface waters and groundwater. In addition to kickstarting the WQMP, POWJH works with community partners and local, state, and federal government/agencies to strengthen legislation, cultivate responsible wastewater management, improve water quality monitoring, provide youth and adult water-related education programs, facilitate drinking water testing, and deliver clean drinking water to those who need it.
- Page 5-2: Additional County staff will be necessary for some recommendations.
- Table 5-1 through 5-8: It is unclear if there is a reason for how these tables are currently organized. Table rows (and corresponding Appendix Sections) must be reorganized/relabeled into priority order (Immediate-, Short-, and then Long-term), with the highest vote-getters appearing first in each category.
- Page 5-4, "While it was not recommended to create a Regional Wastewater Authority, . . ." The WQMP should explain why a Regional Wastewater Authority was not recommended and provide a summary of the factors/issues considered in the decision-making process leading up to this recommendation.
- We agree with Trihydro's recommendation that the Town and County should "cooperatively formalize how future wastewater connections will be managed."
- We support the suggestion that a responsible Management entity for SWFs be created to inspect and maintain SWFs countywide. (Table 5-3)
- Page 5-6, we agree there is an "immediate need" to engage in Source Water Protection Planning.
- Page 5-6, we agree that it is essential that Teton County to own sewer extensions and agree with the identification of the Flat Creek Inn, Elk Refuge Inn, and the Munger Mountain Elementary School Sewer Line as vital priorities.
- Page 6-1: How does the creation of a new layer of bureaucracy in the form of the Water Quality Advisory Committee (WQAC), for whom the Water Resources Program Manager would serve as staff, serve to create a "nimble" water program? It seems the WQAC could have the opposite effect.

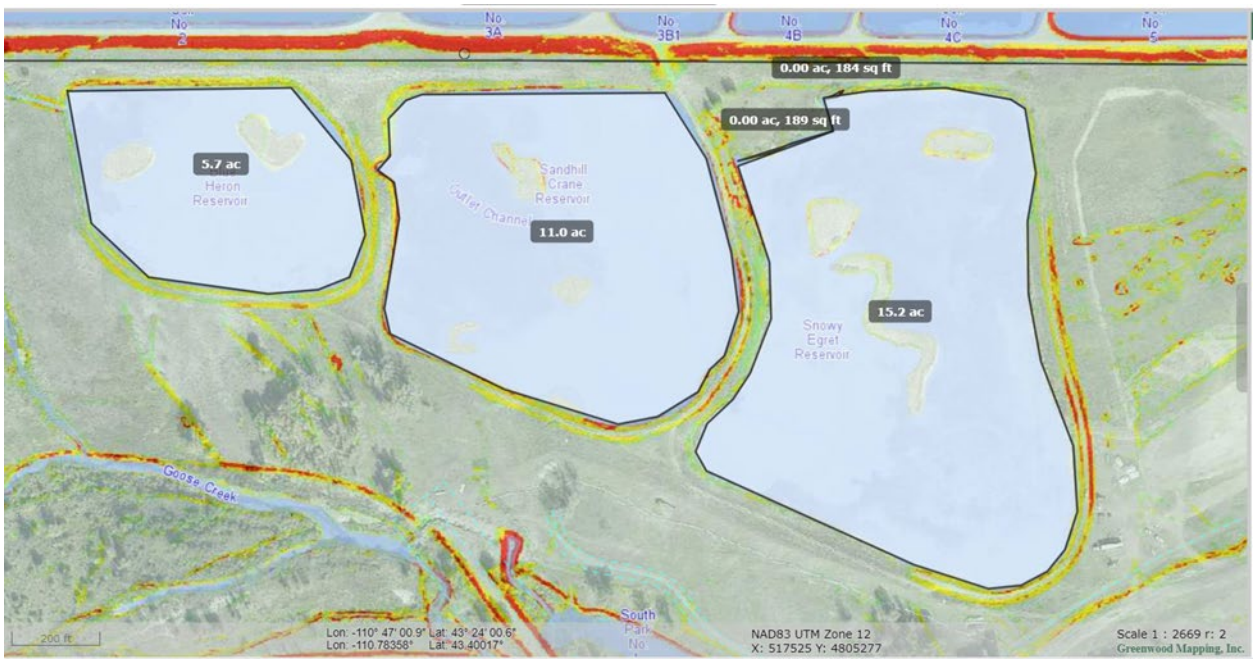
- Page 6-2: We agree with the statement, "As implementation of the WQMP matures, Teton County may determine that the formation of a Regional Water Quality Organization (RWQO), similar to a Regional Transportation Planning Organization, may better serve the citizens of Teton County. The RWQO would undertake water quality planning for the Town and County and provide coordination between local, regional, state, and federal water quality programs, as well as be eligible to accept local, state, Federal, and private grants and enter contracts." However, we disagree that "[e]stablishment of an RWQO should be evaluated as part of the first five-year technical update". Rather, this evaluation process should begin sooner.
- Page 7-1, "Establish and appoint members to a WQAC."
    - Who appoints the two non-governmental members, the Teton County Board of County Commissioners?
- We support the essential action of identifying which agency will be responsible for implementing each water quality action and noting the need for additional staffing.
- Table 7-4 ("Other Actions;" i.e. actions Trihydro is not recommending as mitigation measures at this time);
    - "Create Regional Wastewater Authority" – we disagree that "[t]his measure is not needed and would not provide additional benefit to residents." Larger infrastructure projects may enjoy an "economy of scale" and be well poised to seize once-in-a-lifetime federal funding opportunities for infrastructure. Such projects could better protect and restore Teton County's groundwater and surface water. We recommend deleting this quoted sentence and stating that further analysis is necessary to determine potential benefits, including funding opportunities and operational streamlining. Indeed, available funds could provide motivation to establish agreements between entities that could be executed relatively quickly.
    - "Redirect Wilson Sewer District Flow" – we recommend editing the following sentence: "This measure was previously studied, and <u>although</u> there has been ~~was strong~~ opposition to this proposal<u>, changes in sewer connections and increased awareness of water issues, as reflected in the Specific Purpose Excise Tax that received 80% of the vote, suggest this issue requires further analysis."</u> These edits are appropriate because data is still being developed through monitoring, and the Fish Creek Management Plan process is developing.
- Table 7-1 and Section 7.6: NGOs should not be specifically named due to overlapping programmatic work (the simple language at the start of Section 6.1 is more appropriate).

Appendix C-2 – Volume II: Wastewater

- General comment: Any capital improvements or major expenditures to the Town's WWTP should be weighed against new infrastructure that would have a longer life and improved water quality goals.
- Page 4-2, The Wyoming Game and Fish (WGF) property (frequently referred to as the South Park Feeding Grounds) has two distinctly different types of waterbody features. Regarding the first waterbody feature, the effluent from the TOJ WWTP is routed to a series of three reservoirs constructed more than 20 years ago. They do not meet the classification as wetlands by TCD and Teton County mapping systems. POWJH has had staff and a wetlands specialist review the reservoirs to confirm that they are **<u>not</u>** wetlands due to their steep sides with mostly deep water, very little vegetation along the perimeters with small island features in their interiors, and short-circuiting of the effluent flow directly from the entrance to the exit of each reservoir. See the images below depicting the general location of the three reservoirs (i.e. the "Blue Heron Reservoir," "Sandhill Crane Reservoir," and "Snowy Egret Reservoir.") In terms of the second type of waterbody feature, Ducks Unlimited financed construction and design (2022 construction with initial operation in 2023) of new wetlands downstream of the reservoirs in the same WGF property. The existing reservoirs may have very limited impact on the effluent's water quality. The reservoirs were made with rapid infiltration soils of the natural river rock in the flood plain of the Snake River. Trihydro should not consolidate comments on these two separate types of waterbody features within the texts of the report and should not make recommendations as a consolidated grouping. See images


SITE SKETCH PLAN
Influent from Town
Borrow Pond
Cell 1
Headworks
3B2
4A
4D
Cell 2
3A
3B1
4B
4C
Cell 5
Disinfection Facility
Solar System
Wetland System
Backup Generators
Intermediate Pumping Facility
Headworks Avg. Influent Flow: 1.85 MGD
Disinfection Avg. Effluent Flow: 1.77 MGD
To Snake River


Robertson No. 1 Ditch
Adams Ditch
Cortland Dr
Hoyt Ln
Lake Ln
Goose Creek
Polo Ranches Stock Reservoir
Flat Creek
Heads Creek
Unknown
West Borrow Area Lake Reservoir
Unknown
Erbe No. 1 Fish Reservoir
Primary Cell No. 1
Primary Cell No. 2
Cell No. 3A
Blue Heron Reservoir
Sandhill Crane Reservoir



- References to "constructed wetlands" should be changed to "long-term operating reservoirs;" see:
    - Page 4-2, "…the Town's WWTP effluent supports (1) constructed ~~wetlands~~ long-term reservoirs (greater than 20 years in service), and (2) recently completed wetlands in 2023, for improved waterfowl habitat."
    - Page 4-3, Correction to texts: "The blended effluent then travels through a series of WGF-constructed ~~wetlands~~ reservoirs and historically discharges into the Snake River through a long pipe into a small channel of the river." We also suggest adding a sentence: "It should be noted that the intended use of the new DU wetlands may only be seasonal use due to lower flow rates of effluent during the months of October through April."
    - Page 4-3, The following sentence has been edited to improve the potential impacts of unlined cells: "…along with verifying if untreated wastewater is short-circuiting through infiltration from unlined cells into lower water bodies and entering the Barrow Pond or ~~wetlands~~ or other surface waters including the reservoirs, wetlands, and nearby Flat Creek prior to being treated."
    - Page 4-4, The following sentence has been edited to improve the potential impacts from the reservoir's infiltration to groundwater: "Monitoring surface water discharge from the ~~wetlands~~ reservoirs or the newly constructed DU wetlands or the groundwater downgradient from these water features ~~wetlands~~ is not required by permit. The existing reservoirs have been in operation for more than 20 years and mostly likely have an impact on the downgradient groundwater due to the rapid infiltration characterization of their soils used for construction (river floodplain cobble and soils were excavated and set up as diking for the reservoirs).

- Page 4-2 and 4-3, This section should mention the close proximity of the water table and high porosity of the alluvium (river floodplain soils and cobble) that the Ducks Unlimited newly constructed reservoirs were made from and sit on top of. The original studies done to assess the construction of the lagoon system characterized these soils as rapid infiltration. The original lagoon system was not constructed with clay lining, but the State's required groundwater monitoring revealed that the individual cells needed to be lined with the impervious clay materials to reduce infiltration into the groundwater. One primary receiving cell was not lined, and two cells were partially lined with a synthetic liner during this improvement to the structures.
- Page 4-3, the impact of the unlined Town of Jackson WWTP cells and possible leakage from lined cells that are approaching their end-of-life usage has not been determined. Currently, the routing of the effluent through the various water structures indicates that most of the effluent seeps into the groundwater through

the reservoirs before reaching the outfalls to the small channels of the Snake River and before the effluent is routed to the newly constructed DU wetlands.

- Page 4-3, Reviews of the 2021 Town of Jackson WWTP Study indicated that it is very expensive to bring out the equipment for any sludge removal project, and completing the needed activity is more cost-effective as a single activity. Therefore, it may be necessary to conduct sludge removal from all cells in a single event rather than spreading it out over several years.
- We agree that "[p]reparation of a sludge management plan should be prepared as soon as possible."
- Page 4-4, We **strongly disagree** with the following statement: "*The wetlands (including the 2022 wetland expansion) on WGFD property receive treated effluent, which is treated to meet, typically falls below, the requirements set forth in the Town's WYPDES permit.* ***Thus, no monitoring is required."*** This sentence needs to be re-worded as follows to be technically correct:
    - "The (1) reservoirs and (2) 2022 DU wetland expansion on WGFD property receive treated effluent. Prior to entering the property, the effluent is treated to meet, typically falls below, the requirements set forth in the Town's WYPDES permit."
    - Monitoring should be required for the older, long-term reservoirs due to the more than 20 years of operation and rapid infiltration of effluent into the groundwater. Observations by a senior-level engineer and geologist indicate that a majority of the effluent infiltrates into groundwater before the residual effluent is routed to the Snake River outfall.
- We agree that the newly constructed DU wetlands will take several years to provide any treatment. For wetlands to provide additional treatment, it takes several growing seasons for wetland plant species to become established. Therefore, it is likely the effects of the wetlands won't be realized for three or four years, or longer. Monitoring surface water discharge from the wetlands or the groundwater downgradient from the wetlands is not required by permit, nor would it provide any benefit until wetland plant communities are fully established."
- We strongly disagree that monitoring of the reservoirs is not beneficial. Trihydro has incorrectly categorized the reservoirs as wetlands, and conflated the two types of waterbody features noted above. The reservoirs' treatment of the effluent will not improve with time, and it is probable that nutrient uptake in the reservoirs is minimal based on the findings noted above. Their age of more than 20 years requires a separate assessment. Immediate monitoring should be required to determine if effluent entering the WGF property is currently infiltrating groundwater, and, if so, to mitigate for such infiltration or effluent water quality standards in effluent management (i.e. factor this analysis into the Town's WYPDES permit for the WWTP, etc.).
- Page 4-6, The following statement: "*...can expand to 6.5 MGD with additional aeration and mixing*" must be updated to include the caveat that capacity expansion is dependent on the handling of the sludge accumulation issue in the retention basins, processing of higher daily amounts of ammonia (pounds per day) and increased cBOD loading above design.
- Page 5-1, 5-2, and 5-3, The new well data associated with the drinking water wells presented in this section of the report need to be added to Volume V since that report notes missing data. The high levels of nitrates and potential for ammonia should indicate the need for an increased monitoring of the wells, such as monthly sampling to observe all various conditions that may affect the drinking water quality of the residences. These residences have young children. The old landfill that was closed is now the location of the trash collection site located on the other side of the road from the Old West Cabins.
- Page 5-2, We strongly disagree with the following statement: "*It is unlikely the drinking water supply well quality is impacted by the SAS as the wells are located over 350 feet from and are upgradient from the SAS, which exceeds current location requirements."* The location of the wells is south of the soil absorption systems (SAS) but are located on the terraces of the buttes east of the Old West Cabin property. Little water flows from the higher elevations across the property, and there are no expected dominant flows from south to north in the terrace location. Geologists who have visited the property and who are familiar with the location note that it is possible that the well's moderate volume of water pumping would alter the flow from the SAS toward the wells used for drinking water on the property. The well depth is noted as 100 feet and the SAS is located within the substrate of the property (no raised bed for the leachfield). The monitoring

wells for the SAS are located near the southeast corner of the property and a substantial distance (greater than 200 feet, which is much longer than typical monitoring well locations from the source of discharge) from the SAS discharge. The permit documentation incorrectly locates the monitoring wells near the SAS discharge. Additional impacts from the old town landfill may be possible due to its location upgradient in the terraces and closure of the landfill may not have been complete with monitoring wells.

- Page 6-3 and 6-4, Less than 10% of *known* Teton County septic systems were studied to generate data used to extrapolate county-wide septic performance data. This *voluntary* program likely produced results skewed by homeowners with the time and inclination to take better care of their system. This study has an effect size too small to be used to prescribe a certain urgency toward septic performance, as it is very likely that the number of tanks in the county that require pumping is much higher than 19%.
- Page 6-10, The maximum nitrate detection at Old West Cabins was 7.8 mg/L, as noted in Section 5.1. What year did this occur? Please also see our above comment about the well location being cross gradient along the terraces, which are prominent features of the property, and monitoring the well distance. This data needs to be updated and added to the drinking water summaries in Volume V.
- Page 6-20, This section still lacks any mention of two of the Ruehling 2022 study's most important findings. While it is crucial to include her determination that *E. coli* is not a good indicator of fecal bacteria in surface waters, this section omits her two other principal results: that microbial diversity has diminished due to human activity in both creeks and that human wastewater was the dominant source of identified fecal bacteria.
- Page 6-25, The following statement is used to characterize the findings of the 2022 SSEMS study: "*The temporal and spatially variable nature of the aquifer coupled with multiple anthropogenic and natural nutrient sources make it challenging to specifically determine if SWFs are negatively impacting water quality.*" While we are happy to see that this study was not used to say that septic systems work well in our area, this statement also fails to address the reality that: most septic systems are not monitored frequently and, therefore, are unlikely to be cared for with the same level of attention as those examined in this study, many Teton County septic systems sit in contact with the groundwater flowing through our valley's porous cobble, and our cold climate and lack of rich soils are not conducive to adequate septic performance.
- Table 4-1, The table notes: "Can expand to 6.5 MGD with additional aeration and mixing," however, it is necessary to assess sludge removal from three cells to maintain existing flow rates over the next several years. The capacity depends on sludge management issues.
- Table 4-2, The phosphorus value of effluent is noted as 8 mg/L in the 2021 Report by Trihydro for the TOJ WWTP; please correct or adjust to make reports correct/consistent. Table 4-2 lists 4.8 mg/L of phosphorus.
- See attached further comments from Cleantech Consulting regarding the Draft WQMP and Appendix C-2.

Appendix C-3 – Volume III: Stormwater, Nonpoint and Point Sources

- Page 1-1, Wastewater from treatment plant outfalls, leaking sewer pipes, and/or septic systems, including piping and tanks, needs to be added to the list of potential sources of contamination.
- Page 4-15, "*Wet atmospheric deposition is estimated to be the largest NPS discharge of nitrogen…*" when the natural cycle of nutrient uptake by vegetation is not considered. The natural cycle of nutrient uptake is the only source of nutrients for the vast forests and plant life within the study area as within any ecological system of the world. The value of this uptake is not quantified in this report but can be assumed to be the major factor in its use, approaching 80 to 90 % according to scientists that study the natural nitrogen cycle of the earth.
- Please update Table 4.1 and Table 4.3 with the caveat that data is presented without accounting for the impact of nitrogen uptake by vegetation.
- In Table 4.4, the presented values do not reflect equal assessments for uptake or corrections, as only the septic values have been corrected for a processing value in the environment. All other categories present raw values with no uptake by vegetation as intended for the nitrogen cycles. It misrepresents a coherent method of processing data and thus is not a valid presentation of how to handle scientific data. If Trihydro does not

eliminate this table, it needs to have a long list of notations on the table noting that different methods were used to assess and adjust the data. They should not be comparative due to this method of analysis.

- Page 4-16 to 4-17, We strongly disagree with the presentation of percentages in these texts and tables due to different correction methods (0 to 42%) and lack of data inclusion from some sources. Further, the same atmospheric deposition applies to many creeks that do not exhibit high nitrogen pollution such as Cottonwood Creek in the GTNP and the upper watersheds of Flat Creek.
- Page 4-17, The following statement: "*The primary data gap, however, is what fraction of each source is consumed by plants; discharged to surface waters; or, what portion seeps to groundwater*" needs to be noted at the beginning of the chapter and within every table that displays values. It should also be noted that this is the natural nitrogen cycle for the entire earth. There is concern that the decades of burning fossil fuels and applying ammonia as fertilizer have altered the natural cycle and it is not known what portion of this impacts the values of nitrogen's atmospheric deposition and the nitrogen cycle.

Appendix C-4 – Volume IV: Wildlife and Recreation

- Page 1-1, Please explain the meaning of the term "associated areas." Does it mean areas associated with wildlife?
- Page 3-1, It is strongly suggested that surface and groundwater resources in the vicinity of the Targhee Ski and Alta area be included in this report. The omission of a discussion of water resources in this area of Teton County cannot be justified. The ski area has proposed significant expansion, and the local community is concerned about water quality impacts from construction (e.g., stormwater management) and treatment and disposal of partially treated wastewater into ground and surface waters. In addition, interstate water quality issues may arise if surface water quality standards are not being met in downstream waters in the State of Idaho. Perhaps recognizing these potential impacts, Targhee Towne, a public water system serving the area, recently developed a source water assessment for its water distribution facility.
- Page 3-3, This section does not adequately describe classes of water beyond 1 and 2AB. For example, Class 2 waters are considered "high quality waters" subject to the following requirement: Pursuant to Chapter 1, Section 8: "(a) Water uses in existence on or after November 28, 1975 and the level of water quality necessary to protect those uses shall be maintained and protected. Those surface waters not designated as Class 1, but whose quality is better than the standards contained in these regulations, shall be maintained at that higher quality."
- Page 3-5: The report states: "In 2016, WDEQ reclassified stream segments statewide from primary to secondary contact recreation." It should be noted that the reclassification was limited to so-called "low flow" streams, which DEQ determined to be less than 6 cubic feet per second. The impact to primary contact recreation in these downgraded streams, particularly child's play, is significant and should be noted in the report. It should also include specific language about the hundreds of miles of streams in Teton County, which lost protections and, among other impacts, the *increase* in the amount of *E. coli* bacteria now allowed to enter these waterbodies.
- Page 3-6, This description fails to mention that Flat Creek flows past the Town's WWTP in very close proximity to the treatment lagoons, where partially-treated effluent is likely leaking into the shallow groundwater through the aging clay liners, and the few cells that do not have complete lining, thus potentially contaminating the creek.
- Page 3-8 and 3-9, The report should note that multiple lines of evidence indicate that Fish Creek is also nutrient impaired and an official impairment determination in the State's upcoming 2024 combined 305(b)/303(d) report is expected.
- Page 4-3, The brief mention of the University of Wyoming fecal bacteria study (i.e. Ruehling 2022) again fails to state the important results and instead defers to the TCD study conducted twenty years ago.
- Page 7-1 and 7-2, The report states that, "Often, temperatures exceeded 68°F at the N Town monitoring location prior to Flat Creek entering the Town, which suggests temperature exceedance is not a result of

activities from man." It should be clarified that warming temperatures are, in fact, the result of the activities of man. We suggest edits to this sentence to reflect this fact.

Appendix C-5 – Volume V: Drinking Water

- This volume should reference WDEQ's water quality rules and regulations, Chapter 8, which sets forth standards and requirements for protecting groundwater quality based on use: Domestic Use is Class 1.
- Page 1-1, Please mention that the 1978 plan was prepared by a 208 planning committee and signed by the governor.
- Page 6-1, This section of the report should note that drinking water with detected levels of nitrates and suspected septic system origins will also include low levels of many other chemicals. These may include cleaning fluids, pharmaceuticals, and other materials used in the home.
- This section (and the WQMP in general) should also include a recommendation that the county (ideally the health department) require testing of private wells upon conveyance of the property. Doing so would vastly expand the availability of water quality data, and provide significant public health and safety benefits with minimal additional costs. The data would be managed by the county and would be made available to not only sellers and buyers but also to appropriate local agencies (e.g., TCD) as well as research institutions under proper data security safeguards
- Page 6-6, Need to update with newly presented data from the C2- Wastewater section addressing the wastewater produced from the OWC septic system. Need to update the table that summarizes the all of the nitrate data of the properties in APPENDIX A-3 OTHER LOCATIONS. No comments should be made dismissing the sources of contamination due to the typical flow pattern of the Valley for these two locations.
- Page 6-9, regarding the statement "Two locations in the southeastern extent of the South Park area were also selected and include the Old West Cabins," these locations are along the terrace areas near Highway 89 and do not have represented groundwater flow profiles as within the valley's typical geology. Their locations and flow rates may disrupt the normal water flow patterns and route septic fluids towards the wells used for drinking water.
- Page 6-9, (OWC) and Pub Place, please see the following notes on the quoted sentence: The OWC consists of over 40 rental housing units. OWC started reporting drinking water quality data in 1993, with a large data gap between 1999 and 2016 [update with newly added data and complete set noted in Volume II – wastewater]. As shown in Appendix A-3, nitrate+nitrite-N concentrations fluctuate from year to year, with a minimum detection of 0.73 mg/L in 1999 and a maximum detection of 4.27 mg/L in 2017 [7.8 mg/L in 2023??]. Trihydro should also clearly define each numeric value with its specific chemical name. The values used within the report vary from nitrate, N-nitrate, and total nitrogen, and they are not consistently used.
- In terms of Pub Place, the 2022 Consumer Confidence Report shows the highest level detected in 2022 was 9.4 mg/L. This is just 0.6 mg/L shy of triggering a regulatory response from EPA.
- Section 6.2 (Public Water Supplies) should be updated with newly presented data from the C-2 Wastewater section addressing the wastewater produced from the OWC septic system. There is also a need to update the table that summarizes all of the nitrate data of the properties in APPENDIX A-3 OTHER LOCATIONS. No comments should be made dismissing the sources of contamination due to the typical flow pattern of the valley for these two locations.
- Page 7-1, An edit should be made to emphasize that notwithstanding the effort made in 2004 (nearly twenty years ago), the majority of public water systems in Teton County, numbering approximately 73, remain unprotected as they have failed to implement the most basic regulatory measures available to protect their water supplies: namely, wellhead protection plans, source water assessments, and source water protection plans.

Appendix C-7 – Volume VII: Future Considerations

- We appreciate the inclusion of this section of the draft report. Teton County officials should also be aware of the ongoing University of Wyoming program called Wyoming Anticipating Climate Transitions (WyACT), which "*facilitates co-production of knowledge to enable cutting edge science that helps Wyoming communities anticipate and adapt to climate change impacts on water.*" Among WyACT's many projects, an in-depth analysis of the state of and likely future changes to the Snake River Headwaters watershed is currently being developed and will soon be released.
- Section 2.2.1: The report states: "Because groundwater recharge occurs slowly over many thousands of years, over-drawn aquifers due to anthropogenic impacts can easily alter the aquifer levels, i.e., long-term water storage, for years after the drought conditions subside." Although this statement is accurate on a broad scale, it may not apply to the Snake River Aquifer, which is predominantly alluvium, glacial deposits, outwash, etc. Related reports indicate rapid recharge of this aquifer from snowmelt and precipitation events. Please confirm for accuracy and make any necessary changes.
- We agree with Trihydro's statement in Section 3.4: "while much attention is given to where housing development occurs and the economic challenges with housing prices in the County, equal consideration should be given to how this growth will affect the water needs and water quality in Teton County."
- 4.1 PFASs: POWJH recommends that an effort be undertaken to assess the potential presence of PFAS in surface water in the airport plume area. Due to the close hydrologic connection between ground and surface water in the Snake River Aquifer, it is entirely possible, perhaps likely, that PFASs have entered surface water. If the presence of PFASs in surface water is documented, it would be important to test for the presence of PFASs in fish tissue. A recent article in Health News Florida, published December 1, 2023, describes the risks and provides a number of links to other sources of relevant information concerning PFASs in fish: https://health.wusf.usf.edu/health-news-florida/2023-12-01/forever-chemicals-found-in-freshwater-fish-yet-most-states-dont-warn-residents
- Trihydro should develop a recommendation that: (1) urges local retailers, ski clubs, rental agencies, ski resorts, etc. to refrain from selling or using ski wax that contains PFASs, and (2) develops monitoring snow and surface waters in the vicinity of ski hills and groomed trails for the presence of these forever chemicals.
- Section 4.5.3 should be expanded to provide more information about microplastics. As noted in comments on Appendix D, monitoring should include microplastics.
- Section 4.5.4 should provide further explanation of why bottled water serves as a source of microplastics and nanomaterials (stating "where people who exclusively drink bottled water potentially consume in excess of 90,000 more plastic particles in comparison to those who only drink tap water (Yee et al. 2021)." Further explanation would help provide a better context for decision-makers.

Appendix D-1 – Land Development Regulations

We appreciate Triyhydro's recognition of the importance of amending Teton County's Land Development Regulations (LDRs) to accomplish the goals of the Water Quality Master Plan. We first provide a few general comments about the evaluation in the November 15, 2023 Memorandum (i.e. Appendix D-1). Second, we provide some specific comments about the LDR topical areas for which Trihydro recommends amendments. Third, we provide further recommendations about topical areas for which we believe further LDR amendments are necessary.

General Comments

- Potential Legal Conclusions: We understand that Trihydro does not have a staff attorney, and we also understand that Trihydro did not obtain a legal consultation with an attorney. We advise caution about the extent to which Trihydro offers an opinion about the scope of Teton County's authority. We recommend that

Trihydro make it clear that it did not obtain legal advice and that further legal analysis about the scope of Teton County's authority under Wyoming law may be necessary.
- As explained further below, there are a number of topical areas for which Trihydro has recommended "maybe" as to amending the LDRs, and for which we believe Trihydro should recommend "yes" as to amending the LDRs.
- Trihydro provides specific LDR amendments to facilitate the implementation of a Water Quality Overlay. We offer comments of those amendments in our comments on Appendix E-1.

Specific Comments on Topical Areas Where Trihydro Recommends Amendments (i.e. "Yes" in Recommendation Column of Appendix D-1 Attachment A.

Trihydro Recommendation No. 14 (Develop Stricter Water Quality Standards)
- Teton County does not have the legal authority to promulgate "Water Quality Standards" as defined by the United States Environmental Protection Agency and Wyoming DEQ. Under the Clean Water Act, only EPA, states and Indian Tribes have that authority. The reserved section of the LDRs for "water quality standards" should be rephrased to remove that term or call it something else; maybe "water quality protections."
  - Trihydro Recommendation No. 14 (Develop Stricter Water Quality Standards)
    - The Draft WQMP states: "The county may not regulate in a manner that conflicts with or duplicates state regulation and would only be able to provide water quality protections by using provisions of Wyo. Stat. § 18-5-201, described above." As noted previously, it appears that Trihydro did not obtain a legal opinion and we respectfully submit that counties have authority to impose more protective water quality requirements to exercise their authority to protect public health and safety.
    - Pitkin County, which is cited by Trihydro as a potential source of LDR amendments, specifically contains an Ecological Bill of rights that codifies the rights, in relevant part, to "the preservation of natural riparian areas and wetlands," "the right to permanently protected minimum stream flows in rivers and creeks," and "the right to maintain and not exceed the carrying capacity (sustainability) of the land and water, including protecting water quality." Pitkin County 1-60-180. https://pitkincounty.com/468/County-Code ; Teton County should consider adding a similar provision
    - Although the Draft WQMP does propose recommendations for groundwater protection through an overlay and amendments when Teton County does evaluate source water protection concerns through its LDR amendment process, it should consider other mountain communities' provisions focusing on drinking water integrity:
  - See Summit County, UT Chapter 6 (Water Source Protection Zones), 4-6-1 (adoption of water source protection zones), 4-6-2 (regulations of water source protection zones), 4-6-3 (enforcement) https://codelibrary.amlegal.com/codes/summitcountyut/latest/summitcounty_ut/0-0-0-13946 ; Park County, CO Division 7, Sections 7-700 to 7-705 https://www.parkco.us/DocumentCenter/View/269/Article-VII?bidId= ; *see also* Vail Ordinance 9-1-3 (jurisdiction for water quality), 9-1-2 (water quality standards) https://codelibrary.amlegal.com/codes/vailco/latest/vail_co/0-0-0-1 ; Park City, UT 13-1-28 Drinking Water Source Protection (robust provisions) https://parkcity.municipalcodeonline.com/book?type=ordinances#name=13-1-28_Drinking_Water_Source_Protection ; San Miguel, County Co 5-2503 F https://www.sanmiguelcountyco.gov/DocumentCenter/View/214/Article-5---Standards-Updated-1223-PDF?bidId= ; Aspen Sec. 13.04.030 (Jurisdiction for water quality) (the City shall exercise regulatory and supervisory jurisdiction within the incorporated limits of the City of Aspen and over all streams and sources contributing to municipal water supplies for a distance of five (5) miles above the points from which municipal water supplies are diverted)

https://library.municode.com/co/aspen/codes/municipal_code?nodeId=TIT13HEQUEN2_CH13.04WAQU_S13.04.030JUWAQU

- Teton County should specifically address nutrient pollution in its LDRs; see San Miguel County, CO 5-2503 C (Areas at Risk for Eutrophication) https://www.sanmiguelcountyco.gov/DocumentCenter/View/214/Article-5---Standards-Updated-0623-PDF?bidId= ; Teton County, ID 6-6-1 to 6-6-4 (nutrient pathogen evaluation) https://www.tetoncountyidaho.gov/use_images/pdf/codePolicy/codeforwebsite.pdf
- The WQMP should recommend additional provisions regarding sewage treatment or disposal: see Pitkin County 7-5-30 (Sewage Treatment and Collection), 1-60-320 ("It is the policy of the County that adequate sewage treatment facilities are feasible and available to serve existing and new developments.") https://pitkincounty.com/DocumentCenter/View/29625/chapter-07 ; Ada County, ID (i.e. Boise) Title 5, Chapter 1, 5-1-1 to 5-1-9 (including requirement to record sewage disposal systems on the plot plan for the development prior to construction); San Miguel County Co, 5-607 (sewage disposal and encouraging sewer connections) https://www.sanmiguelcountyco.gov/DocumentCenter/View/214/Article-5---Standards-Updated-0623-PDF?bidId= ; Aspen Sec 13.04070 (on-site waste disposal system) (including provision for failing and malfunctioning system) https://library.municode.com/co/aspen/codes/municipal_code?nodeId=TIT13HEQUEN2_CH13.04WAQU_S13.04.030JUWAQU

Specific Comments on Topical Areas Where Trihydro Recommends Amendments (i.e. "Maybe" in Recommendation Column of Appendix D-1 Attachment A).

- Trihydro Recommendation No. 7, 8, and 9 (Manmade Ponds)
  - We suggest that Trihydro recommend that this is a topical area for which Teton County should provide amendments (i.e. should be a "Yes" recommendation).
  - It may be necessary for Teton County to study historically constructed surface waters in addition to ponds (i.e. constructed streams, other reservoirs that are not "ponds," etc.).
  - Due to high degree of hydrological connection between surface water and groundwater in areas of Teton County, constructed waterbodies provide high potential for the migration of effluent to groundwater.
- Trihydro Recommendation No. 11 (Buffer Zone Requirements around Riparian Habitat)
  - We suggest that Trihydro recommend that this is a topical area for which Teton County should provide amendments (i.e. should be a "Yes" recommendation).
  - Although setbacks are important, riparian buffers are also significant to protecting water quality.
  - We support the increase of river setbacks from 150 feet to 200 feet, but would appreciate explanation of why this distance is adequate.
  - We support Trihydro's recommendation: "For streams and Natural Lakes/Ponds, increase from current 'out of riparian plant community' and between 50 ft to 150 ft to 'out of riparian plant community' and no less than 200 ft."
  - We support the increase of wetland setbacks from 30 feet (current) to 100 feet.
    - As support, see Pitkin County: 7-20-80: ("RIVER AND STREAM CORRIDORS AND WETLANDS") https://pitkincounty.com/DocumentCenter/View/29625/chapter-07;
- Trihydro Recommendation No. 12 (Protect Existing Wetlands)
  - We suggest that Trihydro recommend that this is a topical area for which Teton County should provide amendments (i.e. should be a "Yes" recommendation).
  - Teton County LDRs currently reference "the 1987 Corps of Engineers Wetlands Delineation Manual" (current LDR 5.1.1). This reference should be deleted because states and counties have jurisdictions over water resources for which the United States does not have jurisdiction. The

recent U.S. Supreme Court decision, *Sackett v. EPA*, only pertains to the **federal** jurisdiction over wetlands; not state or county jurisdiction.

- The Trihydro report states in relevant part "any changes to the definition of wetlands in the LDRs should be carefully evaluated by legal counsel before changing as it could possibly result in litigation." The evaluation of a potential risk of litigation should not be made by Trihydro, which does not have an attorney on staff and has not obtained a legal opinion. The table entry should be edited to: "any changes to the definition of wetlands in the LDRs should be carefully evaluated by legal counsel ~~before changing as it could possibly result in litigation~~."
- Teton County should use the definition of wetlands from the Wyoming Environmental Quality Act W.S. 35-11-103(c) (as opposed Teton County LDR 5.1.1(C)(3)), which is more inclusive than the federal definition of jurisdictional wetlands:

  (x) "Wetlands" means those areas in Wyoming having all three (3) essential characteristics:

  (A) Hydrophytic vegetation;
  (B) Hydric soils; and
  (C) Wetland hydrology.

  Although current LDRs may touch on these three characteristics, specific reference to Wyoming statute will help clarify the definition and allow the LDRs to better conform to Wyoming law and subsequent legal precedent interpreting this statutory definition.
- Other jurisdictions contain specific provisions about wetlands that Teton County should consider through the process of amending its LDRs:
  - see also San Miguel County, CO:5-22 ("Wetland Areas") at 5-2201 to 5-2204 (discussing defining wetlands, mapping, restoration activities, etc.) https://www.sanmiguelcountyco.gov/DocumentCenter/View/214/Article-5---Standards-Updated-0623-PDF?bidId=
- Teton County should also consider a provision explicitly stating that Teton County LDRs may be more protective of wetland resources. See San Miguel County, CO:
  "This Section 5-22 applies to all wetland areas and wetland area buffer zones, and to all waters of San Miguel County. This Section does not repeal, abrogate, or impair any existing federal, state, and/or local laws, easements, covenants, or deed restrictions. ***However, where this Section imposes more restrictive regulations than those otherwise imposed, the provisions of this Section shall prevail."*** *(emphasis added)*

- Trihydro Recommendation No. 18 (PWS Testing for PFAS & Pharmaceuticals)
  - We suggest that Trihydro recommend that this is a topical area for which Teton County should provide amendments (i.e. should be a "Yes" recommendation).
  - Any added testing needs to prescribe the test method and the detection limits. The requirement should note the testing frequency and any suggested actions based on its findings.
  - Teton County should also test for microplastics, which are an important emerging pollutant.

Appendix D-2 – Land Development Regulations

We reference the numbering system in Trihydro's November 15, 2023 memorandum.

- 5.1.6. Manmade features: we support the prohibition of new manmade waterbodies, i.e. the prohibition is broader than constructed "ponds." If stormwater detention basins are excluded, we suggest ensuring that there are sufficient regulations of stormwater detention basins to protect water quality. For example, certain permeable soil types are not appropriate for such basins, or an appropriate liner should be required to help prevent direct infiltration of the pond into the aquifer.
- 5.2.2 Water Quality Protection Overlay:

- Further comments are provided in the context of discussion of Appendix E

Appendix E-1 – Water Quality Overlay

We appreciate Triyhydro's recommendation to add a Water Quality Protection Overlay to protect groundwater and surface water and Trihydro's recognition of the importance of amending Teton County's Small Wastewater Facility Regulations (SWFRs) to accomplish the goals of the Water Quality Master Plan.

- Importantly, Trihydro previously agreed with our suggestion at a project team meeting that the more-protective area designation for a particular site should take precedence over the less - protective designation. As an example, for a site that is Aquifer Protection Area 1 and Surface Water Protection Area 2, the more protective standard of Aquifer Protection Area 1 should govern.
- In terms of the standard for "advanced treatment," (i.e. Surface Water Protection Area 1, Source Water Protection Zone 1, and Aquifer Protections Area 1), we offer the following recommendations:
    - The proposed definition, 9-3-1(c), defines advanced treatment as reducing Total Nitrogen to less than 20 mg/l before entering the absorption system. We support the measurement point before entering the absorption system and defining the parameter as "Total Nitrogen." However, we believe that a lower concentration of Total Nitrogen would be more appropriate. Teton County should consider additional options as far as available technologies and Total Nitrogen reduction.
        - There are good examples of "advanced treatment" that are being used to address nutrient pollution in Cape Cod, which focuses on removal of nitrogen (i.e. denitrifying systems) See: https://www.newea.org/2020/10/09/distributed-nitrogen-removing-i-a-septic-systems-a-2020-primer-for-cape-cod/ (providing context and explaining that Best I/A Tech in Development achieves 5-11 mg/L in Nitrogen outflow);
        - See also: https://www.epa.gov/water-research/innovativealternative-septic-systems (EPA description of a neighborhood-scale demonstration of enhanced innovative/alternative (IA) septic systems, which are designed to prevent excess nutrients, such as nitrogen, from entering estuaries and freshwater ponds in the Cape Cod region.)
        - See also https://www.mass.gov/guides/approved-title-5-innovativealternative-technologies (List of Massachusetts approved innovative/alternative technologies)
        - https://onsyte.com/ (commercially available systems whereby the utility provider monitors the individual homeowner systems via SCADA (radio, cell, or internet system control, administration, and data acquisition) and service them for a monthly fee). High levels of N, P, BOD, and bacteria removal have been demonstrated.
        - As another example of potential advanced treatment technology, "Bold and Gold" from ECS (Environmental Conservation Services) is a proprietary media for placement as the septic absorption field. Excellent levels of N, P, BOD and bacteria removal are obtainable. However, further consultation with the company is necessary to discuss adaptation to Teton County's cold climate. https://ecs-water.com/bold-and-gold-frequently-asked-questions/
        - As additional information about advanced treatment, In very sensitive areas, or in the instance of consideration of a variance, California illustrates the full capability of technology: https://calmatters.org/environment/2023/08/california-toilet-to-tap-water/
        - As further information about examples of list of systems that significantly reduce nitrates, many achieving 12 mg/L or below: https://www.savebuzzardsbay.org/wp-content/uploads/2017/07/West-Falmouth-Nitrogen-Reducing-Septic-System-Demonstration-Project-May-2017-status-report.pdf
        - The standard for nitrogen removal for one initiative in Cape Cod is 10 mg/L or less. The following link contains information from the non-governmental organization spearheading the effort: https://bcleanwater.org/what-we-do/mitigate/innovative-alternative-septic-systems/
        - Best Available Nitrogen Reducing Technology is an alternative system certified by MassDEP for general use pursuant to Title 5 which has the lowest effluent Total Nitrogen performance

value. An alternative system granted provisional or pilot approval by MassDEP may also be utilized as long as such system has a Total Nitrogen performance value less than or equal to the lowest alternative system certified by the Department for general use.

- In terms of the standard for "enhanced treatment," (i.e. Surface Water Protection Area 2, Source Water Protection Zone 2, and Aquifer Protection Area 2), we offer the following recommendations.
    - The definition of "enhanced treatment," 9-3-1(r) anticipates removal of Total Nitrogen to a level of 30 mg/l "before leaving the absorptions system." We believe that a lower concentration would be more appropriate and that Teton County should consider additional options as far as available technologies and Total Nitrogen reduction. We also believe that a more appropriate testing point would be before entering the absorption system because such measurement point would be consistent with the definition of "advanced treatment" and easier to measure in the context of enforcement or overall monitoring of the effectiveness of the regulatory program.
    - Page 2, "The proposed WQPO extends onto neighboring federal lands, similar to the NRO. This is appropriate for alerting the federal government to resource priorities contained in county land use plans. W.S. 18-5-208 allows the county to be a "cooperating agency" in matters related to the National Environmental Policy Act and in federal land planning, implementation, and management actions."
    - We emphasize the following language should be added: "In addition, Federal land and resource planning statutes such as the Federal Land Policy and Management Act (FLPMA) and the National Forest Management Act (NFMA) contain provisions requiring that federal land and resource management plans comply with local land use plans to the extent consistent with the Federal plans." See, e.g., FLPMA Section 202(c)(9) ("Land use plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent [the Secretary] finds consistent with Federal law and the purposes of this Act.")

Appendix E-2 – Sewer Overlay

- Trihydro only analyzed two scenarios: "Scenario A" (i.e. connecting all priority connections to the Town's Wastewater Treatment Plant) and "Scenario B" (i.e. connecting areas west of the Snake River to the Aspens-Pines WWTP, excluding certain areas, and package plants for Kelly, Hoback Junction, and Targhee Town). Trihydro should explain why other scenarios were not considered, for example routing to Teton Village, etc. Trihydro should also explain why only "package plans" were considered, as well as the pros and cons of "package plants."
- Sewer connection should be required for sites that are within 1000 feet; the rules should also allow for connection to sewer as an option for these areas (i.e. even if further than the required distance, a landowner can voluntarily connect to the sewer as an alterative to advanced treatment)
- Additional areas of the Fish Creek watershed should be included in the priority sewer connection areas. The entire Fish Creek drainage is designated Class 1 waters. See DEQ Water Quality Rules, Chapter 1, Appendix A. Fish Creek is listed as impaired for *E. coli*. DEQ has indicated that several lines of evidence show that Fish Creek is impaired for nutrients and that DEQ is engaged in a process to list Fish Creek as impaired for nutrients, including phosphorus, nitrogen, and related compounds. For example, see video footage of DEQ presentation at Fish Creek Watershed Management Planning Public Stakeholder Meeting on June 7, 2023 in Wilson, WY at: https://jhcleanwater.org/initiatives/fish-creek-watershed-management/ (at 1:00:30; 1:01:26). Accordingly, expanding the recommended areas for sewer connections will help to protect and restore this significant Class 1 watershed.
- Page 1, please consider adding a new requirement that would prohibit, with exceptions for public health and safety in Zone 1, and more carefully regulate in Zone 2, the discharge of dredge or fill material into non-jurisdictional wetlands and surface waters, as well as navigable waters that require authorization under section 404 of the Clean Water Act.

- Pages 3, 4, Please discuss how compliance with the specific performance standards for septic systems in Zones 1 and 2 (below) will be determined.
    - "Advanced treatment shall reduce the nitrates to less than 20 mg/l of Total Nitrogen and provide 4-log removal of pathogens before entering the absorption system."
    - "Enhanced treatment shall reduce the nitrates to less than 30 mg/l of Total Nitrogen and provide 4-log removal of pathogens before leaving the absorption system."
- Page 4, The following Zone 2 requirement should also apply to Zone 1. "No commercial or home business shall use, store, or dispose of hazardous materials, including petroleum products unless a Conditional Use Permit is issued." This requirement will need to be carefully drafted to exempt small quantities regularly used for household purposes still in original containers; e.g., insecticides, paints and stains, motor oil, etc.

Appendix F – Small Wastewater Facility Regulations

We appreciate Triyhydro's recognition of the importance of amending Teton County's Small Wastewater Facility Regulations (SWFRs) to accomplish the goals of the Water Quality Master Plan. SWFs represent a significant source of nutrient pollution and pathogens (i.e. *E. coli*) in Teton County. We first provide comments about the memorandum accompanying the proposed amendments and then provide comments on the proposed amendments.

Comments on Memorandum

- We support the maintenance requirements of existing Small Wastewater Facilities (SWFs) and the registration of SWFs with Teton County.
- We support the proposed requirement of an operating permit for all new and pre-existing SWFs.
- We understand that Trihydro does not have a staff attorney, and we also understand that Trihydro did not obtain a legal consultation with an attorney. We advise caution about the extent to which Trihydro offers an opinion about the scope of Teton County's authority to regulate SWFs. We recommend that Trihydro make it clear that it did not obtain legal advice and that further legal analysis about the scope of Teton County's authority under Wyoming may be necessary. While we understand it is useful to refer to Fremont County and Lincoln County, Teton County has different hydrology and faces population growth pressures.
- We support the recommendation to require pumping and inspection at a minimum of every three years (Section 9-2-7 of memorandum).
- We support the recommendation of requiring certification for service providers (Section 9-3-17 of memorandum)
- We believe staffing at the county level should be adjusted to meet the needs of a robust regulatory program, as opposed to limiting the program to current staffing levels. We recognize that there may need to be a transitional "ramping up" period as additional staff are added and the program rolls out (i.e. amendments to SWFs, amendments to LDRs, etc.).
- We support including advanced treatment (i.e. section 9-3-14).

Comments on Attachment A: SWFR Recommended Amendments

- We support the language in 9-2-3(c) stating that the regulations apply retroactively as far as violations that were not discovered until after the adoption of the regulations.
- We support the language in 9-2-3(d) that SWFs constructed prior to the new regulations are subject to operational requirements, including maintenance, inspection, and record keeping.
- In terms of the variance provision, 9-2-16, no variances should be granted that allow effluent to enter the potable water supplies of nearby human-occupied facilities.

- A very simple amendment to the SWFRs would address nitrate exceedances in the Hoback Junction area, as well as other areas experiencing increasing nitrate concentrations in groundwater. Amendment to 9-2-12 regarding a denial could improve the effectiveness of the SWFRs for protecting and restoring groundwater and surface water (deletions in strikethrough; additions in underline):

(Proposed Edits): This amendment would allow more case-by-case analysis and provides opportunities to seek appeal or have an opportunity to cure permit deficiencies.

9-2-12 DENIAL OF A PERMIT

a. The Sanitarian ~~may~~ shall deny a permit for any of the following reasons:

i. The application is incomplete or does not meet applicable minimum design, construction standards as specified by these regulations;

ii. The project, if constructed, is reasonably expected to cause or contribute to a violation of applicable state surface or groundwater standards;

iii. The project does not comply with applicable state or local water quality management plans as defined in 9-3-1;

iv. The project, if constructed, would result in hydraulic and/or organic overloading of existing or proposed wastewater facilities,

v. The proposed facility will serve a structure that is within five hundred lineal feet of an existing sewer collection system that will accept to serve that structure and necessary easements for the connection is legally obtainable; or

vi. Other justifiable reasons necessary to carry out the provisions of these regulations.

b. Except for denial based upon incompleteness of an application, if the Sanitarian proposes to deny issuance of a permit, the applicant ~~may~~ shall be notified by registered or certified mail of the intent to deny and the reason for denial.

c. After an applicant has been informed of the intent to deny a permit and reasons for that denial, the applicant shall have the opportunity to amend the application to bring the proposed facility into compliance with these regulations or address the outstanding deficiency. In the case of denial of a permit by the Sanitarian, the applicant may request a hearing before the Teton County Board of County Commissioners. Any appeal hearing held shall be conducted pursuant to the contested case rules of Teton County. Appeal beyond that may go to the WYDEQ/ Environmental Quality Council.

- In terms of the definition of "high strength wastewater," Teton County should also consider a including nitrogen compounds in septic tank effluent of 60 ppm or greater.
- We support the requirement of advanced treatment. Importantly, the proposed definition, 9-3-1(c), defines advanced treatment as reducing Total Nitrogen to less than 20 mg/l before entering the absorption system. We support the measurement point before entering the absorption system and defining the parameter as "Total Nitrogen." However, we believe that a lower concentration of Total Nitrogen would be more appropriate. Teton County should consider additional options as far as available technologies and Total Nitrogen reduction (see above in the context of discussion Appendix E).
- Importantly, the definition of "enhanced treatment," 9-3-1(r) anticipates removal of Total Nitrogen to a level of 30 mg/l "before leaving the absorption system." We believe that a lower concentration would be more appropriate and that Teton County should consider additional options as far as available technologies and Total Nitrogen reduction. We also believe that a more appropriate testing point would be **before entering the absorption system** because such measurement point would be consistent with the definition of "advanced treatment" and easier to measure in the context of enforcement or overall monitoring of the advanced treatment requirements and evaluation of the effectiveness of the regulatory program.

- In terms of Table 2, which appears to relate estimates of effluent flow rates to the number of bedrooms in a home, it is necessary for Teton County to consider that, due to the housing pressures in Teton County, there may be more residents per bedroom than in other areas of Wyoming.
- A small edit to Table 4 and the accompanying text is **crucial** to ensuring the interaction between performance-based standards for SWFs located in proximity to public water supply wells. Footnote 1 to Table 4 references source water assessments conducted in 2004. The language "or subsequent assessments" should be added (i.e. "Small wastewater systems that discharge to the same aquifer that supplies a public water supply well and are located within Zone 1 or 2 (Attenuation) of the public water supply well, as determined by Wyoming Department of Environmental Quality Source Water Assessment Project (2004), ~~or~~ as established in Section 2 of the Wyoming Wellhead Protection Guidance Document.enhanced (1997), or subsequent assessments shall provide additional treatment."). The language should be amended to reflect the fact that subsequent assessments should be considered as opposed to having things "frozen in time" based on what happened in 2004 of 1997.
- Table 4 references reducing nitrates to less than 10 mg/L, however the nitrate limits should be informed by the most current science, which has evolved since EPA initially set a limit at 10 mg/L and which suggests chronic exposure to nitrates at lower concentrations can be harmful.
- It is unclear why Trihydro did not evaluate potentially greater setback distances in Table 4. Setbacks from surface waters should be increased from 50 to 100 feet to provide increased protection for Teton County's valuable water resources. To the extent that Trihydro believes Teton County's authority to require greater setbacks is limited because DEQ rules include such distances, we respectfully submit that Trihydro did not conduct legal analysis and that the DEQ rules represent a "floor," not a "ceiling" (i.e. Teton County may require more protective setbacks to protect the health, safety, and welfare of its residents).
    - As an example of a 100-foot setback, see Park County, UT; 'Wetlands And Streams: The minimum setback from wetlands shall be forty feet (40'). The minimum setback from a river, perennial stream, pond, or lake shall be one hundred feet (100') from the ordinary high water mark."
    - https://codelibrary.amlegal.com/codes/summitcountyut/latest/summitcounty_ut/0-0-0-18128
- In 9-3-7(a)(1), we recommend adding the word "repair" to the types of activities that require a permit, or to add a definition to 9-3-1 that clearly states that that repairs that include excavation are considered a modification.
- We support the requirement to require an effluent filter in SWFs (i.e. 9-3-7(b)(viii)).
- In terms of 9-3-11, which regulates sand mound systems, in light of studies of ineffectiveness, sand mound systems should be prohibited outright, or at least prohibited in sensitive areas identified through Trihydro's sensitivity/vulnerability analyses. Instead, in sensitive areas, or areas with high groundwater and/or high permeability, advanced treatment should be required.
- In 9-3-14, Trihydro recommends including requirements for advanced treatment and references Montana regulations. Teton County Should also consider the following information:
    - As another example of advanced treatment, see examples approved in Massachusetts (including Cape Cod); https://www.mass.gov/guides/approved-title-5-innovativealternative-technologies
    - https://onsyte.com/ (commercially available systems whereby the utility provider monitors the individual homeowner systems via SCADA (radio, cell, or internet system control, administration, and data acquisition) and service them for a monthly fee. High levels of N, P, BOD, and bacteria removal have been demonstrated.
    - As another example of potential advanced treatment technology, "Bold and Gold" from ECS (Environmental Conservation Services) is a proprietary media for placement as the septic absorption field. Excellent levels of N, P, BOD and bacteria removal are obtainable. However, further consultation with the company is necessary to discuss adaptation to Teton County's cold climate. https://ecs-water.com/bold-and-gold-frequently-asked-questions/
    - https://doh.wa.gov/sites/default/files/legacy/Documents/Pubs//337-093.pdf (Washington State report on nitrogen reducing technologies for onsite wastewater treatment technology).

    - Consider adopting the NSF/ANSI 245 standard that requires a 50% reduction for total nitrogen to meet the growing demand for nutrient reduction in sensitive environments (NSF's Advanced Onsite Wastewater Treatment Certification Program 2021).
        - https://www.nsf.org/knowledge-library/nsfs-advanced-onsite-wastewater-treatment-certification-program
- In Appendix A, which contains the Percolation Test Procedure, the "general requirements" of B(a)(i) should be amended to state "Percolation tests shall not be conducted in test holes that extend into groundwater at any time of the year, bedrock, or frozen ground. (i.e. additional language suggested in underline in preceding sentence). In other words, groundwater levels should not rise into the percolation test hole during any time of the year.
- In Appendix A, which contains the Percolation Test Procedure, section B(c)(i)(A),there is a reference to "8(c)." It is unclear if that is a typo.

Appendix G – Monitoring Program

- Page 1, The groundwater monitoring program should be designed to "act as sentry" for as many Public Water Systems (especially those that lack protection plans) as possible.
- Page 2, The groundwater monitoring program would be a great framework for an inventory of all existing wells in Teton County. Any wells not in use and unfit for utilization in this program need to be officially retired following DEQ's Plugging and Abandonment guidance.
- Page 2, Surface water monitoring locations should also be in close proximity to large contained herds of animals such as cattle pens or horse corrals like Bar T 5.
- Page 5, Total Phosphorus and Specific Conductance should be added to the Surface Water Parameters list.
- Page 5, Microplastics and antibiotics should be added to the Additional Parameters list.
- Page 6, We disagree with the following statement: "*Following evaluation of that initial two years of data, it would be expected that moving forward, a frequency of two sampling events per year would be sufficient to capture variations in constituent levels*." Why venture a guess for two years out in this report? The purpose of this section is to guide the establishment of a robust water quality monitoring program. Foundational aspects of resilient/defensible monitoring programs are replicability and comparability through time and adaptive management. If down the road it becomes clear that updates to sampling frequency, parameters, locations, or methods need to be made, they will be made.
- Attachment A, More groundwater monitoring locations (shallow and deep) must be added above and downstream from the Town's retention basins and WGF/DU vegetated reservoirs in order to determine if/how bad effluent is leaching through the aging clay liners into the groundwater. This is also true for surface water monitoring locations, which will help inform what impact, if any, the WGF/DU construction project is having on water quality.

Appendix H – Mitigation Measures

1. H-2 Source Water Protection Planning

- We support the recommendation of Source Water Protection Planning as a mitigation measure. We agree with Trihydro's recommendation that this is a "high priority."
- First, please note that although neither the EPA nor the DEQ requires source water assessments (the only state in the nation where these documents are voluntary) Teton County, acting through the Board of County Commissioners, likely has the legal authority require SWAs and SWPPs as a condition of land use. Moreover, the Teton Health District, under Wyoming Health Statutes, unquestionably has the authority to require these assessments and protection plans.

- Second, please note that Wyoming Association of Rural Water Systems has the staff capacity to prepare a small number of assessments each year, perhaps 5 or 6. At that rate, it would take decades to complete the process.
- Third, to maximize resource utilization, priority should be given to developing Source Water Assessments and Source Water Protection Plans for the largest community Public Water Supplies first, followed by non-transient non-community systems with emphasis on schools, and then transient non-community.
- Fourth, wellhead protection may require construction of well houses and/or fencing, security systems, etc.
- Fifth, new septic systems (SWFs or DEQ UIC Class V large capacity) should not be permitted within groundwater zones 1 or 2 as identified in the Source Water Assessments.

2. H-4 County Ownership of Sewer Extensions

- We support the recommendation of county ownership of sewer extensions as a mitigation measure. We agree with Trihydro's recommendation that this initiative is "an immediate need."
- An alternative to county ownership of sewer extensions is the formation of a Joint Powers Board with county-wide authority over infrastructure projects: planning, engineering, funding, management, etc.

3. H-5 Develop Aquifer Protection Overlay

- We support the recommendation of county ownership of sewer extensions as a mitigation measure. We agree with Trihydro that there is an "immediate need" for this measure. As noted in our comments on Appendix E, there are still some challenges on setting appropriate levels of performance for "advanced treatment" and "enhanced treatment". Teton County should consider more protective performance levels.
- Social benefits will accrue to the entire community and not simply benefit private well owners. Public Water Supplies will undoubtedly benefit as Aquifer Protection Overlays will enhance protection provided by SWPPs, and surface water will also experience positive benefits due to close groundwater/surface water connection. Change "maybe" to "yes."

4. H-8 Implement Fish Creek Watershed Management Plan

- We support the implementation of the Fish Creek Watershed Management Plan as a mitigation measure. However, that planning process has an uncertain time frame. Actions to protect and restore the waters of the Fish Creek drainage, a Class 1 designated water, should not be delayed pending the outcome of the study. There is the need for expansion of the sewer extensions into areas of Fish Creek, as discussed in the context of comments on Appendix E-2.
- Trihydro states that the mitigation measure did not receive stakeholder votes, however the public voted in favor of the mitigation measure at an open house held in August 2023.
- Restoring the Fish Creek Watershed, a DEQ Class 1 surface water, is a benefit to the entire community. Note that Social Benefit should be listed as a Yes, rather than a Maybe.

5. H-10 Upgrade Existing Large Water & Wastewater Treatment Plants

- We support the recommendation of upgrading large water and wastewater treatment plants as a mitigation measure.
- We disagree with current wording of Trihydro's statement that "available studies, data, and current regulatory requirements do not support recommending a higher level of treatment for WWTPs and additional studies are needed." Because there is a lack of data, it would be more appropriate to state "additional studies are needed" (i.e. "~~available studies, data, and current regulatory requirements do not support recommending a higher level of treatment for WWTPs and~~ additional studies are needed.")
- We disagree with the statement "The Town would potentially need to start planning for WWTP expansion around 2036 or later based on conservative estimates provided in other mitigation measure evaluations." This statement fails to take into account that the WWTP functions less effectively as additional effluent enters the plant and sludge accumulates. This statement underestimates the urgency of long-term planning and the time involved in planning for future capacity. Trihydro's comments on capacity and demand need

to have a presented set of analyses and their bases specifically referenced. This appears to be a qualitative assessment without documented proof presented in the WQMP. Further, the statement "[i]n the meantime, the Town WWTP has adequate capacity to serve additional areas of the County based on current WWTP design capacity," depends on whether the Town address the sludge accumulation in the existing cells.

- We agree the Town of Jackson should "immediately" conduct quarterly groundwater monitoring of four existing groundwater wells located downgradient of the WWTP and one existing well upgradient for a year. However, the following sentence appears incomplete/missing words: "Constituents should water quality parameters included as part of the monitoring recommendations." Further, the location and depth of the four existing wells should be further evaluated. We understand from a walk-through of the WWTP that there are existing wells within the facility and those also should be added also to have a more complete analysis of the clay lining integrity.
- In the Description, it is states: "There are also lagoon cells that are not lined." It should be noted that the unlined lagoons were designed purposely to function as Rapid Infiltration Ponds to facilitate the discharge of partially treated effluent into groundwater. See EPA's Draft and Final EIS for the Jackson WWTF for further discussion.
- Under the Social Benefits criterion, please clarify how upgrading WWTFs will negatively impact low-income residents, and provide recommendations to reduce those impacts
- The "life cycle costs" discussion references the costs of an activated sludge plant; it is necessary to add definition of the plant, the reason for inclusion in this section, and its objective.
- An activated sludge plant was not reviewed. What is the objective of the plant, is it an add-on to the options? If this is new information, it needs to be added into the appropriate document, such as C-2 Volume on Wastewater. The 2021 Study indicated costs of approximately $9 million to remove sludge from the facility and less if processed onsite by a new cell designed to biodegrade the sludge.
- The following "suggested next step" should be edited: "If monitoring data indicates the liner system isn't effective, the Town should update the Trihydro Report to include installing a new liner system in the lagoons <u>and include a cost-effective review of upgrading to new technology systems versus repairing the existing liners and facility</u>."
- Overall, the analysis used to make this conclusion needs to be presented in documented form with all assumptions and bases. A timeline for the added capacity and sludge removal and engineering designs, etc. needs an illustration for this to be reviewed. Typically, the decision to increase capacity of a plant or use a new design may take ten years or more of planning, funding, designing, and construction. Any capital improvements in the current WWTP should be weighed against new infrastructure that would have a longer life and improved water quality goals. In summary, Trihydro has made an analysis without show their numeric assessment and specific citations to other studies to support Trihydro's findings.

6. <u>H-5 Develop Aquifer Protection Overlay</u>

- We support the recommendation of county ownership of sewer extensions as a mitigation measure. We agree with Trihydro that there is an immediate need for this measure. As noted in our comments on Appendix E, there are still some challenges on setting appropriate levels of performance for "advanced treatment" and "enhanced treatment."

7. <u>H-12 Establish Total Maximum Daily Loads</u>

- We support the recommendation of establish total maximum daily loads as a mitigation measure.
- We agree with Trihydro this measure should move forward as a short-term mitigation measure, however, we note the immediate need for increased monitoring to provide the baseline data for this determination. Please address the apparent inconsistency regarding Social Benefit ranking; i.e., developing a TMDL for Fish Creek received a Yes, while implementing the Fish Creek Watershed Management Plan received a Maybe.

8. H-21 Expand Existing Sewer Districts

- Trihydro recommends not moving this forward as a mitigation measure, but it does recommend the County continue to consider this mitigation measure if additional studies, changes to the SWF regulations, and aquifer and surface water protection overlays are not effective.
- We note that there may be particular sewer districts for which expansion makes sense. For example, increased sewer connections in the Fish Creek watershed could be routed to the Wilson Sewer District.
- The Social Benefit score seems at odds with other social benefit scoring. The Comments note that "Project will benefit residents the system serves only" yet it ranks the social benefit as "Yes." We recommend that the WQMP team review the scores assigned to all 33 recommendations for accuracy and internal consistency.

9. H-32 Create Countywide Water and Sewer District

- We disagree with the low rating of this mitigation measure and suggest amendments to Trihydro's mitigation measure evaluation so as to not unnecessarily foreclose options.
- Trihydro should not opine on politics; it states "the Town of Jackson is currently not interested in this option." This portion should be edited as follows: Existing districts and the Town of Jackson would need to approve joining the county district ~~and the Town of Jackson is currently not interested in this option.~~
- Trihydro states in the "Trihydro Recommendation" portion of the evaluation: "Also, existing districts and the Town of Jackson are providing consistent and reliable service to their customers, thus the creation of a new district does not provide additional benefit to existing customers of the Town of Jackson and existing districts."
- The second part of that sentence does not logically follow from the first. The fact service is "consistent and reliable" does not have bearing on whether the creation of a new district would provide additional benefit.
- For example, larger infrastructure projects may enjoy an "economy of scale" and be well poised to seize once-in-a-lifetime generation federal funding opportunities for infrastructure. Such projects could better protect and restore Teton County's groundwater and surface water. We recommend deleting this sentence and stating that further analysis is necessary to determine potential benefits, including funding opportunities and streamlining operations. Indeed, available funds could provide motivation to establish agreements between entities that could be executed relatively quickly.
- The TOJ WWTP effluent discharges into the Snake River which is accessible and used by nearly all town residents for recreational purposes and thus their potential for exposures.
- Trihydro recommends against the creation of a countywide water and sewer district but does not address other regional or county-wide agencies authorized under state law such as Joint Powers Boards that may be more suitable to meet the water and wastewater infrastructure challenges that lie ahead.

Cleantech Consulting WQMP Comments

Please see the attached document.

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Date: January 16th, 2024

To: Meghan Quinn

From: Lorenzo Guidolin

MEMO: Comments on DRAFT FOR PUBLIC COMMENT WATER QUALITY MASTER PLAN (WQMP) TETON COUNTY, WYOMING

WQMP Draft and Appendix C-2 related to Waste Water Treatment Plants

Plant Upgrade

- The draft WQMP final recommendation is that TOJ WWTP requires additional studies before any upgrade can be considered. However, it reports data and technical observations that are concerning, but it does not rank these concerns as critical enough to trigger a recommendation to upgrade the waste water plant.
  The conclusion drawn in this report is that TOJ WWTP has sufficient capacity, and it is fully capable of meeting permit requirements. While this is true based on past and current performance, the report seems to downplay the actual needs of the plant and it misses addressing some tangible red flags that are already evident in available data and in a previous report issued by TriHydro in 2021 on the plant.
  The following list includes the items that are mentioned on the Draft WQMP without much emphasis on their criticality. We strongly believe these items are critical and should be included in the overall analysis and long-term planning for the plant:

  1. Increased cBOD loading on plant influent at above design.
  2. Increased flow trends in the plant influent
  3. Solids accumulation in the lagoon cells

  The permit says that the plant will need to consider upgrades/rehab only once it reaches 85% of flow limit capacity of 5.0 MGD. The WQMP draft quickly dismisses any need to upgrade the plant because it is consistently operating below flow limit of 5.0 MGD, however, we believe that current evaluation and future planning must consider also actual cBOD loading (which is higher than design) and actual volumetric availability of the lagoon, given that the solids accumulation at the bottom of each cell is reducing space available for treatment.

In other words, **the WQMP just implies that the plant influent flow averages are comfortably within the 5.0MGD, without quantifying how the increased cBOD loading above design, and loss of volume on the cells are impacting the ability to perform within compliance in the future. This is a misrepresentation of the actual conditions of the plant.**

In our opinion, the development of a comprehensive WQMP is a unique opportunity to bring the TOJ WWTP to the next level, moving towards a "gold standard" of excellence, that can improve the quality of the water discharged into the Snake River, and can also be prepared to treat waste water for future higher sewer flows with potentially higher amounts of constituents (i.e. cBOD, TSS, nutrients).

The following are data example to support the criticality of the TOJ WWTP upgrade:

In August of 2022, the highest flow rate observed was 4.13 MGD, which is close to 85% of total plant capacity of 4.25 MGD; this limit was set on the design phase, assuming a cBOD loading of 211 mg/L.

However, in 2022, the average cBOD loading averaged 244 mg/L which is 15% higher than the design loading value of 211 mg/L. The higher range cBOD values recorded in 2022 exceeded 325 mg/L which is 54% higher than the design value. These numbers show how much the cBOD influent loading has increased and it is substantially higher from the design value used in 1995. In addition, the main cells of the lagoon have lost between 17-25% of volume capacity due to solids accumulation, which removes volume for process treatment.

These values unequivocally show an increasing trend for both flow and cBOD loading. These facts coupled together with the solids accumulation should be enough to justify that future planning should include the analysis of this data, as it will drive the available plant capacity to values that are below 5 MGD. **These considerations will make the need to upgrade the plant more urgent and critical than what the WQMP shows.**

- There is not much mention to the details of a report issued by Trihydro in 2021, that highlighted some challenges that the current plant is facing, with some recommendations for upgrades and improvements necessary to improve effluent water quality. These improvements would remove the risk of increased cBOD loading, and will also allow for higher future influent flows that could be expected from increased activity in the area, and potential future sewer connections.

- **Sludge Accumulation Estimates**

    - Does this report only assume a linear increase of sludge accumulation during the years? It would be interesting to also have a different projection, where the sludge accumulation is estimated for a faster rate, which is a possibility if the rising trends in cBOD and influent flow are confirmed.

    - The report also fails to quantify how much loss of treatment can be expected as the solids accumulate. The report implies that TOJ will only need to take action as the solids accumulation reaches 50%, but there is no data to support that will be acceptable as that level of solids might already cause compliance issues in the future.

GOLD STANDARD: The plant is aging, and its last upgrade was done in 1997. Water treatment technology has improved since then and several solutions to bring this plant closer to a "gold standard" of excellence should be considered during this master plan effort, as it represents a unique opportunity to shape the future water reliability for the area. Upgrades to the plant should be prioritized, not only to improve current performance with compliance requirements (TSS and cBOD), but especially to substantially reduce the amount of phosphate, ammonia and total nitrates discharged to the Snake River. In our opinion, the current performance of the plant in general is far from being considered close to the concept of "gold standard" for nutrients and TSS removal. In addition, there is a pending renewal of the WYPDES permit which might also include nutrients removal as new compliance limits.

- More specifically, here are some comments on performance improvement:

    - While **nutrient removal** is not included on the current WYPDES permit, data show that the ammonia removal performance of the TOJ WWTP in the winter months is poor, with ammonia consistently spiking above 30 mg/L during the cold months. This performance is only slated to deteriorate as the solids accumulation in the lagoon cells continues to remove process treatment volume to the plant. There are several technologies available that can address this problem and some possible solutions have been listed on the 2021 Trihydro report.

    - **Total Suspended Solids (TSS) removal**: TSS removal limit is set at 100 mg/L by the permit issued by Wyoming Department of Environmental Quality, and while it is currently met, it is NOT considered a gold standard when compared to other States and general good practices in waste water treatment world.
        - Secondary treatment standard as defined by the EPA establishes a limit of 30 mg/L for TSS (30 day average) . When technologies have limitations, such in the case of a lagoon system, the EPA allows States to adjust the federal regulations, on a case-to-case basis. In the case of waste stabilization ponds (lagoons) the State of Wyoming has elected to set a limit of 100 mg/L for TSS, however, most of the States only allow TSS values between 37-90 mg/L * . This comment is to say, that while TOJ is meeting the WYPDES permit requirements, the limit set by the permit is not considered anything close to a gold standard in terms of TSS removal, when compared to the rest of the country.
        - The upgrade of the TOJ WWTP would immediately bring benefits to the removal of TSS

* U.S. Environmental Protection Agency. 2010. *NPDES Permit Writers" Manual, exhibit 5.4,* (49 FR 37005, September 20, 1984)

- To sum it up, **the Master Plan does not emphasize enough the need for the TOJ WWTP to be upgraded in the short term, and it misses to highlight important technical data that would make the need for upgrade to become much more critical and evident**. The Master Plan also misses to incorporate the details of the various upgrade/rehab options available that were highlighted in the 2021 Trihydro report.

SWF and DWTF

- The master plan identifies some prominent issues:
    - Lack of a robust inspection program
    - Requirement of 4 ft of soil between the bottom of the Soil Absorption System (SAS) and higher seasonal level of the water table
    - Proposes to identify worse performing SWFs and pursue the possibility to connect them with a close by existing sewer system
    - Vacation rental housing could be over occupied at times, and that can stress the SWFs to the point they might be unable to properly treat the discharge. However, it does not quantify the issue and does not propose any possible solution.

My comments:

- An inspection program should be implemented as soon as possible, with a strict enforcement that will lead to best practices being observed by users. The awareness that a program has been enforced and inspections timely completed by the County will also drive better behavior by end users, deter bad practices such as illegal dumping, lack of SWF maintenance, etc.
- Long-term goal should be to minimize the number of DWTF and SWF through implementing sewer connections, as it will make it easier for the County to have proficient and successful monitoring program, and it can potentially eliminate the bad systems that are currently not performing well and might present some challenges in terms of capital investment if they need to be brought back to specifications.