

Attachment 1

RESPONSIVENESS SUMMARY

AMENDMENT TO RULE R317-1-3.3 TECHNOLOGY-BASED LIMITS FOR CONTROLLING PHOSPHORUS POLLUTION

<u>Comment Number</u>	<u>Commentor</u>	<u>Comment</u>	<u>DWQ Response</u>
A1	Spanish Fork City	<p>"I'm waiting to see the scientific numbers that prove why we need to have nutrient removal. I hear "its just the right thing to do" but no scientific data has been provided. I have seen numbers that state that the problem is with storm water and the leaves etc.. I am for keeping our water clean and will be totally supportive as soon as the numbers from good scientific studies are provided. Scare tactics about the EPA do not make a good reason to do it."</p>	<p>Technology-based limits are an interim measure imposed to prevent deterioration (in response to growth) of the state's limited water supplies while the science needed to establish regional and site-specific water quality standards is completed. National and international research on the effects of excess nutrients in the aquatic environments supports the need to control nutrients from point and non-point sources. These studies also consistently demonstrate that most, if not all, aquatic ecosystems have tipping points beyond which excess phosphorus causes degradation of aquatic life, drinking water, or recreation uses. DWQ aims to avoid tipping points that are difficult and costly to reverse.</p>
A2	Spanish Fork City	<p>"The cost to do tier II is way to cost prohibited with no proof of the environmental gain. The "just the right thing to do" is not in the 40 CFR's as a reason to create a new limit. If the data , good scientific data is provided I'll be the States greatest supporter."</p>	<p>DWQ's economic analyses of the costs for the proposed level of nutrient control are affordable and the benefits to Utah residents are desirable. Water quality standards are the fundamental water quality benchmarks, upon which water quality based effluent limits are derived, are expressly intended to be protective of uses. This means that values are set such that degradation of uses should never occur. The proposed rule is consistent with these goals. Once phosphorus enters our waters it is persistent, and difficult and costly to remove. Utah's population is projected to double by 2050 and we do not have evidence to suggest that our waters can assimilate the associated doubling of nutrient loads. The Technology-based limit rules effectively maintain the status quo of nutrient loading to Utah's waters while additional research is pursued.</p>

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B1	Carbon County Commission	<p>“We appreciate the fact that federal EPA standards have changed, and an agency action was essential to address these new standards that proclaimed a deterioration of state waters due to nutrient pollution. We also understand that consistent with your report, this rule modification is a first step in UDWQ’s nutrient strategy to ultimately provide as written, ‘Permanent protection of state waters.’”</p>	<p>It is unclear which EPA standards the commenter refers to as EPA has not adopted numeric nutrient standards. However, EPA has charged the states to develop regional water quality standards for nutrients that reflect the economic and ecological uniqueness of each state. EPA has determined that nutrient control is the single most important problem affecting our nation’s waters. In Utah many of our reservoirs already have nutrient-related impairments, as do an increasing number of streams. So while EPA is applying pressure to address the problem, DWQ believes that addressing this issue is a critical step in ensuring the quality of water for future generations.</p>
B2	Carbon County Commission	<p>“We agree with the exceptions as defined in the rule change allowing that no technology based limits or loading cap will be applied if; 1) phosphorus effluent limits are established by TMDL; 2) receiving water phosphorus concentration will not be increased by more than 10% at the point of discharge; 3) economic hardship; or 4) effluent limits or loading cap are clearly unnecessary to protect downstream uses of the receiving water body.”</p>	<p>DWQ appreciates the concurrence. However, based on additional review and public comments a change was made to the proposed rule by deleting Exemption 2, because this exclusion was already captured by Exception 4. We also added another option to make it clear that other innovative proposals, such as nutrient trading or land application of treated effluent, would be considered provided that they would result in commensurate phosphorus reductions.</p>
B3	Carbon County Commission	<p>“It is our understanding that the financial impact of the rule for local governments, non-rural cities, towns, and service districts owning wastewater treatment works could mean an increase in annual operating expense. We have some apprehension about this issue. If it is clear by the use of non-agenda driven science that a real need exists to protect our constituency for health, safety or the welfare of the public, by implementing this rule then due diligence would demand this action be funded and implemented. The</p>	<p>There is considerable scientific literature on the deleterious effects in lakes and rivers caused by excess nutrients. Numerous phosphorus-related impairments have already been identified in reservoirs and streams throughout Utah. DWQ is committed to conducting further research to generate site-specific numeric criteria that will define the specific needs of receiving waters.</p> <p>Utah’s population is projected to double by 2050, which would also double municipal phosphorus discharges into waters of the state unless they are addressed. The TBL rule effectively maintains the status quo of nutrient</p>

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		<p>District Manager of our Water and Sewer Special Service District has determined that this rule charge would increase by \$3.50. This computes to a 10.9% increase in our resident's monthly sewer bills."</p>	<p>loading to state waters while research in support of site-specific standards is pursued.</p> <p>With respect to the economic concerns. The rule seeks to ensure that any economic impacts resulting from requisite upgrades are equitable allowing an exception or variance to the proposed Technology Based Limits if the cost of meeting the phosphorus limits results in a sewer user fee that exceeds 1.4% of the local service area's Median Adjusted Gross Household Income (MAGI). This metric has been used by DWQ as an indicator of sewer rate affordability and fairness for many years and is conservatively consistent with the national affordable sewer cost which ranges between 1% and 4%. DWQ will review applications for the economic variance on a case-by-case basis.</p> <p>DWQ is sensitive to the fact that few people like to see increases in sewer rates and that funding prioritization is important. The State recently conducted a study and found that maintaining water quality for future generations was of moderate to high importance for 98% of Utah citizens. When asked about specific water quality concerns, negative responses related to nutrients (e.g., increased frequency of algae blooms, reductions in water clarity) were most important. We also asked whether citizens would be willing to pay to ensure that water quality was maintained or improved. Citizens who recreate on or around lakes or streams (users)—73% of Utahns— were willing to pay more than those who do not (non-users). Non-users were willing to pay between \$2-7/month. Users were willing to pay \$3-14/month to maintain water quality, and even more (\$8-32/month) to improve water quality. These increases are well within the implementation costs of these rules.</p>

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B4	Carbon County	<p>“The Carbon County Commissioner have found that although it is stated that rural communities will not be affected, Carbon County with a population of 20,000 residents will be entirely affected. Comparing statewide income data between 2012 and 2013 using the information supplied by the Utah Division of Workforce services, we found that while statewide average wages have risen by 2%; in Carbon County the average wage has decline by 13.5%. Considering the eminent loss of the coal fired plants that set the standards for jobs in Carbon and Emery Counties together with the loss of the trucking, mining and other indirect infrastructure with its associated jobs, the outlook for our area is poor as least.”</p>	<p>DWQ recognizes that the cost of complying with new regulations can result in economic hardships on communities. The proposed new rule provides a variance for these communities. The variance is indexed to the local median adjusted household gross income explicitly to protect low income and depressed economic regions from such hardships. As a result of this and similar comments, a change in the proposed rule was made to allow other economic factors to be considered by DWQ in its application of the economic hardship exception (variance).</p>
B5	Carbon County Commission	<p>“If actions that created this need for a rule change are driven from the National pulpit then it is our strong recommendation that it should be paid for by them.”</p>	<p>For the past several years DWQ has had numerous meetings with stakeholder interest groups. While specific recommendations have differed, nearly everyone was consistent with their opinion that we needed a solution that makes sense for Utah. These are our resources and in a survey of citizens over 90% viewed protection of water quality to be among their highest priorities. Nevertheless, it is important to note that the Federal Government does fund the majority of Utah's water quality program, which includes contributions toward the State Revolving Fund that is used to fund the construction and renovation of treatment facilities. Utah uses the same 1.4% MAGI economic indicator of hardship (among others) in awarding low interest loans and hardship grants in support of water quality improvement projects.</p>
B6	Carbon County Commission	<p>“Again, if real science provides this action is needed then we support this rule change. If it doesn't we submit that the State should take</p>	<p>There is considerable scientific literature on the deleterious effects in lakes and rivers caused by excess nutrients. Numerous phosphorus-related impairments</p>

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		<p>punitive litigation action in defense of it citizens and the sovereign rights of Utah as a State.”</p>	<p>have already been identified in reservoirs and streams throughout Utah. DWQ is committed to conducting further research to generate site-specific numeric criteria that will define the specific needs of receiving waters. We are not aware of any phosphorus criteria that have been proposed elsewhere that are >1 mg/l so it highly unlikely that these limits are overly protective. Rather, the TBL rule effectively maintains the status quo of nutrient loading to state waters while research in support of site-specific standards is pursued.</p>
B7	Carbon County Commission	<p>“[A]lthough this particular rule does not speak to the requirements for plant operations, Carbon County strongly advises that all those employed and responsible for the purpose of both sewer and water plant operations be certified and required to recertify and train on a regular basis. Attendance to seminars or trade shows may be an adequate forum for training but testing and certification is the only method that knowledge gaps or job proficiency can be discovered and addressed. The infrastructure costs, losses and risks to the health, safety and welfare of the public would at minimum mandate recorded documentation supporting the knowledge and expertise of those in control of such facilities.”</p>	<p>DWQ agrees that there is a strong need for wastewater operator certification and continuing education programs. These programs have been in place for many years and are regularly evaluated for effectiveness and improvement. With water quality partners such as Rural Water Association of Utah and Water Environment Association of Utah, DWQ has already initiated a number of training opportunities regarding both the impacts of the proposed rule on treatment works systems used to remove phosphorus, compliance requirements, and operational changes and challenges that are needed to implement toe proposed rule. DWQ’s operator certification and continuing education programs are established on Administrative Rule R317-10, Certification of wastewater Works Operators.</p>
C1	River Network	<p>“[W]e would like to express our support for the concept of establishing technology-based effluent limitations for nutrients, and in this case specifically for phosphorus. The technology-based effluent limitations concept is a small – but truly meaningful – step forward in Utah’s efforts to address nutrient pollution in Utah’s rivers, lakes, and wetlands. We support this concept, and strongly encourage the Division of Water Quality to</p>	<p>Thank you for your support of water quality improvements and this rule.</p>

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		move forward quickly to finalize the proposed rule (with changes noted below) and implement the new requirements.”	
C2	River Network	<p><i>“The use of an annual mean as the time period for the non-lagoon treatment work limits is inappropriate. The use of an annual mean for the time period on the phosphorus limit is far too long, and out of step with what other states are doing. For example, technology based limits in Wisconsin, Minnesota, and Indiana use a monthly time step. The annual mean is a problematic time period because nutrients can vary significantly in the discharge and their impact in the stream can vary significantly over time (e.g., seasonally). We request that the Division modify the proposed rule to require an effluent limit of 1.0 mg/L as a monthly mean.”</i></p>	<p>DWQ agrees that for many water quality applications monthly averages may not be the appropriate averaging period, but in this case we are seeking significant reductions to prevent further degradation while we conduct the science to determine the site-specific requirements of downstream ecosystems. In this context, longer and broader averaging periods are appropriate. As the program progresses toward numeric nutrients criteria or TMDL load allocations, alternative averaging periods will also be evaluated. In support of those future efforts, DWQ has changed the monitoring requirements in the revised rule.</p>
C3	River Network	<p><i>“The “exception” described in 3.3(C)(2) is outside the structure of technology based effluent limits and generally unworkable. This exception contemplates an exemption for anyone claiming they will not increase the total phosphorus concentration the in receiving water by more than 10 percent. Problems with this concept include: 1.) it is entirely out of step with technology based effluent limits, 2.) as written it is functionally meaningless and hence dangerous to water quality, and 3.) even if better written would prove impossible to implement.”</i></p>	<p>In principle, DWQ believes that there are situations where the discharge load of phosphorus relative to the load in the receiving water is insignificant. However, the analyses required to make such a demonstration will be made on a case-by-case basis. DWQ has deleted this exception in the final rule. Treatment works can make such a demonstration through the remaining variance 3.3.C(2)(c) (exception 3.3.C(4) in the draft rule).</p>

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C4	River Network	<p><i>“The “exception” described in 3.3(C)(3) should be limited to cases where the Water Quality Board funding package still results in a median adjusted gross household income (MAGI) over 1.4 percent. This exception needs to be modified to reflect an important reality – many treatment works will or should approach the Water Quality Board for funding support for costs associated with complying with the new limits. This exception must explicitly state that the 1.4 percent threshold applies AFTER the effects of any grants, low-interest loans, etc. from the Water Quality Board are applied to the financial package for the discharger. The exception should also require any entity seeking to use this exception to first apply for the support from the Water Quality Board. Lastly, just because a 1 mg/L limit would drive a facility above the 1.4 percent MAGI, there’s no reason to completely remove ANY limits on phosphorus – for example, a 2 mg/L limit might be totally achievable under the 1.4 percent threshold.”</i></p>	<p>DWQ agrees with the concern raised by the commenter. The revised rule includes language to reflect this concern.</p>
C5	River Network	<p><i>“Appropriate language might look like this: If the owner of a discharging treatment works can demonstrate that imposing a technology-based limit or loading cap for phosphorus would result in an economic hardship for the users of the treatment works, the 1 mg/L limit as an annual mean will not apply. “Economic hardship” is defined as sewer service fees, as a result of implementing a technology-based limit or loading cap for phosphorus, being great than 1.4% of the median adjusted gross household income of the service area based on the latest information compiled by the Utah Tax Commission after inclusion of any grants,</i></p>	<p>DWQ appreciates the effort to provide specific alternatives to clarify the intent of the original rule and have incorporated many of these suggestions into the revised rule.</p>

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		<p><i>loans, or other financial support provided by the Utah Water Quality Board or other entities. Any owner claiming this exception must first apply for support from the Utah Water Quality Board, so that the impacts of such support – if any – can be considered. If the exception is granted, the treatment works shall still receive a phosphorus discharge limitation within the parameters of the economic hardship.”</i></p>	
C6	River Network	<p>“The rule should also be modified to note that the 1.4 MAGI exemption does not apply if the receiving water is impaired for issues related to nutrient pollution (e.g., algal blooms, dissolved oxygen). The 1.4 percent threshold is a relatively arbitrary number, and as such the agency should reserve the right to review situations where a water is impaired and determine if action must be taken even when costs exceed the 1.4 percent threshold. This is in keeping with US EPA’s position on economic determinations, which defines “mid-range” impacts as 1-2 percent of median household income while more than 2 percent is seen as substantial.”</p>	<p>In practice, TMDLs are already an exception to these funding constraints. The first variance already makes it clear that these limits do not apply to waters with a TMDL load allocation.</p>

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C7	River Network	<p><i>“The “exception” described in 3.3(C)(4) will require extensive documentation and must include a public process for review.</i></p> <p>It goes without saying that the exemption relying on claims that the limits are “unnecessary” must require a high threshold of proof on the part of the discharger. While likely not appropriate for inclusion in the rule language, we would like to better understand the process staff will use to evaluate these claims. In addition, any claim for this exception must allow for public review of the discharger’s claims. This review will most likely occur through the permit public notice and comment period, but this rule should explicitly state that dischargers will be required to submit written information in support of their claims and that the information will be made publicly available through the permit public notice period.”</p>	<p>The proposed change in rule makes it clear that these materials would become part of draft permits, which are subject to public review.</p>
C8	River Network	<p><i>“The monitoring requirements, particularly for smaller facilities, must be improved.</i></p> <p>The proposed rule proposes the treatment works with flows less than 1 mgd monitor annually and that those with flows between 1 mgd and 5 mgd monitor quarterly. Even if the agency stays with the annual mean measure for the limit, these monitoring frequencies are meaningless. To take one, 24-hour composite sample once a year to calculate an annual mean is mathematically meaningless and will lead to inappropriate monitoring times, etc. At a minimum, facilities of less than 1 mgd should be required to monitoring quarterly and those between 1 mgd and 5 mgd should monitor monthly. The the rule should also note that the monitoring should</p>	<p>DWQ agrees that additional monitoring is necessary, particularly for smaller discharges. We have evaluated the burden that additional data collections would place on facilities and have found that it would not be onerous. The proposed change in rule now requires a minimum of monthly samples for all facilities. The revised rule also clarifies monitoring requirements and including analytical methods, based on requests that were received during public comment.</p>

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		<p>be done during “critical seasons or loading periods” to allow permit writers the ability to direct monitoring to address the timing question.”</p>	
D1	Central Valley WRF	<p>“The State has not yet proven impairment to beneficial uses along the Jordan River, and within the Farmington Bay-Great Salt Lake ecosystems, due to phosphorous loading. Even with the current near record low water volume in Farmington Bay and ongoing phosphorous loading, there is insufficient evidence to declare impairment of its beneficial use at this time. Recognizing the unique relationship of nutrients and the ecosystems of Farmington Bay-Great Salt Lake, the Jordan River/Farmington Bay stakeholders have committed to increase funding of detailed scientific studies to better define nutrient impacts. Money spent on meeting a provisional phosphorous limit may be better spent on studies leading to a more definitive understanding of what nutrient controls are appropriately protective.”</p>	<p>The central objective of the technology-based limits rule is to prevent impairment before it occurs. DWQ concurs that additional research is needed on Farmington Bay with respect to nutrients. However, Utah's population is projected to double by 2050, which would also double municipal phosphorus sources unless they are addressed. The TBL rule effectively maintains the status quo of nutrient loading to state waters while research in support of site-specific standards is pursued. While evidence is currently insufficient to set numeric phosphorus criteria for Great Salt Lake or Farmington Bay, there is no evidence that doubling the phosphorus loading will <u>not</u> cause deleterious and potentially irreversible harm to the uses of the Bay. DWQ sees these technology-based limits as an affordable way to preclude further harm to Farmington Bay and Jordan River as Utah's economy continues to grow. The State appreciates the ongoing research conducted by others and looks forward to ongoing collaborations on Jordan River and Farmington Bay so that we can continue to determine what is needed to protect the designated uses of these ecosystems.</p>

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D2	Central Valley WRF	<p>“The proposed rule calls for an annual mean of 1.0 mg/L for total phosphorus. However, the nutrient may have beneficial use if treated effluent were seasonally recycled for irrigation purposes. Sadly, the state legislature and State Engineer's office have limited the viability of wastewater recycling projects in Utah by requiring that such project participants hold the underlying water rights, and by limiting their place of use. When can we expect the Utah Division of Water Quality and State Engineer to cooperatively champion effluent recycling as a means to proactively address both nutrient loading and water supply issues?”</p>	<p>DWQ is supportive of water recycling and reuse and believes that it will be a critical part of resource management as our population, and concurrent water demands, continues to grow. DWQ currently works closely with the State Engineer's Office and will continue to do so to refine water reuse policies and procedures. Several recent grant funding provisions within DWQ and the State Engineers office encourage recycling efforts. DWQ has added a variance in the proposed change in rule that would allow for innovative or alternative approaches to achieve a commensurate phosphorus reduction to the technology-based limit. This could include water reuse.</p>
D3	Central Valley WRF	<p>“The Technical Memorandum entitled UDWQ POTW Nutrient Removal Cost Impact Study: Analysis of Central Valley Water Reclamation Facility, completed for UDWQ in June 2010, included as Table 14 an estimate of environmental impacts for the four tiers of nutrient control studied. According to the table, annual removal of approximately 380,000 pounds of phosphorus per year from Central Valley's effluent, under the Tier 2 scenario, will require over 2.95 million pounds of metal salt and 21,000 pounds of polymer. Resulting truck emissions to agriculturally land apply the additional biosolids are projected at over 8.6 million pounds of CO2 per year. Other air emissions and energy use estimates, to produce and deliver the metal salts and polymer, were not provided. In light of UDAQ struggle to abate current levels of PM2.5 precursor pollutants, this will add significantly to that challenge. Has the Utah Division of Air Quality been made aware of</p>	<p>DWQ reviewed the quantities reported in Table 14 of the Central Valley Water Reclamation Technical Memorandum and discovered that the trucking mileage estimated for hauling 535 tons per year of additional was misreported. The actual additional mileage in Table 14 should have been 1,925 miles per year and not 680,000 miles per year and the resulting CO2 emission should have been reported as 24,600 pounds per year of increased CO2 emission instead of the 8.6 million pounds per year reported.</p> <p>Additionally, the report cited assumed current effluent concentrations of 6 mg/L, whereas Central Valley has averaged 3 mg/L since 2000. Removal of 2 mg/l phosphorus would require approximately 1.76 million pounds of Ferric, approximately half of the estimate provided by the commenter. The result of this difference would be about half as much additional sludge being produced and half of the air emissions.</p> <p>Nevertheless, we appreciate the concern over potential conflicting environmental demands and encourage cities</p>

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		these proposed impacts to the Wasatch Front air shed resulting from the proposed rule?"	to consider storage and transport plans for solid waste that, to the greatest extent possible, minimize transport on days with poor air quality.
D4	Central Valley WRF	"We note that subsection C. Exceptions of the proposed rule does not address the concept of nutrient trading between POTW's along a common receiving water. As you may have heard, Central Valley is exploring the concept of biosolids introduction, from other POTW's, into our digesters for energy recovery and greenhouse gas reduction. Part of the negotiated tip fee equation could include nutrient trading with plants that more readily remove phosphorus than Central Valley does. Inclusion of a nutrient trading concept into the rule would be welcome. Can nutrient trading be included in the proposed rule?"	DWQ recognizes that water quality trading is a viable tool to achieve water quality goals in a cost-effective and efficient manner. The change in proposed rule includes a new variance that would allow for innovative or alternative approaches, including trading, achieving a commensurate phosphorus reduction to the technology-based limit. The treatment works must demonstrate and ensure that such reductions are achieved through this mechanism.
D5	Central Valley WRF	"Given the foregoing questions, we support the protracted implementation schedule to allow for additional study. Data collection and evaluation continues related to nutrient impacts on the impounded wetlands, Farmington Bay and Great Salt Lake."	DWQ appreciates the support. This rule was developed after extensive dialogue with stakeholders and the intent was to obtain phosphorus reductions that are reasonable.
E1	Bowen-Collins Associates	"After the initial presentation, the discussion turned to the number of trickling filter plants in the state. These plants, by design, efficiently	DWQ encourages optimization and believes that, as indicated, a number of plants will be able to meet the phosphorus reduction requirements (and particularly the

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		<p>remove BOD and Ammonia, the constituents previously targeted by the EPA. However, these plants struggle with the ability to meet both current proposed phosphorus rules and anticipated nitrogen restrictions. Between the implementation of the TBL on phosphorus and the establishment of a TIN limit on the plants, it appears that the State intends to take an interim step encouraging optimization at each of the plants. Many of the Activated sludge plants in the state can meet both the phosphorus and nitrogen proposed limits of 1 and 10 respectively. However, the trickling filter plants will struggle with implementation of both limits at potentially higher cost. I would propose that the State consider postponing implementation of the 5 year compliance window by implementing an immediate (See January 2015) program encouraging optimization at all plants. Compliance with numeric criteria is obviously the ultimate desire of both the State and the EPA. However, by establishing the TBL for phosphorus in the first phase, all trickling filters will be forced into process conversion or addition of chemical precipitation processes. If the trickling filter plants elect to only consider phosphorus they will likely postpone undertaking process conversions which would be necessary to comply with ultimate goals of both phosphorus and nitrogen. This means undertaking conversion when future financing options may be limited and at bonding/borrowing rates that are likely to be higher the longer conversion is postponed."</p>	<p>anticipated TIN TBL) by modifying existing operations. However, optimization is not an acceptable variance for the phosphorus rule. DWQ has identified more opportunities to reduce nitrogen through these means. A workgroup was recently formed to explore how these rules could be augmented with language to encourage optimization to lower nutrient inputs to our waters. Phasing of improvements via regulation does lead to some uncertainty, but this is a common practice in both planning and finance as a way to reduce costs.</p> <p>Most plants can implement chemical phosphorus controls economically, but they should consider future improvements for TIN, in addition to other growth and infrastructure needs, as they create plans for meeting the technology-based limits for phosphorus. The three year planning horizon should allow sufficient time for these considerations.</p>

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E2	Bowen-Collins Associates	“If each mechanical plant was first encouraged to “optimize” their plants they could have a two to three year window permitting operation through several cold and warm seasons with an aim of optimizing nitrogen and phosphorus removal biologically within the natural limitations of their existing process. Many existing plants would have a chance to refine their process and “pilot” BNR processes as well as facilitating collection of critical nutrient data for future process planning.”	Optimization of phosphorus removal can be accomplished quickly, allowing plants to implement improvements in <5 years. Therefore, optimization is not an acceptable variance for the phosphorus rule. DWQ encourages plants to pilot TIN optimization studies. A workgroup has been formed with the intent of augmenting future technology-based nitrogen limits with options for plant optimization.
E3	Bowen-Collins Associates	“Those mechanical plants that could meet the TBL through optimization would naturally have their UPDES limits reduced to those levels without further issue. Conversely, those plants that demonstrated that their existing process is incapable of meeting the TBL through optimization could, at the end of their pilot period, be given 5 years to come into compliance with the TBL for both phosphorus and nitrogen.”	Optimization is not an acceptable variance for the phosphorus rule. These are good ideas and DWQ will make sure that they are vetted with the recently formed optimization workgroup. Of course, details such as how specifically such demonstration might be made, how to incorporate optimization numbers into permits, etc., will need to be considered.
E4	Bowen-Collins Associates	“Typically when a facility plan is filed for process expansion or conversion the State requires the POTW to look at a twenty year planning horizon. Professional prudence would dictate that process expansion/conversion should take into account both phosphorus and nitrogen, although they are being proposed for separate implementation.”	DWQ remains supportive of long-term planning and communities should consider the likelihood that DWQ will require implementation of a technology-based limit for total inorganic nitrogen (TIN) within 10 years.

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E5	Bowen-Collins Associates	“Additionally, by beginning rule implementation with optimization you put activated sludge plants at an advantage. They will reach compliance ahead of their trickling filter counterparts. This allows an extended window of compliance for the plants that will require the most intense modifications, while still making significant progress toward overall compliance. A minor benefit may be staggering funding applications over several years as plants will be on separate tracks based on optimization outcomes, intensity of process conversion, individual compliance agreements/orders, and availability of funding.”	An important consideration in designing the technology-based limit was creating a level playing field for communities and industry. Process differences among plants are the results of choices made long ago. Utah’s trickling filter plants are currently experiencing infrastructure problems, due to their age, that put them at a greater disadvantage with meeting these limits. In reality, with Moab considering upgrades to meet infrastructure problems, only two trickling filter plants will remain in Utah. In many cases, many of these infrastructure needs would require attention, regardless of whether or not these limits were implemented.
E6	Bowen-Collins Associates	“I support the State’s goals and hope that we can work together as an environmental community to change the “waste”-water mindset from pollution prevention to system optimization, cooperative management, and resource recovery to the mutual benefit of all stake holders.”	DWQ appreciates the support and thoughtful comments.
F1	Salt Lake City WRF	“Nutrient Strategy Development: The City support UDWQ’s efforts in their development of a nutrient strategy for waters of the state. This includes science-based nutrient limits that are appropriate for each water body or water body classification.”	DWQ appreciates the support and acknowledgement that nutrients can be a considerable water quality problem that requires long-term planning to effectively address. The proposed technology-based limits are part of a greater nutrient reduction strategy and are intended to preclude further phosphorus inputs as Utah’s population continues to grow. Among other things, this will buy DWQ time to collaborate with others to conduct the science necessary to establish regional and site-specific water quality standards that will define specific phosphorus and nitrogen levels that are needed to ensure the long-term support of Utah’s lakes and streams. There is an extensive body of scientific evidence that excess nutrients degrade aquatic

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			<p>ecosystems. Phosphorus is particularly persistent in the environment. Should uses become degraded from excess phosphorus, recovery is expensive and even with considerable remediation efforts restoration of uses can take decades.</p> <p>Once phosphorus enters our waters it is persistent, and difficult and costly to remove. Utah's population is projected to double by 2050 and we do not have evidence to suggest that our waters can assimilate the associated doubling of nutrient loads. The TBL rule effectively maintains the status quo of nutrient loading to Utah's waters while additional research is pursued.</p>
F2	Salt Lake City WRF	<p>"Scientific research, unknowns, and uncertainty: The Utah Nutrient Strategy: Technology Limits prepared by UDWQ in support of the TBL expressly notes: [1] "The science necessary to support site specific nutrient criteria is incomplete for most of Utah's water bodies, and in many cases considerable research will be required before defensible site-specific criteria can be established. (page 2)" [2] Important scientific research topics include: characterization of background conditions; natural variation in both nutrients and ecological responses; the recovery potential of the watershed; and potential for shifts from one ecological state to another (i.e., ecological regime shifts). Insights gleaned from these research efforts will help define what is attainable and what is protective of the water body's beneficial uses." [3] There are many studies currently being carried out to assess nutrient impacts in Great salt Lake (GSL) and that "[a]s yet, the results of these studies are insufficient to identify appropriate response variables or make conclusions about what nutrient</p>	See previous response.

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		standards are necessary to protect the beneficial uses of the GSL ecosystem." (Page 3) [4] There is acknowledged uncertainty regarding nutrient limits for the GSL. Notably, the Strategy goes on to say that "[i]t is likely that years of additional research will be needed before defensible conclusions about appropriately protective Great Salt Lake nutrient limits, if any, can be made. (Page 3)"	
F3	Salt Lake City WRF	"Given the unknowns and uncertainties regarding the scientific research and Great Salt Lake, the City requests that further studies and evaluations be performed by the State prior to imposition of technology-based limits."	<p>Studies are ongoing and DWQ looks forward to the continued collaboration with Salt Lake City and others to conduct the research necessary to better understand the long-term needs of the Great Salt Lake ecosystem.</p> <p>The central objective of the technology-based limits rule is to prevent impairment before it occurs. DWQ concurs that additional research is needed on Great Salt Lake with respect to nutrients. However, Utah's population is projected to double by 2050, which would also double municipal phosphorus sources unless they are addressed. The TBL rule effectively maintains the status quo of nutrient loading to state waters while research in support of site-specific standards is pursued.</p> <p>While evidence is currently insufficient to set numeric phosphorus criteria for Great Salt Lake or Farmington Bay, there is no evidence that doubling the phosphorus loading will <u>not</u> cause deleterious and potentially irreversible harm to the uses of the Bay. DWQ sees these technology-based limits as an affordable way to preclude harm to Great Salt Lake as Utah's economy continues to grow. The State appreciates the ongoing research conducted by others and looks forward to ongoing collaborations on Great Salt Lake so that we can continue to determine what is needed to protect the designated uses of these ecosystems.</p>

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F4	Salt Lake City WRF	<p>“[T]his rule when coupled with future pending rules will require significant expenditures of public funds to revise the treatment process at the City's POTW and should be based on sound science, and demonstrated benefit.”</p>	<p>There is considerable scientific literature on the deleterious effects in lakes and rivers caused by excess nutrients. Numerous phosphorus-related impairments have already been identified in reservoirs and streams throughout Utah. DWQ is committed to conducting further research to generate site-specific numeric criteria that will define the specific needs of receiving waters.</p> <p>The central objective of the technology-based limits rule is to prevent impairment before it occurs. Utah's population is projected to double by 2050 and we do not have evidence to suggest that our waters can assimilate the associated doubling of nutrient loads. The TBL rule effectively maintains the status quo of nutrient loading to Utah's waters while additional research is pursued.</p> <p>The State recently completed a study on the economic benefits of nutrient reduction efforts and found that, in general, that benefits balanced costs. We also found that that 97% of Utahns view maintain the quality of waters for future generation of moderate-high importance. With respect to nutrients, we found that roughly 80% of Utahns found the type of negative impacts that can occur from excess nutrients (e.g., reductions in water clarity, algae blooms, odor problems) to be of moderate-high importance, and that these problems are already affecting recreation decisions with negative economic consequences. Among the 73% of Utahns who recreate on waters people expressed that they were willing to pay \$3-14/month to maintain water quality. Clearly Utah citizens value our water resources and whether or not they make the association, they do not want to see increasing nutrient-related problems. DWQ believes that the adaptive measures in these technology-based limits are reasonable and consistent with interim nutrient reduction steps taken elsewhere.</p>

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G1	ATK Launch Systems, Inc.	“The rulemaking’s technology-based limits should not apply to direct industrial discharges.”	The proposed technology-based limits should be applicable to all direct discharges of wastewater into waters of the state, except as allowed under the proposed rule. DWQ’s analyses of water quality benefits, technologies required to meet the rule, and their costs were very broad and are applicable to industry.
G2	ATK Launch Systems, Inc.	“Although ATK maintains that the technology-based limits should not apply to its discharges, it further requests clarification of the exemptions to account for phosphorus in the intake water.”	Phosphorus in a community or industry intake water is a relevant consideration in the context of its potential impact on receiving waters. This concern is addressed in related Rule R317-1-3.4. When phosphorus is added to the water as a result of its use, deterioration of the receiving stream results from the additional pollutant loading. When wastewater is discharged into a water of the state, the quality of the receiving stream is a relevant consideration of which an exception under the proposed rule may apply.
G3	ATK Launch Systems, Inc.	“ATK maintains that any assessment of its discharge conditions must recognize the documented poor natural water quality in Blue Creek.”	DWQ agrees that site-specific water quality conditions must be taken into consideration to account for unique situations when establishing water quality standards for state waters. The purpose of the proposed technology-based limits is to prevent further deterioration of state waters while allowing time to develop the necessary scientific body of work needed to evaluate all state waters and their unique situations so that water quality standards can be established and the waters can be protected.
G4	ATK Launch Systems, Inc.	“Although ATK recognizes that nutrient reduction and management is needed in some regions of Utah, it requests clarification of the exemptions from the technology-based limits to specifically grandfather (exclude) application to existing industrial treatment plants.”	Nearly all wastewater treatment plants in Utah will require some degree of alteration, whether operational, mechanical, or change in point of discharge, to comply with the proposed rule. All were designed to treat other regulated pollutants, and only three (including one industry) were designed to meet a phosphorus limit (as a result of TMDL). There is no basis for a “grandfather” exemption under the proposed rule.

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G5	ATK Launch Systems, Inc.	“Although ATK maintains that the technology-based limits should not apply to its discharge, it further requests clarification of the exemption based on economic hardship to recognize the relevance of other factors as determined on a case-by-case basis.”	DWQ recognizes that the cost of complying with new regulations can result in economic hardships on communities and businesses. The proposed new rule provides an exception (variance) for communities, which is based on the cost of sewer service as indexed to the local median adjusted household gross income. As written, this exception does not apply to industry. Although not expressed in the proposed rule, other economic conditions such as MAGI less than 80% of state average, unemployment, and population trends are to be considered. As a result of this and similar comments, a change in the proposed rule was made to allow other economic factors to be considered by DWQ in its application of the economic hardship exception (variance).
G6	ATK Launch Systems, Inc.	“ATK recognizes the proposed rule’s monitoring obligations and requests clarification of the same.”	All UPDES permit holders will be notified of the self-implementing requirement for monitoring under the proposed rule. The burden of proof will be on the petitioner to demonstrate that there is not a reasonable potential to discharge nitrogen or phosphorus.