NOTICES OF PUBLIC INFORMATION

Notices of Public Information contain corrections that agencies wish to make to their notices of rulemaking; miscellaneous rulemaking information that does not fit into any other category or notice; and other types of information required by statute to be published in the Register. Because of the variety of Notices of Public Information, the Office of the Secretary of State has not established a specific publishing format for these notices. We do however require agencies to use a numbered list of questions and answers and follow our filing requirements by presenting receipts with electronic and paper copies.

NOTICE OF PUBLIC INFORMATION

DEPARTMENT OF ENVIRONMENTAL QUALITY

[M15-32]

1. **A.R.S. Title and its heading:** 49, The Environment
   A.R.S. Chapter and its heading: 2, Water Quality Control
   A.R.S. Article and its heading: 2.1, Total Maximum Daily Loads
   Section: A.R.S. § 49-234, Total maximum daily loads; implementation plans

2. **The public information relating to the listed statute:**
   Pursuant to A.R.S. § 49-234, the Arizona Department of Environmental Quality (Department or ADEQ) is required to develop a total maximum daily load (TMDL) for navigable waters that are listed as impaired. The purpose of this notice is to publish the Department's determinations of total pollutant loadings for a TMDL for Watson Lake in Prescott, Arizona that the Department intends to submit to the Regional Administrator for Region 9, U.S. Environmental Protection Agency (EPA) for approval.

   Public notice of the opportunity for public comment on the draft "Watson Lake TMDL: Total Nitrogen, DO, pH, & Total Phosphorus Targets" was published in *The Prescott Courier* newspaper of general circulation in the vicinity of the impaired reach, on April 1, 2014. The public comment period extended from April 1, 2014 to May 1, 2014.

3. **Total Maximum Daily Loads (TMDLs)**
   A.TMDL Process
   A TMDL represents the total load of a pollutant that can be assimilated by a waterbody on a daily basis and still meet the applicable water quality standard. The TMDL can be expressed as the total mass or quantity of a pollutant that can enter the waterbody within a unit of time. In most cases, the TMDL determines the allowable concentration or density of a pollutant in units per day and divides it among the various contributors in the watershed as wasteload (i.e., point source discharge) and load (i.e., nonpoint source) allocations. The TMDL must also account for natural background sources and provide a margin of safety.

   In Arizona, as in other states, changes in standards or the establishment of site-specific standards are the result of ongoing science-based investigations or changes in toxicity criteria from EPA. Changes in designated uses and standards are part of the surface water standards triennial review process and are subject to public review. Standards are not changed simply to bring the waterbody into compliance, but are based on sound science that includes evaluation of the risk of impact to humans or aquatic and wildlife communities. Existing uses of the waterbody and natural conditions are considered when standards for specific water segments are established.

   These TMDLs meet or exceed the following EPA Region 9 criteria for approval:

   Plan to meet State Surface Water Quality Standards: The TMDLs include a study and a plan for the specific pollutants that must be addressed to ensure that applicable water quality standards are attained.

   Describe quantified water quality goals, targets, or endpoints: The TMDL must establish numeric endpoints for

the water quality standards, including beneficial uses to be protected, as a result of implementing the TMDLs. This often requires an interpretation that clearly describes the linkage(s) between factors impacting water quality standards.

Analyze/account for all sources of pollutants: All significant pollutant sources are described, including the location and the magnitude of sources where data is available.

Identify pollution reduction goals: The TMDL plan includes pollutant reduction targets for all point and nonpoint sources of pollution.

Describe the linkage between water quality endpoints and pollutants of concern: The TMDLs must explain the relationship between the numeric targets and the pollutants of concern and determine whether the recommended pollutant load allocations exceed the loading capacity of the receiving water.

Develop margin of safety that considers uncertainties, seasonal variations, and critical conditions: The TMDLs must describe how any uncertainties regarding the ability of the plan to meet water quality standards have been addressed. The plan must consider these issues in its recommended pollution reduction targets.

Provide implementation recommendations for pollutant reduction actions and a monitoring plan: The TMDLs should provide a specific process and schedule for achieving pollutant reduction targets. A monitoring plan should also be included, especially where management actions will be phased in over time and to assess the validity of the pollutant reduction goals.

Include an appropriate level of public involvement in the TMDL process: This is usually met by publishing public notice of the TMDLs in a newspaper of general circulation in the area affected by the study, circulating the TMDLs for public comment, and holding public meetings in local communities. Public involvement must be documented in the state's TMDL submittal to EPA Region 9.

In addition, these TMDLs specifically comply with the public notification requirements of A.R.S. Title 49, Chapter 2, Article 2.1 through this public notice: Publication of these TMDLs in the Arizona Administrative Review (A.A.R.) is required per Arizona Revised Statute, Title 49, Chapter 2, Article 2.1 prior to submission of the TMDL to EPA. The Department shall:

1.Prepare a draft estimate of the total amount of each pollutant that causes impairment from all sources that may be added to a navigable water while still allowing the navigable water to achieve and maintain applicable surface water quality standards;

2. Determine draft allocations among the contributing sources that are sufficient to achieve the total loadings;

3.Provide public notice and allow for comment on each draft estimate and draft allocation and shall prepare written responses to comments received on the draft estimates and draft allocations.

4.Publish the determinations of total pollutant loadings that will not result in impairment and the draft allocations among the contributing sources that are sufficient to achieve the total loadings that it intends to submit initially to the regional administrator, along with a summary of the responses to comments on the estimated loadings and allocations, in the A.A.R. at least forty-five days before the submission of the loadings and allocations to the regional administrator.

Federal law only requires the submittal of the pollutant loadings to EPA for approval. However, the Department considers the pollutant loadings and the draft allocations to be integrally related and that they should be presented together to afford the public a complete understanding of the issues, outcomes and recommendations of the TMDL analysis. For that reason, the Department has combined the loadings and allocations in this publication in the A.A.R.

B.TMDL for Watson Lake

In 2004, Watson Lake was listed on the State's 303(d) Impaired Waters List as impaired for Total Nitrogen (TN), DO, and pH, based on sample results from 2002 and 2003. The listing has been confirmed in subsequent assessments and Total Phosphorus (TP) has been added as a target. A TMDL study initiated in 2007 collected additional samples in the lake and within the Upper Granite Creek Watershed at all points of the typical hydrograph for multiple locations and for subwatersheds and tributaries feeding the impaired reach. Critical conditions for nutrient exceedances were determined to be both summer monsoon and winter storms. This TMDL includes load and waste load allocations developed to ensure that Watson Lake will meet the annual mean nutrient standards for the Verde River. The 2012 Watershed Improvement Plan will be updated to include TMDL analysis and an implementation plan incorporating best management practices for land uses found within the watershed.

TMDL CALCULATIONS

The TMDL calculations are based on flow and concentration data analyzed using load duration curves, as well as the modeling package FLUX/BATHTUB.

The TMDL or loading capacity and the resulting load reductions necessary to meet the TMDL is determined using the TMDL equation:

$$TMDL = \sum WLA + \sum LA + MOS$$

Where WLA is waste load allocation (point sources), LA is load allocation (nonpoint sources and natural background), and MOS is a margin of safety. Loading capacity, existing loads, and reductions needed for water quality standard attainment are calculated for Watson Lake as mass loads in pounds per day to the lake and concentration targets in milligrams per liter for permitted and non-permitted sources. Analysis of watershed data is provided to guide further source determination and prioritization of locations for application of best management practices. Background loading from Prescott National Forest was estimated on a storm event basis.

MARGIN OF SAFETY

An explicit margin of safety (MOS) of 10 percent was applied to TMDL target values before LAs and WLAs were applied. The MOS is intended to account for uncertainties and random variations associated with data collection, lab analysis, equipment and method precision and accuracy limitations, modeling, and random error associated with flow measurements.

WASTE LOAD ALLOCATIONS (WLA)

As of the fall of 2014, AZPDES permits within the Watson Lake watershed include two general MS4 stormwater permits (City of Prescott and Yavapai County), one individual MS4 permit (ADOT), and six MSGP facilities, as well as several transitory CGP activities. MS4 and MSGP facilities covered under AZPDES individual permits are detailed in Table 1.

Existing loads of nitrogen and phosphorus to Watson Lake were determined from discharge and concentration data collected at USGS gauge #09503000 (Sundog gauge) located approximately ½ mile above the lake. With the inclusion of the MOS and background, reductions necessary to meet the mean annual Verde nutrient standards at this location and within the lake are 47 percent for TN and 49 percent for TP. These aggregated load reductions will be used as the benchmark for meeting TMDL in-lake targets and for assessing cumulative watershed improvements.

Collectively, the permitted point sources (MS4, MSGP, and CGP) are assigned a concentration based WLA equal to 1.0 mg/L total nitrogen and 0.10 mg/L total phosphorus. This WLA is applied, as a water quality based effluent limit (WQBEL), to all existing and future AZPDES (individual and general) permittees within the Watson Lake watershed. The WLA applies to discharges that occur in response to precipitation events and is applicable for each

separate discharge that may issue from the permitted entity or site. The exception is for MS4 permits where the WLA is expressed as a system-wide requirement. Permittees can demonstrate compliance with the WLA by either direct sampling of outfall discharges or demonstrate that best management practices quantitatively reduce the discharge of pollutants to a level that meets the WQBEL. Since the WLA is based upon annual mean Verde nutrient water quality standards, the mean value of permit discharge data will determine if the WLA allocation is being met. However, if single grab samples exceed the WLA, permittees should evaluate the effectiveness of BMPs, modify or implement new BMPs, or provide additional measures to improve water quality.

Beyond the general guidelines presented in the following paragraph regarding points of compliance for WLAs (discharge locations to waters of the State carrying the A&W designated use), the Stormwater Unit shall establish more specific locations when necessary on a case-by-case basis where dischargers under all general or individual permits (MS4, MSGP, CGP) issued by ADEQ are expected to meet their WLAs. The ADEQ Stormwater Unit shall also determine whether nutrient loading of tributaries or the main-stem of Granite Creek from all future general permittees has reasonable potential to occur in their permit reviews. If there is such reasonable potential, new permittees will be subject to the appropriate concentration-based WLA in this TMDL. Otherwise, new permittees' WLA shall be 0 mg/L.

The point of compliance for WLAs for all discharges from MS4, MSGP, CGP, or individual AZPDES permit operations shall be the point of discharge to a reach carrying an A&W designated use. All entities subject to individual and general AZPDES permit requirements will be considered to be operating consistent with the provisions of this TMDL if they adhere to the terms of their discharge permits as expressed for TN and TP concentrations.

LOAD ALLOCATIONS

Nonpoint source contributions from the watershed may come from either natural background conditions or anthropogenic sources. Mass LAs for TN and TP are calculated in the aggregate to be met at the Sundog USGS gauge #09503000 above Watson Lake. Within the watershed, LAs are set at the annual mean Verde watershed standards for TN and TP to be met by all nonpoint sources. Natural background is calculated at 10 percent of the total allocation for TN and 15 percent for the total allocation for TP.

LOAD REDUCTIONS

Load Reductions (LR) are needed when the existing load is larger than the LA calculated using the TMDL equation. The LR can be calculated by:

$$LR = \text{Existing load} - (LA + \text{Natural background} + MOS)$$

The percent reduction needed is calculated by using:

$$\%\ \text{Reduction} = (LR/\text{Existing Load}) * 100$$

Total reductions needed to achieve the mass load targets above Watson Lake are 47 percent for TN and 49 percent for TP. The growing season in-lake targets are 0.8 mg/L for TN and 0.06 mg/L TP to achieve the target chlorophyll-a value of 10 *u*g/L, DO of 6.0 mg/L in the top meter, and pH of 9.0 SU.

TMDLs identify the amount of pollutant that can be assimilated by the waterbody and still meet water quality standards. In order to calculate the load in pounds per day (lbs/day) from discharge in cubic feet per second (cfs), a conversion factor is required:

$$ft^3/sec * 28.32L/ft^3 * 86400sec/day * mg/L * kg/1{,}000{,}000mg = 2.447\ kg/day$$

The conversion factor of 2.447 was used in the following equation:

$$\text{Existing Load} = cfs * [\text{nutrient}] * 2.447 * 365 = kg/yr$$

To convert to lbs/yr, multiply by 2.206

TMDL SUMMARY

The following tables detail the TMDL targets and reductions necessary for Watson Lake. Table 1 gives a breakdown of TMDL mass targets, natural background, aggregate load allocation capacity, aggregate wasteload allocations, and percent reductions needed to attain WQ standards Table 2 details the breakdown of the aggregate load allocation by land ownership and contributing subwatershed. To meet the TMDL mass load reductions, all point sources and nonpoint sources in the watershed must meet the annual mean Verde standards for TN (1.0 mg/L) and TP (0.10 mg/L); all permittees shown in Table 3 and CGPs not shown must meet these targets.

Conditions/Allocations	Annual Loading to the Lake	
	TN (lbs/yr): lbs/day	TP (lbs/yr): lbs/day
Existing Conditions	10,888/365 = 29.83	2,228/365 = 6.12
Loading Capacity (LC) 34% TN Reduction	7,186/365 = 19.69	1,515/365 = 4.16
Background 10% of LC for TN	1.97	0.62
Margin of Safety (10% of LC)	1.97	0.42
Available Capacity (LC – NB – MOS)	15.75	3.11
Waste Load Allocation	2,874/365 = 7.88	568/365 = 1.56
Load Allocation	2,874/365 = 7.88	568/365 = 1.56
% reduction from existing:	47%	49%

Table 1. TMDL Mass Loads and Percent Reductions at USGS Gauge #090503000

Ownership Categories	Watershed Area (%)	Watershed Area (sq mi)	Permits	WLA TN (lbs/day)	WLA TP (lbs/ day)	Nonpoint LA TN (lbs/day)	Nonpoint LA TP (lbs/day)
Unallocated WLA Reserve 10% of WLA ADOT MS4 Other TBD				0.80	0.16		
City of Prescott	39	17.56	MS4 MSGP CGP	5.66	1.12		
Yavapai County (unincorporated)	10	4.46	MS4 MSGP CGP	1.42	0.28		
Total WLA	49	22.02		7.88	1.56		
Unallocated LA Reserve 15% of LA TBD						1.18	0.23
Prescott National Forest	40	18.11				5.90	1.17
State Trust	5	2.24				0.74	0.015
Military	0.2	0.08				0.06	0.001
Total LA	45.2	20.43				7.88	1.56

Table 2. Mass Loads Allocations by Land Ownership

Permit No.	Issue Date	Permit Type	Permittee Name
AZMS4-2002-30	2002	MS4	City of Prescott: Storm Water
AZMS4-2002-40	2002	MS4	Yavapai County: Storm Water
AZS000018	2000	MS4	AZ Dept. of Transportation: Storm Water
AZMSG-60156	5/27/11	MSGP	Fann Contracting Inc.: Trucking
AZMSG-60592	7/19/11	MSGP	Lamb RV Storage: Transit
AZMSG-68957	3/29/12	MSGP	City of Prescott: Fleet Services
AZMSG-68954	3/29/12	MSGP	City of Prescott: Sundog Treatment Works
AZMSG-68974	3/29/12	MSGP	City of Prescott: Transfer Station & Service
AZMSG-83190	11/24/14	MSGP	Yavapai Block Company, Inc.

Table 3. Permitees in the Watson Lake watershed (CGPs not listed)

4.0 ADEQ Response to comments on draft Watson lake TMDL

Chuck Budinger

General Comments

General Comment #1: This TMDL is incomplete and appears to avoid some of the conclusions in those studies that were intended to support it. By assigning a TMDL of 19.6 lbs/day for total nitrogen (TN) and 4.16 lbs/day for total phosphorus (TP) for total nutrients supplied by the Watershed to the Lake, but no TMDL for in-lake processes, the actions prescribed still run the risk of continuing the eutrophication of Watson Lake and denying the public the uses for which they bought it. By omitting the Escherichia coli (E. Coli) values (and subsequently the impact of sewage and Carbon to the Lake), it is hard to imagine the Lake actualizing the uses for which it was purchased in the near-term. The Report also seems to inter-mingle the Waste Load Allocations (WLA) and potential best management practices (BMPs) for Watson Lake with those of the Watershed. This "inter-mingling" of WLAs and BMPs gives the impression that only activity in the Watershed will achieve the TMDL for nutrients at the point where water drains into Watson Lake. This assumption dismisses the impact of in-lake processes on water quality. As a result, all the efforts by the City and other Permit-holders may not achieve the water quality that will allow for public use. One must also wonder about the use of Watson Lake by wildlife (birds, fish, deer, etc) and how the in-lake and upstream factors will impact their habitat. The public bought the Lakes for their aesthetic beauty and their recreational opportunities. This TMDL does not address all those factors that contribute to the impairment nor does it fully address those items that will substantially improve the Lake for the uses intended.

Response #1: The Watson Lake TMDL is first and foremost a budget for nutrient loading and the reductions necessary to achieve the Verde annual mean nutrient standards. The supporting studies provide additional information to inform TMDL implementation. Understanding in-lake processes is central to lake improvements and the coring and limno-corral studies provide a starting point for development of an implementation plan for the lake. Achieving the TMDL will require both watershed reductions and in-lake management. The *E. coli* issue is being addressed in a separate TMDL document. Both TMDLs will be rolled into an updated Watershed Improvement Plan (WIP) so that efforts can be coordinated.

Specific Comments

Specific Comment #1. Page 34, in Section 8.4.1, the Report said the WLA may have to be revised in the future. How? Why? Either this WLA solves the problem or it does not. The City or other Permit-holders should not have to be responsible for reducing a load to a certain level when there is a moving target. If the WLA will be adjusted downward, that should be

stated in the Report with a description of those tactics that will achieve the TMDL. Are the data too incomplete to adequately model it? Will the likelihood be that the TMDL goes up?

Response #1: Section 8.4 has been revised. Allocations will be applied equally between non-point sources and point sources. However, because Municipal Separate Storm Sewer System Permit (MS4) outfall discharge data is not yet available, the TMDL defaults to meeting the annual mean nutrient standards, applied to all sources in the watershed. Once data become available, mass load reductions may be adjusted based on achieving overall reductions.

Specific Comment #2. In addition to the assumptions for the Waste Load Allocation, E. Coli was not included in the TMDL Report. E. Coli could be a significant source of impairment to the Lake and may take a whole new set of management practices to reduce its load. Dr. Gremillion, in the Executive Summary of his report, indicated that Carbon isotopes in sewage waste water could be a significant "catalyst" for eutrophication. E. Coli, contained in sewage, and Carbon should be in the report before the City or other Permit-holders commit significant sums of money to correct a problem not yet fully analyzed and with no "endpoint" TMDL attached.

Response #2: *E.coli* is addressed under a separate report. *E. coli* data from the lake has not indicated that the lake is impaired for *E. coli*, although loading of *E. coli* is occurring during storm events.

Specific Comment #3. There does not seem to be a TMDL for nutrient loading for in-lake processes. The TMDL Report, on Page 24, Section 8.1, states that the in-lake nutrient loading was linked to precipitation and runoff. This seems to contradict Walker's Report (Limno-Corral: Phase II) where he says that even with clearest water available, the mechanism for nutrient loading due to cycling of the nutrients from bottom sediment will continue for years. He recommends processes or BMPs that will break that cycle. Reducing sediment to the Lake prevents additional source material for nutrient re-cycling, but it will not prevent the in-lake recycling.

Response #3: Added clarifying discussion to Sections 6.1 (nutrient cycling), 6.3.1 (inflows and nutrient recycling) and 8.3 (in-lake load reductions).

Specific Comment #4. The above statement also contradicts Gremillion's Bathymetric Report where he stated that dredging would remove the burden of sediments causing nutrient recycling and if not removed, the same anoxic (oxygen depletion) release of phosphorous can be expected. So, phosphorous is not being sequestered as a sink, but is sequestered as a reservoir to be recycled (See #5 below). This understanding is either missing from the TMDL or muddled in the text. Please clarify.

Response #4: See response to Specific Comment #3

Specific Comment #5. The statement on Page 28, Section 8.2, assuming that positive retention for N and P indicates a loss of nutrients to sediment exceeds that of internal regeneration. Walker describes in-lake processes where nutrients (N and P) are taken up by the sediments during part of the cycle and then are released in another part of the cycle. This is clearly independent of load coming from the Watershed. Therefore, positive retention may not be a real in-lake process. This discrepancy must be reconciled with the science of the supporting documents (Drs. Walker and Gremillion).

Response #5: ADEQ has provided clarification in Section 6.3.6; retention of nutrients was shown both through BATHTUB modeling and from analysis of sediment cores. Under strong thermal stratification, the sediment-water interface releases nutrients back into the water for algal growth, but in overall terms, the lake is a sink for sediment and nutrients.

Specific Comment #6. Table 5, page 29. It is unclear what the reduction was for the various management strategies. Are these good numbers; bad numbers? For example, is 0.760 mg/L-day a good, mediocre, or poor reduction? What is the percentage change is for each strategy? In the last paragraph it says that the HOD and MOD are better. Better than what? Are these values for TN and TP under the heading of HOD and MOD a good value for the TMDL for the Lake (rather than flow values coming into the Lake as stated in Tables 7 and 10)? If the numbers are good, could they be used as the TMDL for in-lake processes?

Response #6: Table 5 has been updated to include percent reductions for each scenario. HOD and MOD are separate but related to nutrient availability, in that the higher the biomass in the lake (based on nutrient availability), the higher will be the HOD and MOD. The objective is to reduce nutrients, reduce biomass, and decrease oxygen demand.

Specific Comment #7a. While the four proposed BMPs listed on page 37 will advance the prospect of improving water quality in the Watershed, it is unclear that they would be effective in attaining the TMDL for Watson Lake.

Response #7a: It will take a combination of widespread BMPs and in-lake management to meet the TMDL. The WIP will be updated with the TMDL results and ADEQ will continue to work with the stakeholders to implement BMPs to improve water quality throughout the watershed and within lake.

Specific Comment #7b. From the data obtained in the Watershed Improvement Plan, the Forests have been identified as the primary source of sediment, nutrients and carbon that contribute to the loading in Watson Lake. None of the BMPs listed on Page 37 are located in the watershed in a manner to intercept the water from the prime source areas identified for the impairment. For example, Whipple Street Bio-retention Basin intercepts a small sub-basin of the Watershed, very little Forest Service land and little, if any, sewage. The bio-retention basin is a good BMP and similar efforts should be encouraged throughout the Watershed, but this is a TMDL for Watson Lake.

Response #7b: The TMDL attributes a 50/50 split between urban and undeveloped land. The WIP recommended several BMPs but they were not intended to be the only BMPs implemented. ADEQ will be updating the WIP in the next year to include the TMDL results and continue BMP implementation alternatives. Any BMP that will reduce nutrients will contribute to improving lake water quality regardless of its location in the watershed.

Specific Comment #7c. If Watson Lake is to attain the TMDL at some point in the future, those sources that most directly affect it should be addressed first (with in-lake processes). The Wetlands behind Sixth Street are at the confluence of Miller, Butte, and Granite Creeks and represents the point where all sources of the Watershed meet. In addition, they intercept the effluent that leaks from the sewer lines in the creeks or adjacent to them. Furthermore, there are few sources of potential impairment downstream of the Sixth Street Wetlands, except for stormwater discharges from Tribal Lands (Government Creek) which showed the highest P concentrations in the entire Watershed (Table 3). Another potential wetland or bio-retention basin location would be immediately upstream of Watson Lake. This is the point of compliance for the TMDL given in this report; it intercepts all pollutant source material coming from the Watershed; and water entering the Lake at that point would be the cleanest possible. This is good for the Lake, but not an effective BMP for the Watershed. But this is a TMDL for Watson Lake and BMPs chosen to affect the Lake should be given priority.

Response #7c: ADEQ agrees that the area between the Butte and Miller confluence all the way down to the USGS gauge downstream of 6th Street is a logical area for wetland enhancement. There also appear to be contributions from the Acker Park drainage, as well as Government Wash and Slaughterhouse Gulch. Watson Woods has been partially restored to enhance riparian condition. The major challenge to siting wetlands is that they are most effective if the water can be slowed significantly and retained on-site to maximize uptake.

Specific Comment #8. How are the values for the TMDL (19.6 lbs/day for TN and 4.16 lbs/day for TP) to be measured? Is that 19.6 lbs/day the value for sediment capture (Total Suspended Solids) or for dissolved (Total Dissolved Solids) compounds in water? Is there a formula for equating the TMDL for total sediment capture?

Response #8: These values are measured from water quality samples collected at the lower gage site and are based on annualized monthly averages. They are not expected to be measured on a daily basis. Implementation should look at the annual number. These are not sediment numbers. If further sampling were to include suspended sediment concentration, or a combination of total suspended sediment and volatile suspended sediment (organic fraction) - along with TN and TP, it may be possible to develop a sediment proxy for nutrient loading.

Doris Cellarius

This TMDL document is an impressive report on the years of work ADEQ has dedicated to determining how much pollution must be reduced to achieve compliance with state surface water quality standards in Watson Lake. As it also points out, meeting these TMDL targets within the lake will improve water quality for uses downstream of the lake and continue to ensure no degradation of the Verde River.

These recommendations for better management practices are based on the vast amounts of data developed by ADEQ staff, assisted by Prescott Creeks community volunteers. Continued public involvement will be essential for making sure governmental agencies to carry out their responsibilities. One way to make sure this happens would be to expand the engagement of Prescott community groups in the work of the Watershed Improvement Council. There are now many activities proposed in this TMDL and the role of the community is acknowledged.

> "Community Groups: The Watershed Residents' Survey found a link between social involvement, knowledge about watershed issues, and commitment to watershed efforts. It suggested that one way to increase public support for water quality improvements is through outreach to community groups already engaged in community activities. Homeowner and neighborhood groups, garden clubs, hiking clubs, civic and faith-based groups are ideal audiences to engage around their specific interests. Educational articles The survey found that local media was a common source of water quality information for residents. The respondents that relied on local media as opposed to government agency or organization reports were less likely to favor a watershed protection fee and scored low on commitment to other restoration or protection efforts. In order to increase public support by raising awareness, the WIC could target these respondents through local media articles about watershed ….."

If the function of the WIC is primarily for coordination among governmental entities such as the City of Prescott, Yavapai County, the Yavapai tribe, and the Forest Service, it might be very helpful to establish broader stakeholder subgroup group of the WIC that focuses on education and community involvement. It could include businesses, educational institutions, summer camps, golf courses, garden clubs, landscape businesses, builders and conservation groups such as the Sierra Club. Each entity could work to educate and engage their constituents. These people, and their neighbors who see them helping to improve their watershed, will be more likely to support a Watershed Protection fee once one is proposed.

Prescott Creeks "Creek Care Stewardship Guide" would be an excellent existing tool for use in public outreach. Small public meetings with time for questions could target entities that can play a role in helping achieve the goals of the TMDL Plan. Descriptions of riparian conditions along Prescott's creeks illustrated the need for education and incentives for better maintained riparian areas. Some lawn care and landscape businesses do not realize how to care for riparian areas. On our creek a landscape company cleared the land right to the edge of the creek and then raked, bagged, carried off all the cut plants.

The idea of Creek Steward Groups, possibly one for each creek should be reconsidered. Studies for the TMDL found that nutrients in all of Prescott's creeks contribute to the poor water quality of Watson Lake:

> "Both the ALEC Arizona Lab for Emerging Contaminants (ALEC) monitoring and MST testing revealed strong anthropogenic influences on lower Manzanita Creek, lower Butte Creek, North Fork of Granite Creek, and lower Miller Creek with the North Fork of Miller Creek possibly contributing significantly to water quality problems downstream."

Local Creek Steward Groups could help maintain healthy riparian areas and participate in the establishment of improvements such as local bioretention areas.

> "Smaller more distributed facilities would likely provide more promising options for stormwater treatment throughout the developed watershed areas. Bioretention areas were chosen as the representative distributed stormwater treatment facility for the purpose of this scenario."

These volunteers could carry out public education, organize work parties, and provide ongoing oversight to make sure the areas are maintained. (I saw a lot of small attractive "bioswales" when I did a lot of walking around Portland, Oregon recently).

A targeted stakeholder group could also help with the Watershed Monitoring Plan. It is good to see that this TMDL program includes rigorous monitoring and evaluation plans and associated schedules which will guide its implementation. The local Sierra Club Water Sentinels has volunteers who are trained in water monitoring who could be invited to participate and might be interested in taking a leadership role.:

> "ADEQ will work with stakeholders to develop a comprehensive watershed monitoring plan or strategy. The strategy/planning document will follow ADEQ QAPP/SAP requirements and clearly state spatial and temporal monitoring objectives. ADEQ recognizes that permitted entities may have specific objectives that differ from non-permitted entities. Each monitoring entity will contribute a chapter to the Strategy/Plan identifying site locations, sample parameters, collection methods, labs used, data reporting requirements, and quality assurance/quality control measures. ADEQ will approve each chapter, with the understanding that they will be considered working documents, subject to refinements or adjustments as needed. It will be important to update the plan on a regular basis so that source characterization and TMDL implementation are timely noted. Funds may be available for support of plan development. ……Although not exhaustive, the list of entities identified to date, include: Prescott Creeks Association and volunteers (Nonpoint Source), City of Prescott (MS4), Yavapai County (MS4), ADOT (MS4) • Prescott National Forest (Nonpoint Source)."
>
> A last thought – a minor fundraising idea for someone - has any TMDL group ever made use of selling an attractive sticker for your car – Something about "I'm Doing My Part to Clean Up Watson Lake".?

Response: Thank you for all of these ideas; they will be considered as ADEQ moves forward in revising and updating the WIP.

Doug McMillan

Implementation of water quality and water supply improvement alternatives for the Granite Creek watershed could affect each other and consequently should be considered as a whole. Macro-rainwater harvesting (MRH) or in other words, use of the evaporative portion of the local hydrologic cycle to increase groundwater recharge in Granite Creek north of Watson Lake, could help the Prescott AMA get closer to having a sustainable yield. In addition, various MRH harvesting and transport alternatives could reduce contaminants in urban runoff through pre-treatment, erosion prevention and reduction of contaminate detention times in Watson Reservoir. Use of green infrastructure (GI) technologies recommended in the TMDL report will also reduce contaminants but the short-term recharge effects on the Little Chino aquifer needs further study. Dredging Watson Lake and consequently increasing its storage capacity could result in fewer occurrences of flood flows in Granite Creek to the north which has been reported by ADWR as a major contributor to natural recharge in the Little Chino aquifer.

Response: Thank you for your comments. A reference to MRH has been added at the end of Section 8.3 of the TMDL report.

Peter Kroopnick

Comment #1: Executive summary. This section may be the only part read by many people. Table ES-1 does not convey the results of the study to a lay audience. The last sentence from the 3rd paragraph on pg 36 sums it up "*The data indicates that the primary factors leading to water quality impairments in the project area are nonpoint source pollutants, increased runoff volumes due to impervious surfaces, and lack of storm water detention and infiltration/filtration*". Plus you should add that a 50% reduction is required (see my comment on final load reductions near the end).

Response #1: The sentence has been added to the Executive Summary, along with clarification that a 50% reduction in nutrients (approximately) will be required.

Comment #2: Figures 3 and 4 and text. Why are the graphs 6 years out of date? I know the study was initiated in 2007, but more recent data should be included.

Response #2: Figures 3 and 4 were meant to illustrate the point that inflows and lake levels are variable. ADEQ has added additional Figures in Section 7.2 that span the period of record from 1994/5 to 2011/12 to show the long term trend in discharge.

Comment #3: Section 6.1, line 4, text missing.

Response #3: The text has been fixed.

Comment #4: Section 6.3, and later discussion. Text says BATHTUB modeling runs were developed for 2007, 2010 and 2011. Results are only shown for 2011 and the TMDL is based on the 2011 run. More on this issue later.

Response #4: It is true that BATHTUB modeling runs were developed for 2007, 2010, and 2011. The model was calibrated using 2011 data, as the data resolution was much better than the other two years. For 2012, the model demonstrated an acceptable fit for TP central tendency; for TN, the model overpredicted in both the shallow and deep lake segments. This can be explained by the extent of lake flushing during that wet year. 2007 was used for corroboration, as there was the best spread of events over an annual period. For 2007, which was a very dry year, the model overpredicted TN and TP for Segment 1 (shallow) underpredicted TP in Segment 2 (deeper) and the central tendency for TN in Segment 2 overlapped but was higher than observed values. These results are all presented in Tetra Tech's Model Report. The TMDL Report did not include the graphs from 2010 and 2007 because ultimately the 2011 model was used in TMDL calculations.

Comment #5: Pg. 15, last paragraph. You state that Lake Watson is NOT phosphorus limited. I believe this is contradicted later on in section 9.2.2, when you say that the model used annual averaging, does that mean no monthly data were actually used in the model?

Response #5: Currently Watson Lake is not phosphorus limited. The proposed use of ALUM would shift the lake towards phosphorus limitation and away from predominance by cyanophytes (blue-green algae) that can fix nitrogen. ADEQ provided monthly mean flows and associated loads derived using the FLUX model to the contractor. In BATHTUB, these flows and loads were annualized for the years 2007, 2010, and 2011.

Comment #6: Pg 24, 3rd paragraph concludes with recommendations for upper watersheds. This is out of place and should be put in section 9.

Response #6: The comment has been moved under discussion of background in Section 7.3 to lead into the Watershed Improvement Plan (WIP) recommendations for watershed improvements.

Comment #7: Table 4 on pg. 25. If BATHTUB is using annual means (pg. 15 comment above), then this data is not relevant. If not, what is the point of calculating the average. You apparently used 2011 data for the final model runs. Based on my inspection of this table, I would have used the median value of the 6 data sets for the model runs.

Response #7: BATHTUB protocol calls for monthly mean input and then consolidates runs to an annual time step. To calibrate the 2011 lake response model, the 2011 monthly mean inflow/loads had to be used. The model does not have the equivalent of a moving average or median dynamic. Table 4 has been revised to show USGS statistics for monthly mean and annual mean flows over a longer period of record for comparison. This revision also responds to a request made by AMEC that data be presented by calendar year to make the point that 2011 was a relatively dry year although it was close to the median value for the 17 year period of record.

Comment #8: At the bottom of pg 25 it says that "Figure 19 shows the annual mean flow pattern", it shows the annual daily

mean flow. Important difference, if you really do use the annual mean in the model. On pg 26 you say "ADEQ estimated monthly loading rates…".

Response #8: Figure 19 was intended to show pattern, but not confuse the issue as to what resolution of flow went into the modeling. ADEQ has removed Figure 19 from that part of the report and added Figure 24 to illustrate the daily mean discharge within the context of 2011 sampling and BATHTUB calibration.

Comment #9: Table 5. These results are not very satisfying. It appears that reducing Total Nitrogen (TN) to less than 1 ppm in Segment 2 will be almost impossible. Total Phosphorus (TP) is a little more encouraging. The only scenario that lowered TN to less than 1ppm was total non-point load reduction in the watershed. I presume the 34% reduction in total load, is calculated from the non-point source load of 7.88 lbs/day divided by the current total load of 29.83 lbs/day. One could get the same result by also reducing the permitted load by 34%. It seems that ADEQ has much more clout to deal with the permitted load.

Response #9: ADEQ has added discussion highlighting the need to combine both watershed load reductions and in-lake treatment to achieve the TMDL. Table 5 has been revised (now Table 6) to show percent improvements for combination of the scenarios run in the model. The load reductions will be split 50:50 between non-point source and permitted (point source) according to jurisdictional area. This change has been placed in a new table (Table 9).

Comment #10: Table 6. The title needs improvement. Reductions in upper water sheds are insignificant since the total background load is only 1.97 lbs/day [TN] or 7% out of the 29.83 total.

Response #10: In separating the load allocation (See Table 9), the National Forest will receive 5.90 lbs/day TN and 1.17 lbs/day TP. The "background load" from Table 7 is 1.97 lbs/day TN and 0.62 lbs/day TP. Table 6 has been moved to Section 7.3.3 "Determination of Background" to clarify that what is presented in (now) Table 4 is showing the three upper areas where TN and TP were found to be higher than background. This information is offered to assist focus of resources on potential source areas that might be prioritized for BMPs.

Comment #11: Final load allocations: The final load reduction for TN and TP are approximately 50%. This should be placed in the executive summary. It should also be summarized that this reduction could be met by a 50% reduction in both non-point and point sources. Let's put the responsibility equally on both sources as a way of softening the blow to the City.

Response #11: The Executive Summary and language throughout have been adjusted to highlight combined reductions.

Comment #12: Section 8.5: 2nd paragraph says the release of TN and TP doubles during the summer months. Would it not make more sense to talk about a monthly total load, or at least a seasonal value? This is especially important in our environment in which rainfall is highly variable by season.

Response #12: It is common for dam water released from bottom waters during lake stratification to contain higher nutrient concentrations than when the lake is mixed. ADEQ did not collect the downstream samples from directly below the dam, but between the dam and the downstream USGS gauge. Further sampling is needed to characterize the relative contribution of 1) water released from Watson, 2) upwelling groundwater, 3) other possible sources, and 4) the degree of natural attenuation.

Comment #13: Section 9.2.2 title has a typographic error. This section and several others mention the need for a lake manager and a lake management plan. A definition of this position/document would be helpful. This should also be mentioned in the Executive Summary.

Response #13: ADEQ will work with stakeholders to 1) update the 2012 WIP and 2) develop a lake management plan. The first will focus on watershed improvements and the second will lay out an ongoing monitoring strategy and use of in-lake alternatives for meeting the TMDL. This statement has been added to the Executive Summary.

Comment #14: Finally, ADEQ should put the City of Prescott on notice that it may amend the MS4 permit to require load reduction.

Response #14: The ADEQ Storm Water Permit Program is in communication with the City of Prescott regarding MS4 requirements.

Prescott Creeks

Prescott Creeks is excited to have the Watson Lake TMDL reach this draft stage for public comment. We understand that ADEQ has expended a tremendous amount of time, energy, and funds into this TMDL analysis, and we respect the effort this project has taken. On behalf of the Prescott Creeks staff our responses are as follow:

Comment #1: Executive Summary. The final paragraph listing the reduction goals for the lake is confusing. Are these the correct reduction goals? Could they be organized into a summary table or similar that would be more accessible to the lay-person?

Response #1: ADEQ has revised the Executive Summary to clarify reduction goals. The reductions required start with the 34% of TP load and 37% of TN load recommended by Tetra Tech, Inc. Accounting for natural background and a margin of safety, the overall reduction is approximately 50% applied to both point and non-point sources. It is understood that in-lake nutrient cycling will need to be addressed with a combination of management options in order to meet the annual mean Verde nutrient standards and achieve a significant chlorophyll (biomass) reduction.

Comment #2: Section 2.3 "Prescott Creeks Association" is incorrect. The full legal name of the organization is Prescott Creeks Preservation Association, and we use "Prescott Creeks" as an informal, shortened DBA (Doing-Business-As) name. The mission of Prescott Creeks is to achieve healthy watersheds and clean waters in central Arizona for the benefit of people and wildlife through protection, restoration, education and advocacy. We appreciate the coordination and collaboration on monitoring and water quality improvement projects leading up to the TMDL, as well as the recognition in the document.

Response #2: The text has been updated to reflect this correction.

Comment #3: Section 3.2. Prescott Creeks is glad to see that a delisting report will be filed for the low DO. We have long believed this to have been associated with the background conditions of the area being high in elevation, arid, very open, and having intermittent flow with groundwater inputs.

Response#3: ADEQ agrees with this assessment.

Comment #4: Section 4.3. Although Granite Creek is technically headwaters to the Verde River, they are very different systems as far as flow, environment, temperature, uses, etc. We would like to see, and possibly work with ADEQ on, standards that better reflect the local conditions and make sense for the uses of these waterways.

Response #4: ADEQ is exploring developing statewide stream nutrient standards as well as appropriate intermittent stream standards, but there is no timetable established for completion.

Comment #5: Section 7.2. "Critical loading for both TN and TP occurs in the top 25 percent of winter flows". Our monitoring shows high levels of nutrients and bacteria during any times that include over-land flows. This has been consistent throughout the watershed.

Response #5: The text has been revised to include over-land flows in both winter and summer.

Comment #6: Section 8.3. Prescott Creeks supports the recommendation of watershed load reduction. Our monitoring and

understanding of the watershed shows non-point source issues throughout the upper watershed that impact the nutrient and bacteria levels of the waterways, both in the upper watershed and downstream. We believe this is the best use of funds to create the greatest impact on Watson Lake, Granite Creek, and its tributaries.

Response #6: ADEQ agrees with these statements.

Comment #7: Section 9.2.1 Our information, understanding, and professional opinion supports the suggestion from Hirschman et al. that bioretention is the Best Management Practice that would yield the greatest chance of water quality improvement.

Response #7: Acknowledged.

Comment #8: Prescott is increasingly becoming promoted and recognized for its natural beauty, outdoor recreation opportunities and mild four-season climate. Many people move here for the favorable environment and much of the economic base is supported by a tourist industry that is drawn to these features. Assuring the water quality of local creeks and lakes should be a priority for the all in the region, as a healthy, clean, beautiful environment is one of our strongest economic assets. Prescott Creeks has in the past conceived, funded, and managed projects in coordination with the Arizona Department of Environmental Quality, the City of Prescott, and other watershed stakeholders that work toward these goals. Prescott Creeks will continue to pursue projects that benefit water quality in Watson Lake and the upper Granite Creek Watershed, and as we have in the past, we will work to build strong public-private partnerships to accomplish these projects. As we improve water quality we will add considerable value to the environmental assets of our region and in doing so, benefit residents, visitors and the economy.

Response #8: Thank you for your commitment to watershed protection and to working with ADEQ and other stakeholders interested in protection and restoration of the environment.

Yavapai-Prescott Indian Tribe

Comment #1: On page 3, Section 1.2 Land Use. It is stated that "there are no current allotments within the watershed [for grazing]" this is not an accurate statement, YPIT uses its land (approximately 2 miles of Granite Creek) to graze approximately 40 head of cattle. We do have a range management schedule for these cattle and they are not along the creek full time but they are indeed there.

Response #1: Section 1.2 of the report has been amended to include reference to YPIT cattle.

Comment #2 Throughout the document YPIT is referred to as Yavapai-Prescott AND Yavapai-Apache; there is a distinct difference. Please make the change to always read Yavapai-Prescott Indian Tribe.

Response #2: The change has been made as requested.

Comment #3 We feel it is important to mention that on page 17, Section 7.3 that the lower USGS gauge (#09503000) is located on tribal land (Reservation).

Response #3: ADEQ appreciates the additional information and clarification provided by the tribe and has made the requested changes to the TMDL report.

GiSiEnterprises/Arizona Eco Development

Arizona Eco Development LLC (Arizona Eco) is the owner of lands downstream of Watson Lake on Granite Creek that were historically known as the Granite Dells Ranch and Point of Rocks Ranch. These lands have very old water rights associated with them to the waters of Granite Creek, dating back to the late 1800s. These rights are represented, in part, by

Statement of Claim No. 36-65554 on file with the Arizona Department of Water Resource. Arizona Eco currently uses this water to support traditional ranching operations on the land, but intends to develop these lands based in part on the rights to waters flowing in Granite Creek.

We have reviewed the draft TMDL report that is the subject of the public notice identified above and, while we are not in a position to comment critically on the scientific conclusions contained there, it does seem to us that there is little, if any, acknowledgment of the significant water rights associated with the flow of Granite Creek and reservoir storage in Watson Lake. In face, some of the remedial actions identified in Section 9.1 of the report include green infrastructure defined in part as constructed bio retention features such as rain gardens, wetlands and filter strips. This would suggest intentionally increased phreatophyte consumption of water upstream which has the definite potential to reduce the downstream water yield.

Please understand that Arizona Eco supports clean water and improved environmental conditions in the Granite Creek watershed and Watson Lake, but is also concerned that actions to intentionally reduce water available for beneficial use within the Prescott Active Management Area also has environmental consequences. We hope that as implementation plans are developed to reduce TMDL, these water availability and use considerations will be given serious consideration.

Response: Discussion has been added under Section 8.5 concerning dam release and possible groundwater influence. ADEQ will include Arizona Eco Development in future public mailings and in regard to updating the 2012 Watershed Improvement Plan and development of a lake management plan. Consideration of water quantity and water rights must be included in any successful TMDL implementation.

EPA Region 9

Comment #1: Tribal Trust Responsibilities, Section 1.
The TMDL should discuss Tribal Trust responsibilities since a percentage of the Watson Lake TMDL watershed includes tribal land. The United States has a responsibility to protect and maintain rights reserved by, or granted to, federally recognized Tribes and individual Indians. TMDLs are subject to the approval of the USEPA, and we have invited tribes potentially affected by the TMDL to consult with USEPA. We suggest the following language be added after Section 1.1 Geography and Land Ownership, of the TMDL:

"A small percentage of land (less than five percent) in the Watson Lake TMDL Watershed is owned by the Yavapai-Prescott Indian Tribe. The location of the Yavapai-Prescott Indian Nation land is depicted on Figure 1 as "Indian Reservation". ADEQ must consider federal Tribal Trust responsibilities in the Watson Lake Watershed since TMDLs are subject to the approval of the USEPA. The United States has a trust responsibility to protect and maintain rights reserved by, or granted to, federally recognized Tribes and individual Indians, by treaties, statutes, and executive orders. The trust responsibility requires that federal agencies take all actions reasonably necessary to protect trust assets, including the fishery resources of the Indian Tribes in the Watson Lake Watershed. ADEQ will assist USEPA in fulfilling Tribal Trust responsibilities by adopting a TMDL that restores and maintains pollutant levels that are protective of fish and other beneficial uses related to the Yavapai-Prescott Indian Tribe to the degree that natural conditions allow."

Response #1: This language has been added to Section 1.1.

Comment #2a: Assessment Determination for Impairments, Section 3.2
The TMDL should state that in addition to initial listing on Arizona's 2004 and 2006 303(d) list of impaired waters, Watson Lake is listed on Arizona's most recent 2010 303(d) list as impaired for low dissolved oxygen (DO), high pH, and Total Nitrogen (TN); and Granite Creek is listed as impaired for low DO. The TMDL should also clarify if the Granite Creek listing includes both Granite Creek above Watson Lake and Granite Creek below Watson Lake.

Response #2a: Language has been added to clarify 2008 and 2010 assessment and listing. The Granite Creek listing applies only to Granite Creek above Watson Lake and to Watson Lake.

Comment #2b: The TMDL should include an assessment determination for all waterbody/pollutant combinations that are included on the current 2010 303(d) list of impaired waters (Watson Lake for low DO, high pH, TN, and Granite Creek for low DO) and any additional waterbody/pollutant combinations that were analyzed. The first sentence of Section 3.2 says: "No changes were made to impairment status in the 2006 Water Quality Assessment Report 305(b) and Impaired Waters List 303(d)." However, the data and corresponding assessment determination does not appear to be included in the TMDL. The assessment determination should be included in Section 3.2, or included in Appendix A and referenced in Section 3.2.

Response #2b: Addressed in previous response.

Comment #2c: The TMDL should include any new impairment findings that do not exist on the current 303(d) list. We note that the TMDL describes Total Nitrogen (TN) and Total Phosphorus (TP) (TP is not currently included as an impairment on Arizona's 303(d) list of impaired waters) exceedances in Watson Lake, Granite Creek and their tributaries (TMDL, Appendix A), and TN and TP targets for Watson Lake, Granite Creek and their tributaries (TMDL, Table 7) are established by the TMDL. The TMDL should include an assessment determination which includes applicable water quality data for TN and TP for Watson Lake, Granite Creek and their tributaries and determines if these waterbody segments are impaired based on TN and TP exceedances.

Response #2c: Butte Creek and Manzanita Creek *E. coli* impairments have been added to the draft 2012/2014 assessment. There have been both TN and TP sample results in creeks above the annual mean Verde standards, but they don't meet the assessment criteria for impairment. TP was added to the TMDL based on its contribution to algal biomass and the use of BATHTUB for modeling nutrients and chlorophyll-a response.

Comment #2d: The TMDL submittal should also describe any assessment decisions that may have resulted in non-impairment status for water/pollutant combinations that exist on the State's most current 303(d) list. In Section 3.2 the TMDL states that "further sampling has demonstrated that the streams are not impaired by low DO and that a delist report will be prepared by ADEQ in 2014." The TMDL submittal should include an assessment determination by waterbody which includes applicable water quality data for DO if the State assessment shows waterbodies in the TMDL watershed are not impaired for DO.

Response #2d: The TMDL is addressing low DO in the lake through reductions in external and internal nutrient loading. Low DO in Granite Creek is the result of very low flow or areas of groundwater upwelling. ADEQ will provide all the creek DO data and supporting information to propose a delist of DO in Granite Creek. This will be done through a separate Delist Report. However, Figure 7 in Section 3.3 of the TMDL has been added to show DO creek measurements collected between 2007 and 2013.

Comment #2e: To summarize and clarify all waterbody/pollutant assessment determinations made in the TMDL we suggest that a table summarizing the analysis for each waterbody be included in the TMDL in Section 3.2.

Response #2e: The TMDL is addressing low DO, TN and high pH in the lake. ADEQ added TP as a TMDL target because both nitrogen and phosphorus impact algal growth, the narrative nutrient impairment. Although both TN and TP watershed results include values in excess of the annual mean and/or single sample maximum Verde standards, per assessment protocol, no creek has been assessed as impaired for either TN or TP. Tributary data are summarized in the 2010 Integrated Water Quality Assessment Report (IR) and draft 2012/14 IR. The *E. coli* waters are covered in a separate TMDL.

Comment #3a: Designated Uses and Numeric Targets, Section 4.2 and 4.3
The TMDL should state that the State-established designated uses and applicable water quality standards included in the TMDL apply to that portion of the Watson Lake Watershed that falls under the jurisdiction of the state of Arizona. In other words, Arizona water quality standards are not applicable on Tribal waters.

Response #3a: A footnote has been added to Table 11.

Comment #3b: The TMDL should include all designated uses and applicable water quality standards for all waterbodies included in the TMDL watershed, including Arizona's narrative nutrient standards (Tetra Tech Watson Lake Model Report, p. 7). The following narrative standard is applicable to the waterbodies:

> "A surface water shall not contain pollutants in amounts or combinations that cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses."

Response #3b: The narrative standard language has been added to Table 2.

Comment #3c: Beneficial uses for the tributaries to Granite Creek should be included in Section 4.2 Table 1. Designated Uses. We suggest you list all waterbodies included in the TMDL which are tributaries to Granite Creek and Watson Lake by name (Slaughterhouse Gulch, Manzanita, Miller, Butte and Aspen Creek, etc) and their applicable designated uses.

Response #3c: Text has been added to the heading to Table 2 stating that uses are the same for the tributaries.

Comment #3d: In Section 4.3, Table 2. Water Quality Standards for Target Analytes should include all water quality standards applicable to Watson Lake, Granite Creek and their tributaries. We suggest you re-title Table 2 to read: Water Quality Standard Targets for Watson Lake, Granite Creek and their Tributaries in order to clarify that Total Nitrogen and Total Phosphorus standards applicable to the Verde River are applicable to its tributaries (Watson Lake, Granite Creek, and their tributaries). For the Verde River standards, the second column in Table 2 should be "Verde River and its tributaries". *E.coli* should be removed from Table 2 as this TMDL does not address *E.coli* impairments.

Response #3d: *E. coli* has been removed from Table 2 and the column heading adjusted as suggested.

Comment #3e: The last sentence in Section 4.3 is confusing and does not specify which water quality standards in Table 2 the TMDL addresses. We suggest it be rewritten to clearly identify the numeric water quality standard targets for the TMDLs, and remove the last half of the sentence starting with "but with additional sampling…."

Response #3e: Section 4.3 has been removed. Sections 4.1 and 4.2, as well as Table 2 have been revised to indicate that the Verde River annual mean standards are the TMDL targets. In addition, the text was revised to say: "revisions to the TMDL would occur if lake or stream WQ standards are revised".

Comment #4: Source Analysis, Section 5. In the source analysis (Section 5, Source Identification section of the TMDL), the magnitude of sources should be described, and should include some analysis of the impact from each, i.e. which are the greatest contributors. We suggest that a summary of the conclusions regarding reaches and subwatersheds and their loading contributions based on the analysis of exceedances in Appendix A be included in this Section. For instance, Table A-4 shows load ranked streams in the watershed by pounds per day per square mile, but there is no analysis of specifically what the issue is. If Upper Granite Creek is the largest contributor, then the TMDL should discuss the sources in this reach. We also note that the Watershed Implementation Plan (WIP) was referenced in this section for the non-point source assessment. At a minimum, the TMDL should summarize (in more detail than was provided) the relevant analysis in the WIP, conclusions drawn from the data assessment in Appendix A, and any relevant source analysis conclusions in Tetra Tech's "Watson Lake TMDL Receiving Water Model" report.

Response #4: ADEQ has added text with bullets to list the main conclusions from the WIP and TT reports. The analyses in Appendix A pertain to TN and TP concentrations and loading in the upper watershed, to the degree they have been sampled and under what conditions. The resolution in sampling is not sufficient to robustly characterize each tributary or sub-watershed at this time, but is provided to assist stakeholders in focusing resources for source identification and BMPs. A map has been added to show currently known subwatershed relative contributions on an event basis.

Comment #5a: Sanitary Sewer Overflows, Section 5.3. In Section 5.3 Nonpoint Source Loadings, the TMDL incorrectly describes "sewer collection system leaks" [or Sanitary sewer system overflows (SSOs)] as non-point source loadings.

SSOs are unpermitted, illegal discharges under the CWA. A summary of the WIP's discussion of the SSOs issue (Prescott Creek and Granite Creek Improvement Council, pp. 17-18) should be included in Section 5.2 Point Source Loading.

Response #5a: ADEQ has removed mention of SSOs from the nonpoint source list and added language on point sources from the WIP in Section 5.2.

Comment #5b: Section 8 of the TMDL should clarify that sanitary sewer system overflows do not receive a load allocation or waste load allocation, and state that "spills from the sewage collection system to waters of the United States are a violation of Section 301(a) of the CWA and are prohibited".

Response #5b: Language has been added to Section 8.4.1.

Comment #6a: Critical Conditions, Section 7.2. The TMDL should clearly identify the critical conditions and describe the approach used to estimate both point and nonpoint source loadings under such critical conditions. We noticed that the first paragraph (6.2 Critical Conditions) from page 30 of the Tetra Tech "Watson Lake TMDL Receiving Water Model" report provides some of this information and Section 7.2 Flow Characterization in Determination of Critical Conditions in the TMDL provides initial discussion of critical condition data assessment. We suggest that information in the above described paragraph be integrated with Section 7.2 and expanded to identify critical conditions specific to this TMDL and for both point and non-point sources.

Response #6a: ADEQ has clarified discussion of critical conditions for the lake (summer) vs loading to the lake (monsoon and winter/spring elevated flows).

Comment #7: TMDL Calculations, Section 8.3 and 8.4. Several aspects of how the TMDL waste load allocation (WLA) and load allocation (LA) were calculated are missing or unclear. Section 8 of the TMDL should include explanatory language, and numeric tables to clarify calculation of the TMDL WLA and LA, and specifically address the following questions:

Response #7: Please see Section 8 and following responses for clarifications.

Comment #7a: How was the nutrient end-point range for TN and TP calculated?

Response #7a: The lake endpoint ranges for TN and TP were derived from a review of the literature, so that 1) the Verde Standards would be met, and 2) chlorophyll-a would be reduced.

Comment #7b: How was the "34% TN Reduction" and "32% TP Reduction" in Table 7 calculated? Was this calculated from the TN and TP Loading shown in Figure 21, or other technical analysis? Please include a description of the calculation in table and/or written form. Also, the third paragraph of the Executive Summary suggests different reductions needed: "…it will be necessary to reduce total nitrogen (TN) inputs by 37 percent and total phosphorus (TP) inputs by 35 percent." Why are the reductions described in the Executive Summary different from those described in Table 7?

Response #7b: The percent reductions were calculated by BATHTUB based on the loading scenario that would attain the in-lake target concentrations. The percentages in the ES have been corrected to be consistent with Table 7.

Comment #7c:How was the "% reduction from existing" for TN and TP in Table 7 and in the Executive Summary calculated?

Response #7c: The reductions were calculated using the modeled loads that would meet the in-lake targets, and dividing that by existing loads (calibrated to 2011inflows and in-lake data).

Comment #7d: Why was the loading capacity split evenly (50/50) between the WLA and LA, and what is the technical analysis to support this division of the loading capacity?

Response #7d: Urban area accounts for 14 percent of the watershed but approximately 50 percent of the TN and TP load (Tetra Tech, 2012). Mass based load targets are divided 50:50 for point source and nonpoint source inputs based on watershed area.

Comment #7e: Why were numeric targets and corresponding LA and WLA not included for DO and pH?

Response 7e: The targets are the existing standards. Additional clarifying text has been added to Section 8.3.3 and Table 12.

Comment #8a: Waste Load Allocations, Section 8.4.1. The TMDL should disaggregate the WLAs for point source dischargers. The proposed TMDL includes one mass-based WLA that applies to the collective permittees, including the ADOT MS4 and multiple filers under the Construction General Permit, Multi-sector General Permit, and Phase II MS4 General Permit. This collective WLA will be difficult to implement in separate permits. We strongly encourage disaggregating allocations, especially for individual permittees. In the case of general permitted facilities, we recommend the TMDL express the WLAs such that they can be effectively implemented on a facility-by-facility basis. For example, concentration-based WLAs are probably easiest to implement in situations when multiple facilities are covered by the same WLA and it is difficult to disaggregate WLAs by discharger.

Response #8a: The load reductions necessary have been assigned by land area. There is insufficient information at this time to disaggregate WLAs. ADEQ agrees that concentration-based WLAs provide the most straightforward way to implement the TMDL and has added language stating that the WLA target will be the same for all permittees and non-point sources and equal to the annual mean Verde nutrient standards of 1.0 mg/L TN and 0.1 mg/L TP.

Comment #8b: The TMDL should include an explicit margin of safety (MOS) to account for growth in existing point sources or new point sources if there is any likelihood of future point source discharge growth. The proposed TMDL states that the WLA is also applicable to any future permittees, but as written, the mass-based WLA would be difficult to implement. For the explicit MOS approach to work in the permitting process, the section of the TMDL containing a MOS for future growth should include specific discussion of how the extra available capacity could be allocated through future permitting action. Alternatively, this element could be discussed under TMDL assumptions. If the approach of incorporating an explicit MOS and implementation directions under TMDL assumptions were taken, it would be possible to incorporate an effluent limit for a source that did not receive an explicit WLA in a manner consistent with the provisions of 40 CFR 122.44(d)(1)(vii)(B), which sets requirements for WQBELs based on TMDLs.

Response #8b: Table 9 has been added that breaks the WLA and LA down by jurisdiction/ownership to include 10 percent unallocated for the WLA and 15 percent unallocated for the LA. These mass loads remain in the TMDL as a benchmark. Compliance with the TMDL will be meeting the concentration-based annual mean Verde nutrient standards.

Comment #8c: The TMDL should specify the locations where the WLAs apply. The proposed TMDL leaves the point of compliance for each discharger to be determined within the stormwater management plan or stormwater pollution prevention plan. The permittees included in the TMDL would likely have multiple discharge outfalls and therefore, determining representative monitoring and appropriate points of compliance is important to consider in the TMDL in order to ensure implementation of the TMDL leads to the expected water quality improvement. The TMDL states that the WLA is applicable to each separate discharge of a permitted entity; however, how that is implemented in permits is not clear. The TMDL should clearly describe whether or not the WLAs apply at the end of the pipe, and how WLAs covering multiple discharge points should be applied or measured.

Response #8c: ADEQ has not received geographic data on stormwater discharge locations. When these locations are known, the SWMP/SWPPP will reference which locations are representative, as well as when and how they will be sampled. Representativeness should be based on similar land use and geographic characteristics for each outfall. The point of compliance will be at the outfall or “end of pipe” prior to the discharge reaching the receiving water.

Comment #8d: The TMDL should describe how the WLA should be translated into water quality-based effluent limits for point source dischargers. The proposed TMDL states that the WLA can be superseded by specific general permit conditions

issued by ADEQ and that these additional conditions would depend on site-specific factors, such as proximity to impaired waters or reasonable potential to exceed water quality standards. This statement provides too much flexibility, which may result in inadequate implementation of the TMDL. There are essentially two ways a WLA can be incorporated into a permit: (1) include numeric WQBELs or (2) include best management practices that are demonstrated by modeling to quantitatively reduce the discharge of pollutants to a level that meets the WLA. The TMDL should clearly establish how the WLA should be incorporated into permit limits and identify appropriate averaging periods and periods of excursion.

Response #8d: The following language has been added to Section 8.3.2 of the TMDL: "Collectively, the permitted point sources (MS4, MSGP, and CGP) are assigned a concentration based WLA equal to 1.0 mg/L total nitrogen and 0.10 mg/L total phosphorus. This WLA is applied, as a water quality based effluent limit (WQBEL), to all existing and future AZPDES (individual and general) permittees within the Watson Lake watershed. The WLA applies to discharges that occur in response to precipitation events and is applicable for each separate discharge that may issue from the permitted entity or site. The exception is for MS4 permits where the WLA is expressed as a system-wide requirement. Permittees can demonstrate compliance with the WLA by either direct sampling of outfall discharges or demonstrate that best management practices quantitatively reduce the discharge of pollutants to a level that meets the WQBEL. Since the WLA is based upon annual mean Verde nutrient water quality standards, the mean value of permit discharge data will determine if the WLA allocation is being met. However, if single grab samples exceed the WLA permittees should evaluate the effectiveness of BMPs, modify or implement new BMPs, or provide additional measures to improve water quality."

Compliance with the concentration based WLA will be determined during ADEQ's review of the annual permit monitoring reports. Additional SWMP requirements may be imposed based upon monitoring results and would be evaluated in future reviews.

Comment #8e: The proposed TMDL also states that, as stormwater data is collected, results should be compared to the Verde River nutrient WQS as benchmarks for current and post BMP implementation conditions. It is not clear how this requirement relates to the established WLA.

Response #8e: See response to #8d above.

Comment #8f: The proposed TMDL repeatedly states that the WLA could be revised based on new stormwater data, but it is not clear whether this new information would be processed as part of a revised TMDL and how that could impact permittee compliance with already established permit limits based on the existing WLA.

Response #8f: Compliance will be based on meeting the annual mean Verde nutrient standards. If sufficient stormwater discharge data become available, it may be possible to apportion mass based loads according to contributions, in which case the TMDL would be revised to reflect such changes.

Comment #9: Load allocation, Section 8.4.2
In order to allow for implementation, the Load Allocation described in the Section 8.4.2 of the TMDL should be divided and assigned by land uses, ownership categories (e.g., Forest Service, Private, State Trust, Other), subwatersheds and percent of land in each category, or other appropriate method. The percent reduction required by each entity and or subwatershed should also be included in the TMDL in Section 8.4.2.

Response #9: Loads at the lower USGS gauge have been allocated by land ownership in Table 9. In practice, attainment of the TMDL will be meeting the annual mean Verde nutrient standards for each point and non-point source discharger. The percent reduction required by each entity is unknown at this time. The percent reduction required by subwatershed will be added to the updated WIP, to be completed in June 2015.

Comment #10a: Implementation, Section 9. In Section 9 it is unclear how the load allocation will be implemented or where the points of compliance for the load allocation will be. Please add information to Section 9 describing ADEQ's goal and schedule for achieving water quality standards (including short term, midterm, and long term milestones). In this Section we suggest you discuss ADEQ's plan and timeline for revising the WIP based on the TMDL, the expected timeline for implementation and how progress towards meeting NPS load reductions will be measured, as well as where and by whom

compliance will be measured. Example schedules and milestones from the WIP should be included in the TMDL.

Response #10a: The load allocations apply only at the downstream gauge above Watson Lake. An updated WIP and lake management plan will be developed in 2015 which will include milestones and identity, to the degree possible, where and by whom compliance will be measured. Table 6 in Section 9 has been added listing milestones.

Comment #10b: In Section 9.3 it appears that implementation, including project effectiveness, will be tracked by Prescott Creeks Association, MS4 permittees, and ADEQ through development of a Watershed Monitoring Plan. The TMDL should identify target dates for when the permitted sources will be required to develop a monitoring plan and what data will be collected with the monitoring plan. ADEQ should also identify when targeted non-point source projects are expected to be identified and when effectiveness monitoring is expected to be implemented.

Response #10b: Discharge monitoring plans will be the purview of each MS4, MSGP, or CGP. However, the revised updated WIP will identify a means to track and compile results.

Comment #10c: The TMDL should include more analysis and discussion on where Green Infrastructure (GI), the primary recommendation for addressing stormwater pollution in the WIP, could be implemented. Upper Granite Creek, for example, has the highest amount of TN and TP loading (based on Table A-4 in Appendix A), yet there is no analysis on where GI could be implemented in Upper Granite Creek. Other areas and sources identified as having potentially significant NPS impacts, such as the Prescott Rodeo Grounds, water reuse, septic systems, livestock, and pets should also be analyzed and discussed.

Response #10c: The revised updated WIP will be the vehicle for planning and implementation.

Comment #10d: It would be helpful to have a map delineating the jurisdictional boundaries for the City of Prescott and Yavapai County MS4, the ADOT MS4 and the MSGP areas for purposes of determining where NPS projects might be placed.

Response #10d: ADEQ has included a map (Figure 25) delineating jurisdictional boundaries for these entities in Section 9.4.

Comment #11: Appendices and Supporting Technical Documents
Several documents are referenced frequently throughout the TMDL and serve as supporting technical documents. In addition to Appendix A, the following documents should be included as Appendices to the TMDL:

a) Tetra Tech. 2012. "Watson Lake TMDL Receiving Water Model."

b) Gremillon, Paul. 2012. "Sediment Coring and Analysis in Watson Lake, Arizona." Northern Arizona University.

c) Walker, David and Butler, Jacob. August 6, 2013. "Watson Lake Limno-corral Study: Phase-I." University of Arizona.

d) Walker, David and Butler, Jacob. August 6, 2013. "Watson Lake Limno-corral Study: Phase-II." University of Arizona.

e) Prescott Creeks and the Granite Creek Improvement Council. 2012. "Improvement Plan for the Upper Granite Creek Watershed, Arizona, Version 2.1."

Response #11: These documents are available for public review on the ADEQ TMDL web site: http://www.azdeq.gov/environ/water/assessment/tmdl_status-vr.html.

City of Prescott:

The City provided comments in the form of a letter with three attachments. Attachments included A) agenda items raised by AMEC Environmental & Infrastructure, Inc. (AMEC) under the leadership of Dr. Ed Latimer in the June 2013 meeting between City staff and ADEQ, B) technical memorandum from AMEC submitted during the TMDL review period, and C), comments related to the text that were organized according to the TMDL report section numbers.

Comment #1: Draft TMDL Science. On March 12, 2013, the City Council approved a professional services agreement with AMEC (City Contract No. 2013-147). The firm subsequently advised the City on the three (3) scientific reports released by ADEQ in mid-2013 and currently the draft TMDL. AMEC's third-party scientific comments have not changed since the first meeting with ADEQ in June 2013. The City seeks responses and TMDL text revisions as outlined in AMEC's Technical Memo dated April 21, 2014. This technical memo is Attachment B.

Response #1: ADEQ has addressed AMEC's comments under Attachment B, as they are similar to those found in Attachment A.

Comment #2: Draft TMDL General Questions and Comments
Comment #2a: Scientific review has raised significant doubt in the ability of the BATHTUB model to represent the complexity of this issue. Further data sets, both limo- corral and sediment, appear limited and interpretations/ assumptions appear less than reasonable for the complexity of the issue.

Response #2a: BATHTUB is recognized as a valid model for lake TMDL development. The limno-corral and sediment studies were supportive in nature; to the degree possible, their results have been referenced to inform further study. Apart from the lake bathymetry, modeling did not require these studies.

Comment #2b: Use of the Verde River standard and the designated uses classification for this reservoir, now and in the past do not appear appropriate nor sensible.

Response #2b: Until an EPA-approved change is made to the Arizona Surface Water Quality Standards, the Verde nutrient standards apply to all lakes and tributaries on the Verde down to Bartlett Lake. The designated uses for Watson Lake were based on the actual historical uses as of November 1975 and include the default uses of "swimmable" and "fishable". ADEQ is pursuing narrative nutrient criteria for Arizona reservoirs in which chlorophyll endpoints would be related to nutrient ranges. If statistically determined to be protective of lake productivity, the nutrient ranges may be somewhat higher than the Verde standards for Watson Lake, although not by orders of magnitude.

Comment #2c: The watershed has many stakeholders yet it appears ADEQ is attempting to solely regulate the City of Prescott (as the Watson reservoir owner). It is uncertain how ADEQ/EPA will ensure the compliance of both regulated and non- regulated entities contributing to the loads in question.

Response #2c: Regulated entities in the watershed include the City of Prescott (MS4), the Yavapai County (MS4), the Arizona Department of Transportation (ADOT) MS4, and various Multi-sector general permits and construction general permits. Non-regulated entities are equally relevant to meeting the TMDL. ADEQ plans to update the Watershed Improvement Plan (WIP) and work with all stakeholders to focus improvements across all land ownership and uses.

Comment #3: Important changes occurred from the actions taken in 1987 related to the Sundog Wastewater Treatment Plant and its relation to Watson reservoir. It is important not to discount the actions taken by the City in the past, nor how those were reached collectively. Unprecedented expenditures were undertaken by the City in terms of capital costs, legislative requirements, and state permitting. It is further important to understand that the City is not seeking a "no action" corrective plan. As seen in the 1980s, a list of five (5) alternatives were generated that brought forth the full picture of on-the-ground activities and the stakeholders involved/affected.

Response #3: Language has been added in Section 5.2 of the TMDL acknowledging actions taken by the City in the 1980s.

Comment #4: The City requests that the adoption of the TMDL be delayed base on the following reasons.

Comment #4a: Improve and extend the data sets and allow for initial work to commence on City Contract 2013-147 (Upper Granite Creek Watershed and Watson and Willow Reservoirs Water Quality Improvement Study).

Response #4a: ADEQ is supportive of the City of Prescott's active role in improving water quality and will assist in this effort. However, ADEQ does not believe the actions undertaken by the City necessitate delaying the adoption of the TMDL.

Comment #4b: TMDL document remains draft yet be used as a guiding document for local stakeholders (permitted and non-permitted) to develop a suite of up to five (5) alternative to begin reduction of Total Nitrogen and Phosphorus.

Response #4b: The adoption of the TMDL does not negate the need for alternatives. These would be incorporated into the WIP, which is the implementation guiding document; the TMDL is the budget that improvements or alternatives should meet.

Comment #4c: TMDL findings remain unapplied, at this time, in a regulatory manner such as the MS4 or other similar permits.

Response #4c: Once approved the TMDL WLAs become the target that discharges from permitted outfalls try to achieve.

Comment #4d: TMDL remains draft until the state appropriate water quality standards (verses the national standards) are approved by the EPA.

Response #4d: The Verde standards are state (not national) standards that were derived to protect Arizona reservoirs from eutrophication. Therefore, they are appropriate for use in Clean Water Act programs (AZPDES permits, TMDLs and water quality assessments).

ATTACHMENT B: AMEC TMDL Review

General Comment #1: Overall, the Draft Watson Lake TMDL report was well written and well organized. The document covered, in our opinion, all of the regulatory steps needed for establishing a TMDL.

Response General Comment #1: ADEQ appreciates the comment.

General Comment #2: The report did a good job of documenting the various sources of water quality data that ADEQ relied upon. Perhaps of good news, in Section 3.2 in reference to exceedances of water quality standards (WQS) in Granite Creek and Miller Creek, ADEQ stated: "further sampling has demonstrated that the streams are not impaired by low DO; a delist report will be prepared by ADEQ In 2014." This seems to suggest that there will not be a future TMDL for dissolved oxygen in the Upper Granite Creek and its tributaries.

Response General Comment #2: ADEQ plans to submit a proposal to delist DO on Granite Creek to the EPA in the spring of 2015. If the EPA approves the recommendation, there will not be a need for a DO TMDL (except as DO applies to Watson Lake).

Specific comment #1: In the discussion on numeric targets (Section 4.0), ADEQ states that numeric criteria for total nitrogen and total phosphorus will be based on the Verde River standards, an approach that both AMEC and the City have strongly disagree with. Yet, ADEQ appears to leave the door open to changing this in their statement on page 10 that says "with

additional sampling, it may be possible to adjust expectations to better reflect site-specific limitations, local conditions, and refined designated use targets." AMEC views this as a "mitigating" statement showing willingness to consider revisions to the proposed Watson Lake WQSs pending the results of additional sampling and comprehensive studies of the watershed and the lake. AMEC recommends the City specifically request from ADEQ the inclusion of additional language in the TMDL to define under what conditions the agency will commit to revisiting and justifying revisions to this standard.

Response Specific Comment#1: ADEQ is in the process of updating the reservoir narrative nutrient standards. If EPA approves changes to these criteria, and they are adopted in the AZ Surface Water Quality Standards, then the TMDL will also be revised to reflect the changes; this language has been added to Section 4.2. ADEQ is also working on narrative nutrient standards for streams, to use a similar 'matrix approach" for weight-of-evidence determination of nutrient related attainment.

Specific Comment #2: Section 6.0 contains an overview of the Watson Lake studies by the Tetra Tech, UA, and NAU that ADEQ relied upon.It is clear that AMEC's comments about these studies (Technical Memo submitted to the City on April 17,2013) were ignored. AMEC really didn't expect ADEQ to conduct additional modeling studies based on the comments provided due to both costs and time constraints. However AMEC did expect ADEQ to at least acknowledge the comments and revise a few statements that Tetra Tech made in their modeling study when those were copied in to the draft TMDL. And it Is clear that none of the new information that AMEC made available to ADEQ made It into the draft TMDL document. An excellent example is the statements in Section 6.3 under the discussion of the BATHTUB Modeling were ADEQ states: "2010 represents a relatively wet year and 2007 represents a relatively dry year. The year 2011 was determined to be much dryer than 2010 but a fairly typical year for Watson Lake's climate."

Response Specific Comment #2: ADEQ met with representatives from the City and AMEC on June 13, 2013 and October 29, 2014 to discuss TMDL development and to field questions and comments. Although written responses were not provided in 2013, the issues of concern were considered in completion of the draft TMDL report. The 2013 comments and 2014 comments have been reconsidered and changes in the text have been made to address the concerns.

Specific Comment #3: AMEC conducted an analysis of the dally flow data recorded at a USGS gage called Granite Creek near Prescott AZ located about 2 miles upstream of Watson Lake where the period of record was 18 calendar years from 1995 through 2012 (Gage No 09503000).This is the most downstream gauging station shown on Figure 2 of the draft TMDL report.The analysis determined that calendar year 2010 was very wet at 189% of the 18 year average runoff volume and 379% of the 18 year median runoff volume. AMEC's study also determined that calendar year 2007 was very dry at only 36% of the average and 72% of the median. But interestingly the study also discovered that calendar year 2011 which was used by ADEQ to establish the proposed TMDLs was slightly drier than 2007 at 35% of the average and 70% of the median. So contrary to what ADEQ stated in their report which was taken from the Tetra Tech Modeling Report, calendar year 2011 was not a typical year which implies average to most readers.In fact calendar year 2011 was the 5th driest year in the 18 year period of record at the gauge.

Response Specific Comment #3: ADEQ has revised the text in Section 6.3 and 6.3.1 and provided a table showing the mean monthly and mean annual flow statistics for the Sundog Gauge. Under Section 8.3, the language has been changed to clarify that 2011 was a relatively dry year in terms of inflows and loading, but average for lake volume and in-lake nutrient conditions.

Specific Comment #4a: Desired TMDL Revision #1. The City should respectively request that ADEQ modify the last sentence in the quote above to read: "The calendar year 2011 was even drier than calendar year 2007 and was not found to be a typical year since it was the 5th driest year In an 18 year stream flow record available at the USGS Gauge (# 09503000)." The concern is that 2011 was used to establish the TMDL targets so the reasonable sounding percentage reductions of only 34% for TN and 32% for TP discussed tater In Section 8.3 are actually much greater during an average year or a wetter year. AMEC estimated that the reductions of TN and TP needed to achieve the TMDL targets originally proposed by Tetra Tech and reiterated by ADEQ would be close to 76% in an average year instead of the approximately 33% specified tater In Section8.4. So ADEQ needs to knowledge in the TMDL report that the nutrient reductions needed

during average to wet years are going to be much greater.

Response Specific Comment #4a: ADEQ has adjusted the language to clarify that the TMDL is tied to one flow, in this case, the annual mean for 2011 when the lake was at an average volume and most data were available for model calibration. ADEQ acknowledges that flows are variable and that both external and internal loads will also vary. Further monitoring will assist in defining the full spectrum of loads, which is why in the meantime, the draft final TMDL has been written with the goal of meeting the annual mean Verde nutrient standards.

Specific Comment #4b: However ADEQ did acknowledge in Section 6.2 that: "Tetra Tech defaulted to a mass-balance approach for establishing a nutrient target In Watson that would meet the annual mean Verde River nutrient water quality standards." This means when more data are available to calibrate a more sophisticated lake model than the steady state BATHTUB model that Tetra Tech used, the modeling results are likely to show that the load allocation targets for TN and TP being proposed by ADEQ are too conservative or too low since a mass balance approach always yields very conservative results.

Response Specific Comment #4b: ADEQ agrees that additional data may lead to model refinement, but in either case, the target will be the annual mean Verde nutrient standards.

Specific Comment #5: Desired TMDL Revision #2. The discussion of inflow records and the BATHTUB calibration in Section 8.1 of the draft TMDL (page 25) - specifically Table 4, which is a comparison of monthly mean flow data at the Lower Granite Creek gauge, is misleading. It is AMEC's understanding that the BATHTUB model used calendar year data (i.e. January 1st through December 31st of the stated year) and not water year data (i.e.water year starts on October 1st of the previous year and ends on September 30th of the year stated) as part of its calibration. In the discussions regarding 2007, 2010 and 2011 these are all based on calendar years so Table 4 should be based on calendars years and not water years. The City should request that Table 4 be redone to show monthly totals during the calendar year and calendar year totals.

Response Specific Comment #5: The table has been revised accordingly.

Specific Comment #6: AMEC was pleased to see that ADEQ was using flow duration curves to help establish critical conditions for TN and TP since this topic was not discussed in great detail as part of the Tetra Tech Modeling report. ADEQ determine that the critical loading for both TN and TP occurs in the top 25 percentile of winter flows which were determined to be greater than 8 cfs at the same USGS Gauge (i.e. No. 09503000).That is good news in that if exceedances of the WQSs were occurring during the summer monsoon period reducing those loadings would likely be a much greater challenge than addressing loads during wintertime flows. The use of flow duration relationships converted to curves that show the duration of TN or TP concentrations being equaled or surpassed should be one of the desired ways of illustrating the modeling results of a comprehensive modeling study of the watershed and the lake. The objective during such a study of the technically feasible alternatives would be to reduce the duration of high nutrient concentrations. The reduction in the duration of high nutrient concentrations that exceed WQSs when compared to existing conditions would demonstrate a certain level of compliance that can be easily compared between alternatives.

Response Specific Comment #6: ADEQ agrees.

Specific Comment #7: Desired TMDL Revision #3. On page 28 in Section 8.3 of the draft TMDL where it discusses the BATHTUB model calibration to calendar year 2011 data it states: "this model provides a more reliable estimate compared to the model for 2010 and is likely more representative of the typical water and nutrient balance of the lake. The first half of the sentence is true but the last half of the sentence is simply not true. The City should request that the sentence be edited to read: "this model provides a more reliable estimate compared to the model for 2010, however, since 2011 was found to be a dry year similar to 2007 It means the nutrient load reductions that will be needed for an average or wetter year will be a much greater percentage than those computed for 2011."

Response Specific Comment #7: See response to #3 above.

Specific Comment #8: Desired TMDL Revision #4. On page 30 following Figure 21 in the same section (Section 8.3), where the draft TMDL states: 'The modeled scenarios suggest that in-lake concentrations can be reduced to within the nutrient endpoint ranges if loading to the lake Is reduced by 34 percent for TN and 32 percent for TP." The City should request that following this statement the following sentence should be added: "Percentage reductions In nutrients are expected to be greater during the occurrence of wetter years since 2011was a relatively dry year similar to 2007."

Response Specific Comment #8: This sentence has been added in Section 8.4.2.

Specific Comment #9a: Additional Explanation Required. On page 34 in Section 8.4.2 where the draft TMDL discusses load allocations it states: "average peak season chlorophyll-a in Watson Lake is expected to be reduced from an average of 28 ug/L to 10 ug/L (55 percent improvement). AMEC would like ADEQ to clarify where the chlorophyll-a reduction estimate came from. The BATHTUB modeling did a miserable job of predicting observed chlorophyll-a concentrations and Tetra Tech was the first to admit that was the case so the expected 55% reduction in chlorophyll-a the TMDL targets could not have come from the BATHTUB modeling.The draft TMDL also includes "ADEQ believes that meeting the TMDLs at the Lower Granite Creek gauge through watershed and in-lake nutrient cycling reductions will reduce average peak chlorophyll and pH, and improve hypolmnetic oxygen deficit by 45 percent. This is based on the unsubstantiated model assumption that algal biomass is directly proportional to nutrient concentration and algal biomass directly impacts the rate of sedimentation and photosynthesis which in turn regulates the pH of the water." AMEC and Dr.Amalfi respectively request that ADEQ document the technical basis for their estimate of a 55% reduction in chlorophyll-a estimate and the 45% reduction in the hypollmnetlc oxygen deficit if the proposed TMDL targets are achieved for total nitrogen and total phosphorus.

Response Specific Comment #9a: ADEQ has clarified the estimate of 55% reduction in chlorophyll-a and 45% reduction in hypolimnetic oxygen deficit in the text of Section 8.3.3 as follows:

> Using empirical relationships of nutrient concentrations to chlorophyll-a, average peak season chlorophyll-a in Watson Lake is expected to be reduced from the current growing season mean of 28 ug/L seen in Watson to a mean of 10 ug/L (an approximately 54 percent improvement). With lower biomass and active lake management in Segment 2 of Watson (deeper area), the DO standard of 6.0 mg/L in the top meter is expected to be attained, Hypolimnetic Oxygen Demand (HOD) is expected to improve by 45 percent during thermal stratification, and the upper pH standard of 9.0 SU is expected to be met year-round.

Specific Comment 9b: On page 35 of Section 8.5 where the draft TMDL discusses the impact of Watson Lake discharges on the water quality of its receiving water, the Upper Verde River. The draft TMDL document states: "Studies have shown that Granite Creek contributes less than five percent of the flow to the Upper Verde River. The quality of the water in Granite Creek where it meets the Verde River is high and to date there is no Indication of negative impact on the Verde River." This is a good thing and AMEC Is pleased that ADEQ recognizes that this has been the case based on the water quality data that now exists. In discussing ADEQ's concerns about potential impacts of nutrient contributions from Granite Creek on the Upper Verde River in the future ADEQ recommends: "a collection of additional samples during peak summer conditions to further evaluate potential impacts below Watson. It appears that release of anoxicc or hypoxic bottom waters during stratification increases bio-available nitrate and phosphate downstream. However, meeting TMDL targets within the lake will improve water quality for uses downstream of the lake and continue to ensure no degradation of the Verde River system." AMEC is concerned that sampling downstream from the Watson Lake as proposed may in fact include considerable groundwater discharges that are not be regulated by surface water quality standards. So at a minimum, the task of sampling and evaluating the nutrient water quality of Granite Creek's confluence with the Upper Verde River and the modeling of the Watson Lake discharges needs to be included in the scope of work for the future comprehensive study of the watershed and lake. AMEC envisions that the outcomes from this comprehensive study efforts holds the promise of providing the data and technical knowledge needed to revision the proposed Watson lake TMDL targets at some point in time in the future.

Response Specific Comment #9b: ADEQ recognizes the possible influence of groundwater in the reach below Watson Lake. Further sampling should focus on determining the actual discharge water quality as well as upwelling that may be occurring.

ATTACHMENT C: Text Edits

Specific Comment #1a: Executive Summary. The 1983 ranking of Watson Lake as the "most eutrophic lake in AZ" was based on what data? The referenced report (Towler, 1983) is not listed in the TMDL reference section.

Response Specific Comment #1a: The citation has been added to the references.

Specific Comment #1b: Executive Summary. "A sizeable fish kill in 2000 led to the inclusion of Watson Lake in the ADEQ lake monitoring rotation, and subsequently, to listing as impaired by EPA..." What is the definition of sizable? It could be argued that the fish kill was not sizable. According to the Arizona Game and Fish Department report from July 6th, 2000, the only fish killed were Golden Shiners (a small minnow) which is known to be "extremely sensitive to environmental stresses." No other fish were found to be harmed. (email Dahlberg, AZGFD and McMillian, CivilTech Inc., dated 10/30/2009)

Response Specific Comment #1b: The language has been changed from "sizable" to "a large number" as well as pointing out that these fish "are known to be extremely sensitive to environmental stresses".

Specific Comment #2a: Section 1.0. Page 2, Last Paragraph - change five percent State Land to 5 percent in order to stay consistent with previous citations.

Response Specific Comment #2a: Numbers under ten are spelled out per the Associated Press Stylebook that ADEQ publications adhere to.

Specific Comment #2b: Section 1.0, Last Paragraph - The report doesn't capture the history/purpose of the lakes nor the previous regulatory actions and City response. The sentence, "Currently most runoff from Granite Creek to Watson Lake is stored for recreational purposes by the City of Prescott under an agreement with Salt River Project." is incorrect. In particular, section 1.3, last paragraph.

a. City's Assured Water Supply document issued by the Arizona Department of Water Resources related to the surface water that the reservoir impounds and the City relies on in its water portfolio.

b. City's past effort and expense related to constructing an effluent pipeline and recharge facilities.

c. Legislative efforts related to surface water recharge and its relation to City Assured Water Supply.

d. Surface water claims

e. Water Quality Act of 1987 and section 208

    i. CVID expected their interests to be maintained, they did not allow swimming in Watson or Willow. They considered that fencing Watson was the condition of Willow.
    ii. Prescott sought a nutrient waiver from ADHS for the Sundog WWTP and due to the outflow from the plan to the reservoir being designated as Effluent Dominated Waters.
    iii. Prescott noted caution related to interfering with the City's water rights and ultimately the municipalities water supply

Response Specific Comment #2b: ADEQ has added text describing the regulatory history of Watson in Section 5. The last paragraph in Section 1.3 has been corrected.

Specific Comment #2c: Section 1.2 - While there are no current grazing allotments on national forest lands in the watershed, the Yavapai-Prescott Indian Tribe (YPIT) runs a small herd of cattle in pastures near Granite Creek.

Microbial Source Tracking data collected through the Watershed Improvement Planning project during a January 2010 storm found bacteria from bovine sources - YPIT confirmed that they were running cattle in a pasture along Granite Creek at the time.

Response Specific Comment #2c: Clarifying language has been added to Section 1.2.

Specific Comment #2d: Section 1.3. First paragraph states average temperature ranges from 50 degree F in winter and 70 degree F in summer. This range for winter and summer temperature averages needs to be verified and cited. It is recommended that the station at Prescott Love Field (airport) be referenced.

Response Specific Comment #2d: ADEQ has deleted the sentence and added data from The Weather Channel web site with a citation.

Specific Comment #2e: last paragraph, second to last sentence – If only 5 percent of Watson Lake recharges to the alluvial aquifer why are such strict TMDL limits being imposed on the City of Prescott?

Response Specific Comment #2e: Stormwater runoff has been shown to degrade water quality within the lake and throughout the watershed, therefore, the annual mean Verde River nutrient water quality standards are used as the targets upon which reductions are based.

Specific Comment #2f: Figure 2 - Use of both English and S.I. units, pick one for consistency

Response Specific Comment #2f: The choice of units was a default to the spatial database. However, ADEQ has added clarification to the figure that the gradient is the same, whether expressed in meters per meter or feet per feet.

Specific Comment #2g: Figures 3 & 4 - Why does the data stop at 2008? It would seem appropriate to match the data in the graphs so they have the same endpoint as the modeling effort (2011).

Response Specific Comment #2g: The intent of these two figures is to show an example of the variability flow and lake level. Figure 11 (data obtained from the City) shows lake level for the entire time frame of TMDL development, although there are gaps in the data.

Specific Comment #3a: Section 2.0. Stream water quality data collected by federal agencies related to superfund studies included which water quality parameters? Are the parameters of interest for the TMDL?

Response Specific Comment #3a: The superfund studies focused on heavy metals and organic compounds. Although not immediately relevant to the nutrient TMDL, if dredging were to be considered, it would be prudent to test for these parameters in sediment.

Specific Comment #3b: Section 2.2 and Executive summary - It is stated that the fish kill in 2000 lead to the inclusion of Watson Lake in the ADEQ lake monitoring rotation and subsequent EPA listing. Provide reference as requested earlier in section 1.0 comments.

Response Specific Comment #3b: The 2000 fish kill led to ADEQ monitoring of Watson Lake in 2002 and 2003. The 2004 305b assessment report included water quality data collected between 2000 and 2003. ADEQ listing decisions are based on water quality, but the assessment also lists fish kills reported by the AGFD. EPA listed Watson Lake as impaired in 2004 based on water quality standard exceedances, and the fish kill was corroboratory to high nutrients and an algal bloom.

Specific Comment #3c: Section 2.5 - The TMDL references COP Operations staff participated in the study. City Public Works Department, Wastewater Division, assisted UA from 8/2012 to 10/2012 (Limno-corral, phase 2) by collecting samples and shipping to the specified lab.

Response Specific Comment #3c: Additional text has been added to Section 2.5 clarifying COP staff support.

Specific Comment #3d: Section 3.2 - Incorrectly refers to Yavapai-Apache Nation. It should be the Yavapai- Prescott Indian Tribe.

Response Specific Comment #3d: The reference has been corrected throughout the document.

Specific Comment #4a: Section 4.0. Is it appropriate for Watson to have the designated uses listed in Table 1. The Full Body Contact question dates back to the earlier actions taken on Sundog WWTP. Earlier documents state consideration for downgrading the lake's protective uses by removing FBC designation. The City questions if this designation is appropriate for this type of water body and historic and existing uses.

Response Specific Comment #4a: Designated uses for Watson were based on the assumption of "fishable/swimmable" as of 1975. Designated uses are defined by rule, so that any changes to them must be made through rule-making. The recreational contact (FBC) designated use is not connected to nutrient targets in Watson, only to *E. coli* and pH. If the City believes a designated use is not correct, they are encouraged to provide rationale for change in the next Triennial Review of Water Quality Standards.

Specific Comment #4b: Section 4.3 - A separate report will address watershed *E. coli* impairment - how will the Watson Lake TMDL and forthcoming watershed TMDL work in concert? Will the delivery of a second document affect the implementation plan/timeline for the Watson Lake TMDL?

Response Specific Comment #4b: A (separate) watershed TMDL will address *E. coli*. The updated Watershed Improvement Plan (WIP) will tie nutrient and *E. coli* TMDL implementation in the watershed together. Since *E. coli* and nutrient levels in stormwater runoff typically increase with increased sediment load, BMPs implemented that decrease sediment loading may reduce both pollutants. However, the two TMDLs are independent of one another.

Specific Comment #4c: Section 4.3, Last Paragraph: "...it may be possible to adjust expectations..." - by what processes? Who will conduct the sampling and analysis to determine adjustments? What is the timeframe? Historically, has ADEQ ever lowered a water quality standard? The City specially requests the inclusion of additional language in the TMDL to define under what conditions the agency will commit to revisiting and justifying revisions to the standards applied in this TMDL (March 2014 draft).

Response Specific Comment #4c: Section 4.3 has been removed from the final draft. If changes in applicable water quality standards occur, ADEQ will revise the TMDL based on the targets. Text has been added to Section 4.2.

Specific Comment #5a: Section 5.2 There are many industrial activities identified within City boundaries that may require MSGP coverage. The responsibility to require coverage under a state permit falls to which party? Note: VA Hospitals in Tucson and Phoenix are considered their own (non- traditional) MS4, requiring AzPDES permit coverage and SWMPs. The VA in Prescott is not included. Why? The VA parcel is 93 acres along Granite Creek.

Response Specific Comment #5a: The MS4 (Prescott in this instance), as part of the permit requirements, must identity and eliminate illicit discharges. An illicit discharge is defined as any discharge to the MS4 that is not composed entirely of stormwater except discharges pursuant to a AZPDES permit. As such, if there is stormwater discharge associated with industrial activity that does not have permit (MSGP) coverage, it is an illicit discharge. As for the Prescott VA Hospital, U.S. EPA had the original determination to include Phoenix and Tucson's VAs and not Prescott. This determination precedes ADEQ's program authority. The determination is likely based on the number of full time residents.

Specific Comment #5b: The report doesn't address the improvements that were gained in the removal of the Sundog WWTP as a point source. Was the point source issue resolved with the actions taken related to Sundog in the late 80s/

early 90s?

Response Specific Comment #5b: Additional text has been added to Section 5.2 for clarification.

Specific Comment #5c: Section 5.3 - Non-point Source Loading "Effluent reuse on golf courses" - why is this listed as non-point source? Both COP Wastewater Treatment Plants meet or exceed ADEQ requirements for wastewater treatment. What would treated effluent be regarded as a point source, further why would ADEQ regulated the water twice?

Response Specific Comment #5c: Reuse of treated effluent is regulated under a Reuse Permit, however, irrigation practices may need to be adjusted to minimize nutrient migration to surface water. This would fall under best management practices for non-point sources.

Specific Comment #6a: Section 6.0. Section 6.1, First Paragraph - Unfinished sentence: "The TMDL incorporates modeling of nutrient inputs using...."

Response Specific Comment #6a: The sentence has been corrected.

Specific Comment #6b: Section 6.2 - What were the study questions? What were available datasets? Implications of not including Walker's Phase II study? A sentence should be added to make it clear that only nutrient sampling was completed.

Response Specific Comment #6b: Studies were conducted to 1) evaluate sediment and nutrient deposition, 2) test the effects of nutrient enrichment and nutrient sequestration by ALUM, 3) measure productivity of phytoplankton (Phase I of Walker's study) and periphytin (Phase II of Walker's study). The only aspect used directly in modeling nutrient mass balance was bathymetry. Chlorophyll-a could not be calibrated to nutrients in BATHTUB. However, Walker's study demonstrated that ALUM is effective in removing nutrients from the water column, TP foremost but also TKN. Both ADEQ and Walker collected chlorophyll samples during Phase I and Phase II of the limno-corral study but the relationship between nutrients and chlorophyll could not be calibrated in BATHTUB. Further study may assist in developing the relationship of nutrients to chlorophyll-a.

Specific Comment #6c: Section 6.2, Second Paragraph - Define the percent of concentration of nutrients as a function of volume and correlate this to a ratio of growing season to annual volume and concentration of nutrients.

Response Specific Comment #6c: The lake was found to be nitrogen limited. Tetra Tech assessed the turnover ratio for nitrogen under growing season and annual loading conditions. The annual averaging period was found to be appropriate. ADEQ contacted Tetra Tech to see if the answers would be straightforward and accessible from the modeling files. Here is the response:

> Did the comment provide any more context than this sentence? The model output provides a number of different ratios based on a steady state and relevant for a single year and constant volume. BATHTUB does not run correlations so that would definitely need to be done outside of the model. Are they referring to natural variation in volume, the lake level scenarios, etc.? Also, what is the unit of observation – would these ratios be computed across depth, across years, etc.? It's unlikely that BATHTUB would provide the data they are asking for. If there is a little more context available on their comment, we'd be glad to put a little more thought into this.

Specific Comment #6d: Section 6.2, Third Paragraph and Section 6.3.5 - Are two core samples enough data to determine the nutrient levels in a reservoir that is nearly 200 surface acres of water? Application of any TMDL recommends appear to warrant additional data collection.

Response Specific Comment #6d: The coring study was not intended to support the BATHTUB model development directly, rather it looked at the historic depositional history to support lake management. Budget constraints limited the core sampling to two locations; this was sufficient to inform nutrient deposition for the TMDL project. Additional locations would assist in further characterizing sediment depth and quality, should dredging become an option.

Specific Comment #6e: Section 6.2, Last Paragraph - It appears that the Verde River nutrient water quality standards were pre-determined and Tetra Tech's mass balance equations for nutrients were manipulated to meet these pre-determined standards. Why isn't the TMDL based on the model?

Response Specific Comment #6e: The listing of Watson as impaired is partially based on the Verde River nutrient standards but also on existing standards for DO and pH. The attempt was made to calibrate nutrients to chlorophyll-a as the productivity endpoint, but this was not possible due to the predominance of cyanophytes (blue-green algae).

Specific Comment #6f: Section 6.3 - Revise according to AMEC's Technical Memo (Desired TMDL Revision #1)

Response Specific Comment #6f: The section has been revised based on AMEC's memo.

Specific Comment #6g: Section 6.3.2 – The entire TMDL assumes flow-weighted concentration as a function of area. This is not representative of the seasonal variations within the watershed for flow and nutrient loading.

Response Specific Comment #6g: The TMDL mass load was established only at the lower USGS gauge to capture the cumulative loading to the lake. Additional analyses of upper watershed data did assume flow-weighted concentration as a function of cumulative area in an attempt to tease out relative hot spots.

Specific Comment #6h: Section 6.3.3, Last Paragraph - "Best professional judgment and knowledge of the lake level seasonal patterns were used to estimate normal pool elevations for both 2010 and 2011." This reverts back to the dry year of 2011 being represented as a fairly typical year in the TMDL...how does this judgment affect the information being used in the model? The City maintains actual pool levels based on the need to know water elevation in relation to the conservation pool elevation. This data needs to be incorporated into the model.

Response Specific Comment #6h: Lake level data from both the City and the Yavapai County Flood Control District were given to TT for use in the model. Lake level data supplemented bathymetric measurements to develop the volumes used in BATHTUB modeling.

Specific Comment #7a: Section 7.0 Section 7.1, Figure-9 - Provide a legible map with an accompanying table for each sample site to include flow and test results for water quality parameters.

Response Specific Comment #7a: A map of sample sites and summarized data are provided in the Appendix A. A complete dataset is available upon request.

Specific Comment #7b: Section 7.3.1, Text below Figure 13 - Report makes the following statement: "For TN there isn't a clear relationship of concentration to flow." If this is the case why does the BATHTUB model make a base assumption that the concentration is a function of flow and area?

Response Specific Comment #7b: The referenced text pertains to the fact that TN results in relation to the flow under which they were collected, do not show a clear linear relationship. The text has been clarified. Increased flow may increase load, but it is not a linear relationship. That is the reason that ADEQ calculated loads for creek contributions that are flow-weighted.

Specific Comment #7c: Section 7.3.3, Second paragraph - What is the conclusion of this paragraph? In the lower

watershed, ammonia, TKN and N02 & N03 exceed upper watershed concentration by 70 percent? Note: As the paragraph under Table 3 says, "It appears that the upper watershed soils have the potential to contribute significant amounts of organic carbon, organic nitrogen and total phosphorus." What will ADEQ do to cause the National Forest to take responsibility for their contribution? Or does ADEQ expect the City to take responsibility for implementing BMP's to filter the National Forest's contribution of nutrients?

Response Specific Comment #7c: The second paragraph is describing the effect of drainage gradient on runoff delivery to creeks. It is not clear to what the first part of this comment pertains. Runoff from the National Forest is part of the non-point source contribution, which given the watershed area is significant. ADEQ does not have regulatory authority over non-point sources; remediation is voluntary. However, ADEQ will continue to work with Prescott National Forest through the updated WIP to identify problem areas and facilitate implementation of BMPs where feasible. ADEQ will continue to collect samples in cooperation with stakeholders to refine load contributions.

Specific Comment #8a: Section 8.1, Table 4 - Revise according to AMEC's Technical Memo (Desired TMDL Revision #2)

Response Specific Comment #8a: The table has been revised based on AMEC's memo.

Specific Comment #8b: Section 8.2, Page 27 Last Paragraph - It appears that the TN & TP sedimentation coefficients for the model were adjusted to match the pre-determined TMDL targets for TN & TP. The model should be based on relevant field data not theoretical data. Also the report says, "Net retention estimated by these equations was about 1,060 pounds per year TP using either equation, which is a similar order of magnitude to the retention predicted by BATHTUB (about 1,600 pounds per year TP)." These two numbers reflect a 34% difference. Staff does not consider a 34% difference similar and is concerned the BATHTUB model overestimates nutrient loading.

Response Specific Comment #8b: TT used the equations to check model results (using actual data). To avoid confusion, the comparison has been removed.

Specific Comment #8c: Section 8.3, First Paragraph - Revise according to AMEC's Technical Memo (Desired TMDL Revision #3)

Response Specific Comment #8c: The text has been revised based on AMEC's memo.

Specific Comment #8d: Section 8.3, Page 30 – Revise according to AMEC's Technical Memo (Desired TMDL Revision #4)

Response Specific Comment #8d: A sentence has been added to Section 8.4.2 based on AMEC's memo.

Specific Comment #8e: Section 8.3, Page 30 & 31 - Language holding the City to treating "all loads from urban lands" coupled with other vague suggestions does not help the City with solutions to such a large and expensive task. Shouldn't more specific information be collected before attaching the TMDL to the MS4 permit?

Response Specific Comment #8e: There is no mention of holding the City responsible for all loads from urban lands. A total reduction in watershed loads was one model scenario offered for comparison. ADEQ acknowledges throughout the document that improvements require both watershed and in-lake loading reductions.

Specific Comment #8f: Section 8.4.1 - Will the WLA affect future CGPs in the watershed?

Response Specific Comment #8f: Yes, current and future CGPs (and all general permits) will be held to the WLA concentration-based targets (annual mean Verde nutrient standards).

Specific Comment #8g: Page 34, First Paragraph - Are the mass based WLA (7.88 lbs/day - TN and 1.56 lbs/day - TP) cumulative for the watershed or does this limits apply to each permitted entity/stakeholder? Please define.

Response Specific Comment #8g: There is insufficient information to assign separate mass based loads to each permitted entity/stakeholder. Until this is possible, all entities/stakeholders will be held to meeting the annual mean Verde nutrient standards.

Specific Comment #8h: Section 8.4.2 The document needs more explanation for how, "in meeting the TMDLs at the lower Granite Creek gauge through watershed reductions ..." will be done, enforced? Through existing and future permits?

Response Specific Comment #8h: Section 8.4.2 has been deleted. Text has been added to Section 8.3.3. The loading to the lake was calculated at the lower gauge and the TMDL data can be used as a comparison to future data collected at that site to determine if changes in water quality have occurred. The TMDL is not enforceable per se, however permit conditions are enforceable. ADEQ is committed to working with stakeholder groups, both regulated and non-regulated, to improve watershed and lake conditions.

Specific Comment #8i: Clarify where the chlorophyll-a reduction estimate came from. (AMEC Technical Memo – additional explanation required)

Response Specific Comment #8i: Projected chlorophyll-a reduction is based on empirical relationships found in temperate states that are the basis of Walker's 1985 BATHTUB model (Walker, 1999). This citation has been added to Section 8.3.3.

Specific Comment #8j: Provide documentation for the technical basis of the estimated 55% reduction in chlorophyll-a estimate and the 45% reduction in the hypolimnetic oxygen deficit if the proposed TMDL targets are achieved for total nitrogen and total phosphorus (AMEC Technical Memo - additional explanation required).

Response Specific Comment #8j: Projections were based on established empirical relationships and BATHTUB modeling. See response to #8i above.

Specific Comment #8k: Section 8.5 - Under average conditions water below the dam is ground water, not water released from the dam. If the Granite Creek water that reaches the Verde River is considered high water quality and has no negative impact on the Verde River, why is ADEQ rushing to implement a TMDL when better information and modeling could be developed?

Response Specific Comment #8k: ADEQ has completed this TMDL in response to the determination that Watson is impaired for high nitrogen, high pH, and low DO. TP has been found to also be higher than the standard, so it has been added as a TMDL load reduction target.

Specific Comment #9a: Section 9.0- The document states that the Watson Lake watershed will receive priority in receiving 319 grant funds. Guidance from the water quality grants section at ADEQ on the current grant cycle indicates that these funds will no longer be used to fund projects on public lands within MS4s. How can Granite Creek be a targeted watershed for 319 funds yet the largest portion of urban land use in the watershed are permitted entities and cannot receive water quality improvement funds? This is in direct conflict with ADEQ's targeted watershed funding objectives and statement that such funds will be available to help the City implement BMPs. It appears that the state will not be able to offer the kind of support that they indicated in discussions with City staff and the TMDL. Reference: ADEQ Water Quality Improvement Grant Program, Powerpoint for Grant Cycle 2015.

Response Specific Comment #9a: Projects to address nonpoint sources of pollution in the Granite Creek Watershed are one of the identified priorities for 319 funds. New guidance and program clarification has determined that MS4 permit requirements cannot be funded by 319. Projects originating on private property within the MS4 may be eligible for these funds. ADEQ will offer clarification in the next set of grant workshops. Questions about 319 grant eligibility may be directed to Grant and Watersheds Coordinator Samuel Breedlove at breedlove.samuel@azdeq.gov.

Specific Comment #9b: Section 9.1, heading, did ADEQ intend "Improvement" plan?

Response Specific Comment #9b: Yes, the text has been corrected.

Specific Comment #9c: Section 9.1, Page 37, First Paragraph - Qualify the sewer system as storm or sanitary.

Response Specific Comment #9c: This discussion was taken from the 2012 WIP and refers to the storm water system.

Specific Comment #9d: Section 9.1, Second Paragraph - Who were the volunteers and what were their qualifications?

Response Specific Comment #9d: Please refer to the 2012 WIP document. A sample plan was prepared and approved by ADEQ.

Specific Comment #9e: Section 9.1, Third Paragraph - Mail in surveys are generally not an accurate way to gain an overview of a population center. It can be argued that only those interested in such topics would respond. Although, nearly 1,500 responses were received, to put that number into perspective, the City has over 22,000 residential water billing accounts and the City population in 2010 was near 40,000 people (Draft 2014 General Plan). When the number of survey respondents are compared to the 2010 population that is about a 4% sampling.

Response Specific Comment #9e: According to the 2012 WIP (page 56): "The survey was a self-administered questionnaire distributed by mail as an insert in the City of Prescott water bill, through Valpak of Northern Arizona, and available on the internet using SurveyMonkeyTM online software. The mail survey reached 21,000 households on the City's water and sewer service and 30,000 people through Valpak Neighborhood Trading Areas for Prescott". The comment correctly points out that only about four percent of those that received the survey filled it out.

Specific Comment #9f: Section 9.1, Last Paragraph – Although fees could be instituted, this would need to be accomplished through a rate study.

Response Specific Comment #9f: ADEQ agrees that instituting a new fee is not a simple process but this was a WIP recommendation developed by local stakeholders.

Specific Comment #9g: Section 9.3 – The Draft TMDL mentions that ADEQ will coordinate stakeholders to develop a comprehensive watershed monitoring plan or strategy (pg 39). This plan will need to be updated regularly to reflect TMDL implementation and source characterization. There are no details provided on how these updates will be facilitated, given that each entity will be working on their section of the plan and WLA individually and permitted and non-permitted entities may have different objectives. Will ADEQ facilitate this? What is the timeline for developing such a plan? How will ADEQ monitor compliance with the permitted and non-permitted entities?

Response Specific Comment #9g: ADEQ plans to update the WIP in 2015 by reconvening the WIC and soliciting additional stakeholders where needed. The details will have to be worked out in work sessions, but the vision is for the updated WIP (with TMDL results and expectations) to serve as the implementation plan for ongoing coordination between stakeholders, prioritization of additional monitoring and application of BMPs. A sub-group of the WIC will be responsible for development of a Lake Management Plan. ADEQ has included a table of implementation milestones in Section 9.0.

Specific Comment #9h: Section 303(d) of the CWA does not specifically require implementation plans after a TMDL is developed. ADEQ included implementation plans as a step in the process in their public presentations about the TMDL. The draft TMDL does not mention an implementation plan unless the watershed monitoring plan is considered the implementation plan. Again, there is no timeline or schedule provided for when this will be developed and how the

process will work.

Response Specific Comment #9h: ADEQ anticipates using the WIP and the proposed Lake Management Plan as the implementation planning documents. As mentioned in previous responses ADEQ will be revising the WIP to include the TMDL finding and working with stakeholders to continue implementing water quality improvement projects. See the following web site for current and updated improvement plans: http://www.azdeq.gov/environ/water/watershed/index.html

NOTICE OF PUBLIC INFORMATION

DEPARTMENT OF HEALTH SERVICES

[M15-35]

1. Titles of the substantive policy statements and the substantive policy statement numbers by which the documents are referenced:

GD-102-PHS-EMS: Political Subdivision Contracts for Ambulance Service

2. The public information relating to the substantive policy statements:

The Arizona Department of Health Services is correcting the format of the guidance document specified in paragraph 1 by adding the text "A.A.C." to the rule citation on page 7 of the guidance document without changing the title or content of the guidance document. This notice of public information provides the public with notice of the correction.

3. The name and address of agency personnel with whom persons may communicate regarding this notice of public information:

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Bureau of Emergency Medical Services and Trauma System
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NOTICE OF PUBLIC INFORMATION

DEPARTMENT OF HEALTH SERVICES

[M15-36]

1. Titles of the substantive policy statements and the substantive policy statement numbers by which the documents are referenced:

GD-106-PHS-EMS: Transport Protocols

2. The public information relating to the substantive policy statements:

The Arizona Department of Health Services is correcting a cross-reference in the guidance document specified in paragraph 1 to reflect a recent rule change without changing the title or content of the guidance document. This notice of public information provides the public with notice of the correction.

3. The name and address of agency personnel with whom persons may communicate regarding this notice of public information:

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