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***EPA-APPROVED***

**TOTAL MAXIMUM DAILY LOAD (TMDL)  
FOR THE  
RIO RUIDOSO**



**DECEMBER 13, 2016**

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*Historically, nutrient management efforts have focused on controlling a single limiting nutrient (i.e., N or P); however, science has shown that this may be over-simplifying nutrient management<sup>8</sup>. For example, nutrient limitation can change spatially and temporally within the same watershed; aquatic flora and fauna have different nutritional needs such that different species may benefit from N limitation, while others benefit from P limitation or co-limitation; and, focusing on only the perceived limiting nutrient can enhance export of the uncontrolled “non-limiting” nutrient downstream. It is for these reasons that SWQB asserts that reduction strategies for both N and P must be implemented.*

**2. The New Plant Would Be Unable to Meet Effluent Limits for Total Nitrogen Based on the Proposed Wasteload Allocation.**

We understand from our Plant Director and our consultants that it would be impossible for the Plant to meet a TN effluent limit based on the proposed 37.1 pounds-per-day TN WLA. Our consultants reviewed Appendix C4 of the TMDL showing effluent flows and TN concentrations in Plant effluent from January 2012 to April 2016. After converting TN concentrations in milligrams per liter (“mg/l”) to pounds per day, they noted 11 months in which the proposed 37.1 pounds-per-day TN WLA was exceeded. Our consultants believe that 11 exceedances in 52 months are an accurate reflection of the inability of the Plant to meet the proposed WLA.

We understand that the proposed 37.1 pounds per day TN WLA translates to an effluent limit of 2.36 mg/l. Our Plant Director and consultants advise that with careful operation the Plant is capable of producing effluent with an average TN concentration below 4.0 mg/l. Our recommendation, which was included in our March 1, 2013 *Ruidoso Settlement Agreement Final Report* to NMED is that the WLA for TN should be consistent with a TN effluent limit of 4.0 mg/l (30-day average) with no seasonal variation. This recommended WLA is 62.7 pounds per day of TN at an effluent flow of 1.88 million gallons per day (“mgd”) and 90.1 pounds per day of TN at an effluent flow of

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<sup>8</sup> USEPA. 2012. *Preventing Eutrophication: Scientific Support for Dual Nutrient Criteria*. Office of Water. December 2012. EPA-820-S-12-002.

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2.70 mgd. As discussed below, pounds per day in effluent during the summer months could be reduced further if Ruidoso is able to re-use treated effluent for land application.

We have determined that a Plant upgrade required to meet the proposed WLA for TN is technically and economically infeasible. At the direction of the Ruidoso Joint Use Board, the Board's consultant Molzen Corbin prepared a December 2015 study titled *Affordability of a Wastewater Treatment Plant Upgrade for Total Nitrogen Removal* ("Affordability Study"). A few notable conclusions of the Affordability Study are;

- (1) Reverse osmosis is the only treatment technology capable of further reducing TN to or below 1.0 mg/l. Other candidate technologies considered and rejected are chemical treatment, activated carbon adsorption treatment, ion exchange treatment and advanced oxidation.
- (2) The estimated cost of a reverse osmosis facility is \$31,900,000. This cost approaches the cost of the current Plant of approximately \$34 million.
- (3) Average estimated residential wastewater bills reflecting the cost of a reverse osmosis facility would be likely to impose economic hardship on the residents of both the City of Ruidoso Downs and the Village of Ruidoso. This conclusion is reached using EPA's affordability criteria that include an upward limit of 2% of Median Household Income.

**SWQB response:** *Based on the Discharge Monitoring Report (DMR) data provided by the WWTP for the January 2012-April 2016 period (Appendix C), SWQB approximated the current average monthly (i.e., 30-day) effluent loading as 30.6 lbs/day TN and 0.74 lbs/day TP. Loading values calculated from Appendix C should be considered estimates as reported "load" on DMRs are calculated with flow on the day of sampling not calculated using an average flow. Section 3.5.2 of the TMDL provides Current WLAs of 37.1 lbs/day TN and 1.64 lbs/day TP. These values are water quality based effluent limits designed to improve water quality to meet standards and protect aquatic life uses in the Rio Ruidoso. SWQB reviewed the 2013 and 2015 reports referenced in your comments and recognizes the improvement in WWTP effluent quality since the development of the 2006 TMDL. As such, SWQB is committed to continuing to work with the City/Village and EPA Region 6 to draft a new NPDES permit that uses permitting tools, such as compliance schedules, additional monitoring and Temporary Standards, and also protects the aquatic life uses in the Rio Ruidoso.*

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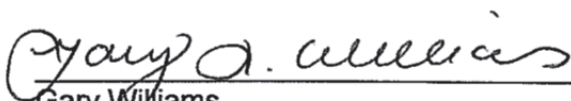
review, with copies to NMED and the New Mexico Department of Game and Fish. Upon completion of the UAA, Ruidoso will confer with NMED to determine if the UAA supports a change in the aquatic life use designation of the Rio Ruidoso. If the UAA supports such a change, then a proposed change of standards would be presented to the Water Quality Control Commission ("WQCC"). Such a change of standards would be highly relevant to whether the Rio Ruidoso is impaired for nutrients and consequently to a final effluent limit for TN in a future Permit.

5. **Conclusion**

Although we remain concerned that further TN reduction would be unlikely to improve water quality in the Rio Ruidoso, Ruidoso generally supports the Draft TMDL and its approval by the WQCC. Because our state-of-the-art Plant is not capable of meeting TN effluent limits based on the TN WLA, our primary concern is with how that WLA will be implemented in the Renewed Permit. We support the suggestions for implementation discussed in the TMDL. Finally, we urge NMED and EPA to not include a final effluent limit for TN in the Renewed Permit. Such a determination of a final effluent limit would be premature due to efforts now underway that could change water quality objectives for nutrients in the Rio Ruidoso.

Ruidoso appreciates your consideration of our comments on the Draft TMDL.

Sincerely,



Gary Williams,  
Mayor  
City of Ruidoso Downs



Tom Battin,  
Mayor  
Village of Ruidoso

Enclosure:

(A) Memorandum from Dr. David Stensel and Mr. Jim Good

**III. The Rio Ruidoso nitrogen draft TMDL should include a table of projected TN effluent limits at the wastewater treatment plant**

The 2014 iteration of the draft nitrogen TMDL for the Rio Ruidoso contains a table that projects the Total Nitrogen effluent limits that will apply to the discharge at the wastewater treatment plant at different discharge volume levels, given the nitrogen wasteload allocation assigned to the wastewater treatment plant in that draft. (See Table 8.1) The current draft TMDL omits this crucial table.

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critical flow downstream of the plant.

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The inclusion of a table similar to Table 8.1 from the 2014 draft is crucial in this case, because the table displays the practical effect of the TMDL. That is, the table enables the reviewer to understand how the proposed wasteload allocation relates to the wastewater treatment plant's current NPDES permit limitations on nutrient discharges.

The existing NPDES permit for the wastewater treatment plant has a Total Nitrogen effluent limit of 1.0 mg/L. The 2014 draft TMDL proposed a nitrogen wasteload allocation for the wastewater treatment plant of 41.3 pounds/day. At that allocation (and assuming Total Nitrogen discharge at that allocated level), the effluent from the wastewater treatment plant when the plant discharges at 1.75 mgd – the approximate median discharge flow – was projected to contain Total Nitrogen at a concentration of 2.6 mg/L, or 260% of the currently permitted concentration. The current draft of the TMDL increases the Total Nitrogen wasteload allocation to 53.3 pounds per day (taking into account future growth) – an increase of 29% over the 2014 proposed Total Nitrogen wasteload allocation. Of course, the increase in the Total Nitrogen wasteload allocation over the proposed 2014 level will also result in the discharge of effluent from the wastewater treatment plant that has an even higher concentration of Total Nitrogen, but the current draft obfuscates that face through omission of a table similar to Table 8.1 in the 2014 draft TMDL.

In the interests of public transparency, and to provide assurances that the proposed TMDL for nitrogen will not lead to illegal backsliding or degradation, NMED should restore the table to the current draft TMDL, and inform the public of the relationship between the proposed wasteload allocation and the wastewater treatment plant's effluent characteristics.

***SWOB Response:*** Thank you for the suggestion. While a similar table was included in the 2014 draft of the TMDL, a revised approach to the calculation of the WLA was included in the 2016 draft of the TMDL which makes a similar table unnecessary. The Total WLA in lbs/day was calculated as follows:  $Total\ WLA = Total\ TMDL - Total\ LA - MOS$ . Back-calculating the Total WLA (lbs/day) of 2.37 lbs/day TP and 54.3 lbs/day TN using the WWTP design capacity of 2.70 mgd results in associated nutrient concentrations of 0.11 mg/L TP and 2.41 mg/L TN. These concentrations remain constant when dividing up the Total WLA into the Current WLA and Future Growth WLA. Language related to this has been added to Section 5.