APPENDIX F
RESPONSE TO COMMENTS

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Changes made during public comment period based on staff review:

1. Added missing site numbers to Table 2.1
2. Moved discussion of options for the Cuba WWTP *Plant Nutrients – Wasteload Allocation* (Section 5.4.1) to *Implementation of TMDLs – NPDES Permitting* (Section 8.1)

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Comment Set A:

From: Leyendecker, W. E. (Gene) [gleyendecker@GFNET.com]
To: Henderson, Heidi, NMENV
Subject: Village of Cuba
Sent: 6/25/2007, 9:19am

The Village of Cuba has requested for me to e mail you regarding wastewater treatment plant effluent discharge to the Rio Puerco. Following construction of a new biological nutrient removal plant, the Village is requesting to discharge effluent to the Rio Puerco for a period of six months beginning on October 1 and ending on march 31 of each year. The remainder of the year the Village will either reuse or dispose of the effluent, and not discharge to the Rio Puerco. If there is any other information that you may require please contact me.

SWQB Response: *Thank you for your comment. After reviewing the available thermograph data, it is reasonable from a biological perspective to extend the dates of discharge into October. There is a reduced potential for algal growth when extending an extra month of discharge into the fall season than into the spring season. The initial suggested months will remain in the TMDL with a footnote regarding this comment. However, the final determination of permit language and months of discharge will be up to EPA Region 6 and NMED NPDES staff.*

Comment Set B:

From: James Ivy [tomivy@swbell.net]
To: Henderson, Heidi, NMENV
Subject: Re: Rio Puerco Part 2 public meeting
Sent: 6/25/2007, 2:55pm

I was impressed with the quality of the document. I thought it was well written. I was a 1970's, eutrophication era, algae student. My masters research thesis was "Eutrophication Potential of Secondary and Tertiary Wastewater Effluents." My conclusion, not particularly accepted at the time, was the more the wastewater was treated, the better the algae grew. I am a summer visitor to Cuba and am not involved in the local water issues, but Cuba was originally a freshwater marsh. I think an artifical wetland is the best solution to water quality problems in the Rio Puerco.

Tom Ivy

SWQB Response: *Thank you for your comment. Through the submittal of your comment, your suggestions and research expertise will be made available to the Village of Cuba, EPA Region 6, and NMED during the WWTP and permit development process.*

Comment Set C: submitted via fax on June 29, 2007 and e-mail on July 2, 2007

Meeting Date: June 21, 2007

Comments Regarding: **Total Maximum Daily Loads for Rio San Jose Watershed**

Instream flows must be considered in order to fulfill the purposes of the Federal Clean Water Act. The Pueblo of Acoma Water Quality Standards (Revised 2005) recognizes that surface and groundwater withdrawals from a stream may cause impairment to surface or groundwater bodies. Section II. Antidegradation Policy and Implementation Plan

SWQB Response: *Thank you for your comment. SWQB likewise agrees that water quantity can affect water quality. However, water quantity issues are addressed through the Office of the State Engineer (OSE). We will forward your comments to them. SWQB suggests the Watershed Restoration Action Strategy (WRAS) process as the mechanism through which the relationship between water quantity and water quality issues can best be addressed.*

Declining water levels in the Rio San Jose have contributed to rising sulfate and total dissolved solids (TDS) levels at Acoma, impacting designated uses. The Rio San Jose is dry below Bluewater Reservoir and springs back to life near the western edge of the Acoma Grant. This resurgence can be attributed to springflows and mountain runoff from Mt. Taylor. Another probable source of rising sulfate and TDS levels at Acoma is the legacy of uranium mining and milling along the San Mateo subwatershed.

SWQB Response: *During the 2004 SWQB survey, the Rio San Jose below Grants WWTF discharge site (#17 in Figures 2.4-2.6) was dry at 3 of the 4 sampling attempts with standing water in November. No samples were taken. Based on this sampling, no TMDLs were prepared for the Rio San Jose.*

It should also be noted that the Pueblo of Acoma Water Quality Standards contain numeric criteria for radioactive materials, such as uranium.

SWQB Response: *The State of New Mexico likewise has numeric criteria for radioactive materials in 20.6.4.900J NMAC.*

These circumstances indicate a need for scheduled releases from Bluewater Reservoir and a moratorium on groundwater withdrawals until instream flows are reestablished. Any discussion of TMDLs for the dry reaches of the Rio San Jose must be combined with the development of Watershed Restoration Action Strategies that first address the restoration of instream flows below Bluewater Reservoir.

SWQB Response: *The issue of instream flows and the impact of ground water withdrawals on streams is one that is best addressed to the Office of the State Engineer. We will forward your comment to them. Additionally, SWQB does not currently draft TMDLs for dry reaches and none have been developed for such reaches of the Rio San Jose. See response below regarding the WRAS process.*

A further recommendation involves the alternative provision of baseline water quality data from the San Mateo subwatershed during the spring runoff and summer monsoon season. The acquisition of background data on ephemeral flows from San Mateo Creek is an essential alternative to simply ignoring an identifiable degraded reach of the river.

SWQB Response: *SWQB staff have recently had meetings with Acoma Pueblo staff regarding the WRAS process and the upcoming potential for 319 (h) grant funding. SWQB encourages the participation of all stakeholders in this process to include the mangers of Bluewater Reservoir and OSE in discussions of water releases. SWQB also encourages the collection of water quality data by watershed groups as a contribution to the water quality data available to SWQB for assessment purposes.*

All watersheds emanating from Mt. Taylor, including the San Mateo watershed, should be protected as unique areas with natural values and habitat in need of restoration and protection through NPDES permitting.

SWQB Response: *The NPDES program regulates point source discharges into watercourses and there are currently no NPDES permits on the Rio San Jose. The Grants WWTP no longer has a NPDES permit but has a land application permit through the Ground Water Quality Bureau. SWQB continues to stay in contact with GWQB staff in regards to this issue. However, the WRAS process described above is an appropriate venue for consideration of watershed restoration of unique areas and natural habitat.*

The Watershed Protection Section (WPS) of NMED's SWQB is available to work with local watershed groups on non point source discharge issues that are not subject to the NPDES permit program. The web site for the WPS is: http://www.nmenv.state.nm.us/swqb/WPS/index.html.

Submitted by: Laura Watchempino
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Comment Set D: submitted via e-mail on June 29, 2007; received via postal mail on July 9, 2007

United States Department of Agriculture | **Forest Service** | **Cibola National Forest and National Grasslands** | **2113 Osuna Road, NE, Suite A Albuquerque, NM 87113-1001 (505) 346-3900 FAX: 346-3901**

File Code: 2520-1/2530-4
Date: June 29, 2007

Heidi Henderson
TMDL Coordinator
Surface Water Quality Bureau
New Mexico Environment Department
PO BOX 261100
Santa Fe, NM 87502

Dear Ms. Henderson:

Thank you for the opportunity to comment on the DRAFT Total Maximum Daily Load (TMDL) for the Rio Puerco Watershed – Part 2. Segments of Bluewater Creek (Bluewater Reservoir to headwaters), NM-2107.A_01, is on the Cibola National Forest. This creek is potentially affected by our land management activities so we take great interest in the water quality.

Likewise, part of the watershed that drains into Bluewater Creek (non-tribal Rio San Jose to Bluewater Reservoir), NM-2107.A_00 and Rio Moquino (Laguna Pueblo to Seboyetita Creek), NM-2107.A_10 is on National Forest System lands administered by the Cibola National Forest. These stream segments are much less affected by land management activities on the Cibola National Forest. This reduced connection between National Forest System land management and water quality is due to the proximity of these impaired stream segments to National Forest System land (i.e. no National Forest System land adjacent to the stream bank) and to the lack of perennial and or intermittent flow off National Forest System land into these reaches.

The main focus of our comments will be on Bluewater Creek (Bluewater Reservoir to headwaters). This TMDL addresses Plant Nutrients and Temperature for this reach. On Plant Nutrients the Cibola National Forest has two comments.

The method for determining a numeric equivalent to the narrative standard for plant nutrients appears to be somewhat subjective. Use of the statistical median for nutrient data of Total Phosphorus and Total Nitrogen does give a numeric value to strive for, but there is no physical or biological connection to the narrative "…concentrations which will produce undesirable aquatic life or result in the dominance of nuisance species in surface waters of the state." Likewise, this method does not appear to assess if the plant nutrients (Total P and Total N) are from "other than natural causes" as stated in the narrative.

SWQB Response: *Thank you for your comment. The primary question to be answered during a nutrient assessment is:* ***Is the reach (i.e. assessment unit) impaired due to nutrient enrichment?*** *Or, in other words, is the assessment unit meeting the narrative criterion? The SWQB Nutrient Assessment Protocol for Streams uses a two-tiered approach to nutrient assessment (NMED/SWQB 2006). The two levels of assessment are used in sequential order to determine if there is excessive*

nutrient enrichment. If a Level I assessment indicates nutrient enrichment, a Level II assessment will be used to test this finding and provide more quantitative indicators. If these measurements exceed the numeric nutrient threshold values for phosphorus or nitrogen, indicate excessive primary production (i.e., large dissolved oxygen (DO) and pH fluctuation and/or high chlorophyll a concentration), and/or demonstrate an unhealthy benthic community, the reach is considered to be impaired due to nutrient enrichment.

SWQB has adopted this multi-indicator approach to conduct a more robust assessment that accounts for the chemical, physical, and biological connections to the narrative standard. Both cause and response variables are used in the assessment. The causal variables include total phosphorus (TP) and total nitrogen (TN) concentrations and the response variables include algal biomass (i.e. chlorophyll a concentration), DO, and pH. SWQB recently revised the Nutrient Assessment Protocol for Streams, which discusses the threshold development process and includes the revised ecoregional threshold values for TP, TN, and chlorophyll a (NMED/SWQB 2007).

SWQB is also currently in the process of developing a regional stream condition index (SCI) and assigning tolerance values for diatom communities of New Mexico, which are known to be good indicators of nutrient enrichment. Once an SCI has been developed for New Mexico and organism tolerance values are verified these biological indicators will be used in the weight-of-evidence nutrient assessment.

Finally, during TMDL development, SWQB has chosen to address the causal indicators of nutrient impairment (TP and TN) because they can be more readily controlled through BMP implementation and NPDES permitting. Through the use of local, ecoregion-specific threshold values, SWQB feels that it is addressing the "other than natural causes" clause in the narrative nutrient criterion. It is assumed that by limiting or reducing phosphorus and nitrogen concentrations to regional levels, undesirable aquatic life, nuisance species, and large fluctuations of DO and pH will also be limited or reduced.

REFERENCES:

NMAC. 2006. State of New Mexico Standards for Interstate and Intrastate Streams. As amended through February 16, 2006. Santa Fe, NM.

NMED/SWQB. 2006. State of New Mexico Procedures for Assessing Standards Attainment for the Integrated §303(d)/§305(b) Water Quality Monitoring and Assessment Report. Available at: http://www.nmenv.state.nm.us/swqb/. Santa Fe, NM.

NMED/SWQB. 2007. Guidance for Nutrient Assessment of Streams. Santa Fe, NM.

USEPA. 2000. Nutrient Criteria Technical Guidance Manual: Rivers and Streams. EPA-822-B-00-002.

On page 57 of the DRAFT TMDL it discusses atmospheric deposition of nutrients as a "background levels." Data from nearby National Atmospheric Deposition Program/National Trend Network collection sites in Cuba, Bandelier National Monument and Petrified Forest National Park indicate

nitrate levels well above the Total Nitrogen TMDL concentration of 0.25 mg/L (e.g. weighted mean concentration at Cuba ranged from 0.66 to 1.29 mg/L; at Bandelier from 0.61 to 1.42 mg/L; and at Petrified from 1.15 to 1.51 mg/L). We are concerned that if "background levels" of nitrate are more than double the TMDL for Total Nitrogen it will be impossible to help bring nutrient levels under the TMDL through land management activities.

SWQB Response: *SWQB understands your concern regarding the implementation of this TMDL. However, as stated in the Nutrient Assessment Protocol for Streams, "This… is a dynamic document that will be refined as more data are collected, enabling more precise classification of streams and definition of relationships between nutrient concentrations, indicators, and impairment in New Mexico streams." Nutrient criteria development is an iterative process that will continue to be refined as more data and information are gathered. If, through further analyses, it is found that the ecoregional threshold values are inappropriate for a specific waterbody, they will be adjusted accordingly and the TMDL will be revised with the new values. Nevertheless, SWQB feels confident about its nutrient criteria development program thus far. EPA Region 6 and the regional technical advisory group support the decisions and processes that SWQB has gone through to develop the threshold values defined in the nutrient assessment protocol for streams.*

Concerning the Temperature TMDL, (p. 64) a load allocation in terms of joules per square meter per second ($j/m^2/s$) is not very useful in guiding non-point source management practices.

A temperature load allocation in terms of percent effective shade would be much more useful than one in terms of heat energy ($j/m^2/s$). Fortunately, percent effective shade is a directly corresponding surrogate measure that can be calculated from the loading allocation. The maximum level of shade practical at a particular site is termed the 'system potential effective shade'. System potential is an estimate of the condition where anthropogenic activities that cause stream warming are minimized. Primary factors that affect shade are near stream vegetation height and channel width. The use of 'effective shade' as a surrogate to thermal load is allowed under EPA regulations defined as "other appropriate measure" in 40 CFR 130.2(i).

System potential effective shade occurs when:

1. <u>Near stream vegetation is appropriate for the site.</u>
   Indicators include:
   - Vegetation community is mature and undisturbed from anthropogenic sources
   - Vegetation height and density is at or near the potential expected for the given plant community and site conditions
   - Vegetation community is sufficiently wide to maximize solar attenuation
2. <u>Channel width is sufficiently narrow for the site</u>
   Indicators include:
   - Stream banks reflect appropriate ranges of stability
   - Sedimentation reflects appropriate levels of sediment input and transport
   - Substrate is appropriate to the channel type
   - High flow shear velocities are within appropriate ranges

In summary, system potential effective shade developed from potential site conditions is used as a surrogate measure of the load allocation for temperature. Specifically, system potential effective

shade, developed from vegetation and stream channel conditions represents the best feasible or reasonable condition expected in the watershed. The load allocation described in terms of system potential shade is a much more useful parameter in pollutant evaluation and management than heat energy expressed in $j/m^2/s$. This information would help resource managers evaluate progress towards 'system potential effective shade' conditions.

SWQB Response: *SWQB agrees that $j/m^2/sec/day$ is not an easily translated parameter for groups working with non-point source issues. However, EPA has recently drafted numerous memos guiding the states to develop TMDLs that include a daily increment in response to the 2006 D.C. Circuit Court of Appeals decision Friends of the Earth, Inc. v. EPA, et al., No. 05-5015 in which the D.C. Circuit held that two TMDLs for the Anacostia River did not comply with the Clean Water Act because they were not expressed as daily loads. It is for this reason that SWQB will continue to use the $j/m^2/sec/day$ output from SSTEMP unless given different guidance by EPA. According to a June 22, 2007 draft memo from EPA on the subject, "EPA recognizes that it might continue to be appropriate and necessary to identify non-daily allocations in TMDL development despite the need to also identify daily loads." Estimates of percent shade reductions are given in the document to supplement the daily load requirements and make the load allocations more easily translated by watershed restoration groups. Ultimately, the goal is to meet WQS attainment and the temperature monitoring done by watershed groups and SWQB will be the measurement toward this goal.*

Thank you for considering our comments to the DRAFT Total Maximum Daily Load (TMDL) for the Rio Puerco Watershed – Part 2. If you have any questions related to our comments or would like clarification on any of our comments please contact Bryce Bohn at 505-346-3817, bbohn@fs.fed.us or Edward Huffman at 505-346-3908, elhuffman@fs.fed.us.

Sincerely,
NANCY ROSE
Forest Supervisor

cc: Edward L Huffman
Bryce Bohn
Chuck Hagerdon