APPENDIX G
RESPONSES TO COMMENTS

Comment Set A:
San Juan Water Commission

October 19, 2005

Ms. Jennifer Ickes
Surface Water Quality Bureau
New Mexico Environment Department
Room N2109
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Via e-mail (jennifer.ickes@state.nm.us)
and U.S. mail

Re: Comments of San Juan Water Commission on the Draft Total Maximum Daily Load ("TMDL") for the San Juan River Watershed (Part Two)

Dear Ms. Ickes:

Pursuant to the notice of a 30-day public comment period on the Surface Water Quality Bureau's ("SWQB") Draft Total Maximum Daily Load ("TMDL") for the San Juan River Watershed (Part Two) ("Draft TMDL Document"), I hereby submit the following comments to SWQB on behalf of the San Juan Water Commission ("SJWC").

General Considerations

On April 13, 2005, SJWC submitted comments on Part One of the draft TMDLs for the San Juan River watershed. In those comments, SJWC expressed significant concerns with the methodologies used by SWQB to develop TMDLs for sediment/siltation and bacteria. Unfortunately, SWQB's responses to those comments did not alleviate those concerns. Similarly, SJWC's review of the proposed TMDLs for dissolved oxygen and nutrients that are now open for public comment has raised questions about the scientific validity of SWQB's newest proposals, as discussed below. As noted in SJWC's April 13 comments, it is imperative that impairment determinations be made, and TMDL calculations be developed, applying appropriate assumptions and using a valid data set. For the reasons explained, SJWC believes that neither SWQB's impairment determinations nor SWQB's newest TMDL calculations are appropriate, and SJWC requests that SWQB revise its Draft TMDL Document as suggested. SJWC's specific comments identify SJWC's concerns. SJWC's requests for additional information and proposals to modify the final TMDL document are noted in bold type.

Specific Comments

A. NITROGEN AND PHOSPHOROUS—ANIMAS RIVER (SAN JUAN RIVER TO ESTES ARROYO)

1. **Animas River from the San Juan River to Estes Arroyo:** This 16-mile reach has been identified by SWQB as exceeding the narrative nutrient standard. It is classified as a marginal cold water fishery.

2. **Point Sources:** The only point source in this assessment unit is the wastewater treatment plant owned and operated by the City of Aztec. There are no individually permitted municipal separate storm sewer systems (MS4) units in this assessment unit.

3. **Finding of Non-Support:** In section "4.0 Nutrients," SWQB determines that "nutrients will be added as cause of non support" for the Animas River. This decision was based on a water quality survey conducted in August 2003 and comparison of the results of that survey with generalized literature of values. SWQB's Draft TMDL Document acknowledges that "[t]here is a great deal of variability in nutrient levels and nutrient responses throughout the country due to differences in geology, climate, and waterbody type." However, SWQB has not considered site specific circumstances in the Animas River in its finding of non-support. Further, there is no indication, supporting analysis, or demonstration that the generalized literature values used by SWQB are applicable to the Animas River. Therefore, the finding that nutrients are a cause of non-support is not demonstrated to be valid in SWQB's Draft TMDL Document.

4. **Water Quality Standards and Criteria:** As stated by SWQB, "[t]he plant nutrient standard leading to an assessment of use impairment" is a narrative standard "as follows (NMAC 20.6.4.12.E):

> *Plant nutrients from other than natural causes should not be present in concentrations which will produce undesirable aquatic life or result in the dominance of nuisance species in surface waters of the state.*

. . . .

Currently, there are no numeric standards applicable to this assessment unit for total phosphorus (TP) and total nitrogen (TN)." To derive numeric criteria for its TMDL calculations, SWQB applied total phosphorous and total nitrogen criteria theoretically applicable to an entire ecoregion (Level III Ecoregion 22—the Arizona/New Mexico Plateau). In order to calculate the ecoregion numeric criteria, USGS developed generalized numeric nutrient targets based on analysis of available total phosphorus and total nitrogen data. However, the USGS methodology is not described in the Draft TMDL Document. The USGS-proposed ecoregion criterion for total phosphorus is 0.07 mg/l, and the ecoregion criterion for total nitrogen is 0.42 mg/l.

The USGS ecoregion values are based on historical data, and are not supported by an analysis showing that exceedences of the values would violate the narrative standard for plant nutrients, *i.e.*, "produce undesirable aquatic life or result in the dominance of nuisance species" in the Animas River. As already noted, the Draft TMDL Document acknowledges that "[t]here is a great deal of variability in nutrient levels and nutrient responses throughout the country due to differences in geology, climate, and waterbody type," yet SWQB apparently has not considered the site-specific circumstances in the Animas River.

SJWC requests that a general description of the data base, including time period and geographic spread, along with the methods, assumptions, and procedures used by USGS to calculate the ecoregion criteria, be included in the text of the final TMDL document or in an appendix.

Response: It is out of the scope of this study to include the entire USGS process in this document. A synopsis of the USGS study is included within the text of the TMDL and additional details regarding the National Nutrient Water Quality Criteria program and National Nutrient Database can be found on the web at: http://www.epa.gov/waterscience/criteria/nutrient/.

The National Nutrient Database was developed by the EPA to store and analyze nutrient water quality data and serves as an information resource for states, tribes, and others in establishing scientifically defensible numeric nutrient criteria. It contains ambient data for waterbodies of the United States from EPA's Legacy STOrage and RETrieval (STORET) data system, the US Geological Survey's National Stream Quality Accounting Network (NASQAN) data and National Water Quality Assessment (NAWQA) data, and other relevant sources such as universities and states/tribes. The database allows states, tribes and stakeholders to replicate EPA's data analysis and to perform their own independent analyses. It also gives states and tribes access to data for refinement of EPA's criteria and helps states and tribes share data within nutrient ecoregions regardless of political boundaries. The ultimate use of the data is to derive ecoregional waterbody-specific numeric nutrient criteria.

EPA (Region 6) contracted with USGS-Austin, TX to provide technical support to states in the development of ecoregional waterbody-specific nutrient criteria that fully reflect localized conditions and protect specific designated uses. As part of this assistance, the USGS modified the proposed EPA ecoregional numeric criteria for the Arizona/New Mexico Plateau based on further stratification and analysis of the available TP and TN data from the National Nutrient Database. Data sets from Legacy STORET, NASQAN, and NAWQA were used to assess nutrient conditions from 1990-1998. The aggregate ecoregions used by the USGS were stratified to Level III Ecoregions (Omernik, 1987). Criteria were calculated by first taking the median concentration for each site within the Level III Ecoregion. Then the median of these medians became the numeric criteria. This waterbody-specific analysis resulted in criteria of 0.07 mg/L for total phosphorus (TP) and 0.42 mg/L for total nitrogen (TN), which are the numeric criteria that were used in this TMDL.

In 2002, SWQB conducted a water quality survey of the San Juan River watershed, including the collection of samples from four sites on the Animas River at 8 times between April and October. These data were used to conduct a Level I Nutrient Assessment. The Level I Nutrient Assessment includes examination of a number of parameters, which are collected during routine intensive water quality surveys Based on the results of the Level I Assessment, SWQB conducted a Level II nutrient survey in 2003 in cooperation with members of the San Juan Watershed Group including the San Juan Citizens Alliance, Ute Mountain Ute Tribe, Southern Ute Indian Tribe, and the State of Colorado Water Quality Control Division. Information on SWQB's Assessment Protocols for Streams is available on the web at:
http://www.nmenv.state.nm.us/swqb/protocols/index.html

In addition to the ecoregion-based nutrient criteria, SWQB also evaluated the following indicators of nutrient enrichment when assessing nutrient impairment of the Animas River: Dissolved Oxygen (DO) saturation, DO concentration, pH, algal productivity (i.e. Chlorophyll a and Ash Free Dry Mass), and the Hilsenhoff Biotic Index. For each indicator, values that are indicative of nutrient enrichment were identified through an extensive literature review and come from EPA guidance documents, peer-reviewed literature, and NMED water quality standards. According to SWQB's nutrient assessment protocol, exceedence of more than two of these criteria indicates nutrient impairment. The Animas River (San Juan River to Estes Arroyo) exceeded 5 out of the 8 indicators, which included TP, TN, DO saturation, Chlorophyll a, and Ash Free Dry Mass.

5. Algal Bioassay: Section 4.0 refers to an algal bioassay ("Appendix A: Algal Growth Potential (AGP) Assays"). While the bioassay produced a variety of results, the authors concluded that

> the Animas River has MODERATE PRODUCTIVITY. With nitrogen and phosphorus additions, productivity increases *but never exceeds the lower range of MODERATELY HIGH PRODUCTIVITY.* Singular additions of P or N to the level tested would not increase algal productivity. However, management procedures should prevent the addition of both P and N to the Animas River.

(Emphasis added.) The algal bioassay also indicated that both studied sites were limited by iron for algal growth. Significantly, however, the authors do not equate "moderately high productivity" to a violation of the narrative standard or ecoregion criteria, nor do they attempt to establish relationships among the bioassays and the standard or criteria. In fact, there are no established relationships between the results of the algal bioassay test and the narrative standard or ecoregion criteria. Likewise, there is no indication that an exceedence of the regional criteria calculated by USGS, which are applied by SWQB in the TMDL analysis, would result in increased algal growth.

Response: Both Chlorophyll a and Ash Free Dry Mass, which are indicators of algal productivity, exceeded their respective criteria of 10 ug/cm^2 and 5 mg/cm^2 within this assessment unit. SWQB has developed a nutrient assessment protocol that uses a weight-of-evidence approach, which includes a number of indicators of nutrient enrichment such as Total Phosphorus (TP), Total Nitrogen (TN), Dissolved Oxygen (DO) saturation, DO concentration, pH, algal productivity (i.e. Chlorophyll a and Ash Free Dry Mass), and the Hilsenhoff Biotic Index. SWQB used this weight-of-evidence approach when assessing nutrient impairment of the Animas River. For each indicator, values that are indicative of nutrient enrichment were identified through an extensive literature review and come from EPA guidance documents, peer-reviewed literature, and NMED water quality standards. According to SWQB's assessment protocol, exceedence of more than two of these criteria indicates nutrient impairment. The Animas River (San Juan River to Estes Arroyo) exceeded 5 out of the 8 indicators, signifying nutrient impairment along this assessment unit.

6. **Load Calculations**: SWQB calculated the allowable level based on the critical low flow conditions (57.4 mgd) that are used in discharge permits (4Q3 flow) and the ecoregion numeric criteria, which resulted in a TMDL of 33.5 lbs/day of total phosphorus and 201 lbs/day of total nitrogen during critical low flow conditions (Table 4.3). To determine whether a violation of the standard occurred, SWQB next calculated what it referred to as "measured loads" for total phosphorus and total nitrogen. However, SWQB *incorrectly* asserts that this calculation represents the loads in the river under critical low flow conditions. This assertion is not factually based.

SWQB apparently sampled the Animas River near Flora Vista and at Farmington to obtain data for the TMDL. In a process that *virtually ensured* a violation of the ecoregion criteria would be calculated, SWQB took the geometric mean of *only the collected data that exceeded* the numeric ecoregion criteria and applied that data to the calculated critical low flows (4Q3) to calculate the "measured load." This approach, of course, resulted in exceedences of the allowable load because, rather than use all of the data it collected, SWQB only used data that "exceeded" the numeric criteria. As shown in Table 4.4, the so-called "measured load" calculation was based on six data points. The data that exceeded the numeric criteria were taken from the Animas River near Flora Vista on September 19, 2002, August 25, 2002, and April 23, 2004. Data from the Animas River at Farmington that exceeded the criteria were collected on July 16, 2002, September 17, 2002, and August 25, 2003.

Based on the statement in the Draft TMDL Document that "[t]he geometric mean of the collected data that *exceeded* the numeric criteria was substituted for the numeric target in Equation 1 (Table 4.4)" (emphasis in original), apparently other data was collected at these sites. In fact, Table 4.4 excludes a total phosphorous data point on July 16, 2002 at Farmington, but includes a nitrogen data point for the same date.

SWQB filtered out the data that did not exceed the criteria, did not use that data in its calculation to provide a valid assessment of water quality conditions in the Animas River, and did not provide the filtered data in the Draft TMDL Document. Further, SWQB did not indicate whether the flows in the Animas River on the dates of the exceedences were below the calculated low flows. If so, the assumption that the criteria are violated at the critical low flow is invalid.

Was the phosphorous data point for July 16 taken, but excluded because it did not exceed the ecoregion criteria? If so, please provide SJWC with the missing data. Please also provide all of the data collected with respect to the Draft TMDL Document.

Was flow data collected with the water quality data? If so, please provide that data to SJWC.

Table 4.6 shows that SWQB used data collected on twelve occasions at the Hwy 550 Bridge and ten occasions at the Colorado state line to define "ambient upstream conditions." Was data collected at Flora Vista and at Farmington on the same dates it was collected as shown in Table 4.6? If so, why was that data not presented in the Draft TMDL Document? If collected, please provide that data to SJWC.

Response: SJWC is misinterpreting how the SWQB assesses water quality data. SJWC states, "To determine whether a violation of the standard occurred, SWQB next calculated what it referred to as "measured loads" for total phosphorus and total nitrogen." Measured loads are

calculated to help determine the load reductions that would be necessary to meet the target loads and are not a required element of a TMDL document. Impairment determinations are based on application of the Assessment Protocols (NMED/SWQB 2004a), not on measured loads. Information regarding the original impairment listings that led to development of these TMDLs can be found in the Integrated Clean Water Act 303(d)/305(b) List (NMED/SWQB 2004b), and associated Record of Decision (ROD) (NMED/SWQB 2004c). The assessment protocol is periodically updated and is generally based on current EPA assessment guidance. The assessment protocol and all associated appendices are available on the SWQB web page: http://www.state.nm.us/swqb/swqb.html

SWQB has developed a nutrient assessment protocol that uses a weight-of-evidence approach, which includes a number of indicators of nutrient enrichment such as Total Phosphorus (TP), Total Nitrogen (TN), Dissolved Oxygen (DO) saturation, DO concentration, pH, algal productivity (i.e. Chlorophyll a and Ash Free Dry Mass), and the Hilsenhoff Biotic Index. SWQB used this weight-of-evidence approach when assessing nutrient impairment of the Animas River. For each indicator, values that are indicative of nutrient enrichment were identified through an extensive literature review and come from EPA guidance documents, peer-reviewed literature, and NMED water quality standards. According to SWQB's nutrient assessment protocol, exceedence of more than two of these criteria indicates nutrient impairment. The Animas River (San Juan River to Estes Arroyo) exceeded 5 out of the 8 indicators, signifying nutrient impairment along this assessment unit.

References:

NMED/SWQB. 2004a. State of New Mexico Procedures for Assessing Standards Attainment for the Integrated §303(d)/§305(b) Water Quality Monitoring and Assessment Report. Santa Fe, NM.

———. 2004b. State of New Mexico 2004-2006 Clean Water Act Integrated §303(D)/ §305(B) List of Assessed Waters. December. Santa Fe, NM.

———. 2004c. Record of Decision for the State of New Mexico 2004-2006 Clean Water Act Integrated §303(D)/ §305(B) List of Assessed Waters. December. Santa Fe, NM.

7. **Wasteload Allocations**: Table 4.6 provides the data used to calculate ambient upstream conditions: (i) 12 samples taken from the Animas River at Highway 550; (ii) 10 samples taken from the Animas River at the Colorado state line; and (iii) the aggregate Ecoregion III Level III Ecoregion 22 samples. The data from the Animas River at Highway 550 ranges from April 16, 2002 to November 18, 2004. The data from the Animas River at the Colorado state line ranges from April 17, 2002 to October 6, 2003. Apparently this was the data that was collected by SWQB to assess water quality. Most of the data comes from April through October 2002, one of the driest periods on record. In addition, although the aggregate Ecoregion III Level III Ecoregion 22 data was incorporated into the ambient calculation, the method by which it was applied is not described. Footnote "a" states: "Taken from USEPA's ecoregional nutrient criteria dataset. Median values for each season are shown. (USEPA 2000)." There is no indication that the ecoregion data set contains any data from the Animas River.

Is any of the ecoregion data shown in Table 4.6 from the Animas River? If so, please indicate when and where it was collected.

How was the ecoregion data incorporated into the calculation of ambient values, *i.e.*, was it weighted based on the number of samples, each seasonal value counted as one data point, etc.?

What is the basis for including the ecoregion data in the calculation of ambient values? Does it not skew those values upward?

In section 4.1, SWQB states that it used a USGS modification of EPA's ecoregion values for the Draft TMDL Document. Is the ecoregion data in Table 4.6 data that was modified by USGS or is it the original EPA-calculated ecoregion data?

Response: The ecoregional data used to calculate ambient conditions in the Animas River was taken from EPA's 2000 publication, Ambient Water Quality Criteria Recommendations Information Supporting the Development of State and Tribal Nutrient Criteria: Rivers and Streams in Nutrient Ecoregion III (EPA 822-B-00-016). *Several sites were located along the Animas River, including the Animas River at Farmington, Animas River 300 meters below the Aztec Wastewater Treatment Plant, and Animas River at Aztec at Highway 550 Bridge. Data sets from Legacy STORET, NASQAN, and NAWQA were used to assess nutrient conditions from 1990-1998. Data from EPA's National Nutrient Database can be accessed on the web at:* http://www.epa.gov/waterscience/criteria/nutrient/. *The EPA determined nutrient criteria for specific ecoregions using reference conditions (see USEPA 2000 for details). Reference conditions represent the natural, least impacted conditions or what is considered to be the most attainable conditions.*

*To calculate an average ambient concentration for this TMDL, the data were weighted based on the number of samples that were taken. For example, the annual ambient TP concentration = [(mean SWQB upstream concentration * 22) + (mean EPA fall concentration * 78) + (mean EPA spring concentration * 83) + (mean EPA summer concentration * 82) + (mean EPA winter concentration * 58)]/323. By including EPA's data, the number of data points increases drastically giving more confidence in the calculated values. In addition, it provides a better representation of the actual conditions of the waterbody because it includes data from all four seasons and across multiple years.*

In response to SJWC's question regarding Section 4.1, the ecoregion data in Table 4.6 is from the National Nutrient Database, which is the same data that was used for EPA's initial nutrient criteria analysis and for USGS's further stratification and analysis of the same data.

Significantly, even though Table 4.6 contains mostly dry-year data, most of the values *do not exceed* the recommended USGS ecoregion criteria. In fact, the values that do exceed the ecoregion criteria were collected on the same dates as the exceedence data used to calculate the violation of criteria, as shown in Table 4.4 for the stations near Flora Vista and at Farmington. Table 4.6 clearly shows that the average ambient concentration of total phosphorus is 0.051 and the average ambient concentration of total nitrogen is 0.374. Both of these calculated ambient values are less than the USGS criteria.

If all of the data collected near Flora Vista and at Farmington were averaged, would that data show that the USGS ecoregion criteria would be met?

Response: This TMDL was written because the USGS ecoregional criteria are currently not being met in this assessment unit, Animas River (San Juan River to Estes Arroyo). The exceedence ratios for TP and TN were 21% and 26%, respectively. According to the weight-of-evidence approach, exceedence ratios greater than 15% are considered to be indicators of nutrient impairment. Table 4.6 represents ambient, or background, conditions calculated from data collected from sites located upstream of this assessment unit. The upstream sites were not listed as impaired for nutrients. Therefore, the Animas River (Estes Arroyo to CO Border) should have nutrient concentrations that are less than the numeric criteria.

The loading for the City of Aztec's wastewater treatment plant was estimated based on *only one* grab sample collected on June 13, 2005 by SWQB staff. Total concentrations measured were 0.833 mg/l total phosphorus and 2.56 mg/l total nitrogen. Based on the 1 mgd discharge in the City's permit, the grab sample concentrations computed to a loading from the Aztec plant of 6.95 lbs/day total phosphorus and 21.3 lbs/day total nitrogen, as opposed to an allowable additional waste loading of 9.32 lbs/day of total phosphorus and 25.3 lbs/day of total nitrogen. This calculation does not allow a lot of room for growth for Aztec above the current design level. A 20-percent increase in design flow would possibly result in violating the total nitrogen TMDL, and a 23-percent increase in design flow would result in violation of the total phosphorus TMDL.

Concerning implementation, SWQB has noted that "reductions from point sources will be addressed in revisions to NPDES discharge permits." Table 4.13 indicates that the Aztec treatment plant is contributing 6.95 lbs/day, or nine percent of the total load for total phosphorus. Ninety-one percent (67.3 lbs/day) comes from nonpoint sources. Approximately the same ratios apply for nitrogen: 21.3 lbs/day (7 percent) is coming from the Aztec plant, and 290 lbs/day (93 percent) is coming from nonpoint sources. It is not clear from the Draft TMDL Document whether additional discharge limits will be imposed on the Aztec plant in the future.

SJWC requests that SWQB include a statement concerning the potential impacts (or lack of impacts) now and in the future on the City of Aztec wastewater treatment plant.

Response: According to 4Q3 low-flow, WWTP design capacity, and grab sample data, the City of Aztec WWTP currently contributes approximately 2% of the flow, 9% of the total phosphorus, and 7% of the total nitrogen in this assessment unit. The current NPDES permit for the City of Aztec WWTP will be revised based on the assigned WLA in this TMDL document. NPDES permits generally are renewed every 5 years. If the WWTP wishes to expand in the future, SWQB will revise the TMDL according to the proposed design capacity and any additional, relevant data collected since the 2002 intensive watershed survey. A new wasteload allocation (WLA) will be assigned and a revised NPDES permit will be written to accommodate the plant expansion.

8. General Comment: SWQB has failed to demonstrate that violation of the calculated ecoregion criteria for total phosphorous or total nitrogen will result in a violation of the narrative standard applicable to the Animas River, and that TMDLs for phosphorous and nitrogen are needed. No relationship is established between the ecoregion criteria and the narrative standard. The algal bioassay likewise fails to demonstrate that violation of the theoretical ecoregion criteria will result in violation of the narrative water quality standard applicable to this segment of the Animas River. SWQB's use of *only* the data exceeding the numeric criteria *ensures* calculation of loads that exceed theoretically allowable loads based on ecoregion criteria. However, such procedures are not a technically valid methodology for characterizing water quality conditions. The information presented in the Draft TMDL Document does not support the determination that the segment is impaired, that the segment should be on the 303(d) list, that TMDLs are warranted, or that the draft TMDLs are valid.

Response: SJWC is misinterpreting how the SWQB assesses water quality data. Impairment determinations are based on application of the Assessment Protocols (NMED/SWQB 2004a), not on measured loads. Information regarding the original impairment listings that led to development of these TMDLs can be found in the Integrated Clean Water Act 303(d)/305(b) List (NMED/SWQB 2004b), and associated Record of Decision (ROD) (NMED/SWQB 2004c). The assessment protocol is periodically updated and is generally based on current EPA assessment guidance. The assessment protocol and all associated appendices are available on the SWQB web page: http://www.state.nm.us/swqb/swqb.html

SWQB has developed a nutrient assessment protocol that uses a weight-of-evidence approach, which includes a number of indicators of nutrient enrichment such as Total Phosphorus (TP), Total Nitrogen (TN), Dissolved Oxygen (DO) saturation, DO concentration, pH, algal productivity (i.e. Chlorophyll a and Ash Free Dry Mass), and the Hilsenhoff Biotic Index. SWQB used this weight-of-evidence approach when assessing nutrient impairment of the Animas River. For each indicator, values that are indicative of nutrient enrichment were identified through an extensive literature review and come from EPA guidance documents, peer-reviewed literature, and NMED water quality standards. According to SWQB's assessment protocol, exceedence of more than two of these criteria indicates nutrient impairment. The Animas River (San Juan River to Estes Arroyo) exceeded 5 out of the 8 indicators, signifying nutrient impairment along this assessment unit.

B. DISSOLVED OXYGEN—LA PLATA RIVER (MCDERMOTT ARROYO TO COLORADO STATE LINE)

1. **La Plata River from McDermott Arroyo to the Colorado State Line:** This segment is classified as a marginal coldwater fishery. The dissolved oxygen standard is 6.0 mg/l.

2. **Point Sources:** There are no point sources on this segment.

3. **Sample Data:** Grab samples for the LaPlata were collected at the LaPlata station (station 14) six times between April 16 and July 16, 2002, and eight times at the New Mexico-Colorado state line station (station 13) between April 17 and October 22, 2002. Samples were not collected at station 14 after July 16 because river levels were too low to allow for sample collection. One reading from station 14 was below the 6.0 mg/l criteria. No grab samples at station 13 (New Mexico-Colorado state line) were below the dissolved oxygen criteria. Data also were collected June 19-21, 2002 at station 14 using a "data sonde." Sixty-three percent of the dissolved oxygen measurements were below 6.0 mg/l at La Plata station 14 during the June 2002 sonde deployment sampling.

There is a huge difference in data reported from the grab samples and data collected with the sonde to the extent that the accuracy of the data collected with the sonde is highly questionable, and perhaps should be discarded.

Was the data sonde collected data within its calibration limits? Was the sonde calibrated prior to use in the La Plata, and for those conditions of temperature? Please provide the calibration procedures that were applied before the June 19-21 sampling of the La Plata, and the dates of calibration.

Apparently, this data was collected under extreme low flow conditions (see comments below). What was the ambient air temperature? What was the water temperature? What is the DO saturation level at that water temperature even if the $TBOD_U$ load is zero? Do these conditions reflect conditions appropriate for classification of this stream as a "marginal coldwater fishery"?

Response: The data collected with the YSI sonde was properly calibrated and the data was reviewed for accuracy. Calibration and operation procedures for the YSI sonde are available in the SWQB's Standard Operating Procedures for Sample Collection and Handling available on the web at http://www.nmenv.state.nm.us/swqb/MAS/index.html. Data collected over an extended period of time using the YSI sonde is considered to be more accurate than a grab sample collected which takes a "snapshot" of one time during a day. Grab samples generally do not account for diurnal swings in dissolved oxygen that can be detected using a continuous monitoring approach.

SWQB agrees this data was collected under extreme low flow conditions, but the New Mexico Surface Water Quality Standards apply to water's of the state even under low flow conditions.

4. **Low Flow Conditions:** The critical low flow for this TMDL was the low flow corresponding to June 2002 when the lowest dissolved oxygen measurements were collected. That low flow was reported as .005 cfs—.0032 mgd or *2.2 gallons/minute*. The method of applying the extreme low flow is not consistent with the method used in section 4.0 to develop the phosphorus and nitrogen low flow, which used the calculated 4Q3: "The 4Q3 is the minimum average four consecutive day flow that occurs with a frequency of at least once every 3 years. It is assumed that 4Q3 flows will be the critical periods for aquatic life."

How was the flow measured?

What were the corresponding velocities, depths, and channel cross-sections that were incorporated into the model at this flow level?

Are these conditions supportive of a classification of marginal coldwater fishery?

Given that the 6.0 mg/l is an aquatic life standard, why was not the 4Q3, rather than the extreme low flow, used for the TMDL?

Response: The 4Q3 method used in Section 4.0 of the TMDL could not be used to determine a 4Q3 for the La Plata River. The USGS gaging station is located at the New Mexico – Colorado Border on the most upstream boundary of the assessment unit. In order to calculate a 4Q3 for the downstream portion of the assessment unit near La Plata, NM this value would need to be adjusted to account for the numerous ungaged agricultural diversions between these two sites. Unfortunately information on the amount of water diverted in 2002 was not available. The SWQB attempted to quantify the amount of diversions by talking with the local Water Master, but since diversion amounts were not recorded in 2002 and the diversions are extremely variable we were not able to use the 4Q3 method in this TMDL.

A marginal coldwater fishery is defined by the New Mexico Water Quality Standards as "a surface water of the state known to support a coldwater fish population during at least some portion of the year, even though historical data indicate that the maximum temperature in the surface water of the state may exceed 20°C (68°F)" (20.6.4.7 NMAC). There is evidence of an existing coldwater fishery in the La Plata River therefore it meets the requirements of this definition and has been classified as a marginal coldwater fishery.

5. **Water Quality Model:** To calculate the dissolved oxygen TMDL, SWQB used the QUAL2K (Q2K) model. SJWC has serious doubts (i) regarding whether this model was calibrated at flows of 2.2 gallons per minute and (ii) about the validity of model results at this extreme condition.

SJWC requests that SWQB provide information regarding the model and its range of calibration.

Response: There are no minimum flow requirements for the calibration of the QUAL2K model, but the model can be run and calibrated at any flow value above zero. Therefore the SWQB believes that the QUAL2K model was properly calibrated.

6. **General Comment:** SWQB's continuing tendency to collect data under extreme low flow conditions (such as 2.2 gallons/minute) and use it both to determine impairment and calculate TMDLs is not in the best interests of the State in general or the San Juan Basin in particular. Such actions most likely will result in the placement of nearly every stream in the state on the section 303(d) list of impaired waters, as well as scientifically invalid TMDLs.

Response: Impairment determinations are based on application of the Assessment Protocols (NMED/SWQB 2004a). Information regarding the original impairment listings that led to development of these TMDLs can be found in the Integrated Clean Water Act 303(d)/305(b) List (NMED/SWQB 2004b), and the associated Record of Decision (ROD) (NMED/SWQB 2004c).

As stated in the Assessment Protocol, data collected during all flow conditions, including low flow conditions (i.e., flows below the 4Q3), will be used to determine designated use attainment status during the assessment process. Impairments due to pollutants as identified during the assessment process led to TMDL development as required by the Clean Water Act. 4Q3 values are to be utilized as minimum dilution assumptions for developing discharge permit effluent limitations. In terms of assessing designated use attainment in ambient surface waters, WQS apply at all times under all flow conditions. SWQB contends that it is the intent of the Clean Water Act to consider all available data from any flow conditions when determining designated use attainment status and has stated so in the Assessment Protocols. USEPA Region 6 has reviewed and provided comment on the Assessment Protocols and did not express any concerns with this understanding.

In addition, researchers have shown that variability in hydrologic conditions is the norm in New Mexico (Grissino-Mayer 1996). New Mexico is currently within this range of variability. If we consider hydrologic condition in terms of decades, the drier conditions New Mexico has experienced over the last several years could be considered typical or normal. Paleo-environmental records indicate that our region has experienced long periods of drought that lasted decades (Grissino-Mayer 1996). The drier conditions the San Juan Basin experienced during the survey period could actually be the mean hydrologic condition when considering this longer time frame. Also, the drier conditions New Mexico recently experienced could last years to decades (Dr. Craig Allen, USGS – Jemez Mountain Field Station, personal communication). SWQB must continue to monitor, assess, and make use impairment determinations under these conditions in order to protect and enhance water quality in New Mexico.

As previously stated, the New Mexico Surface Water Quality Standards apply to water's of the State even under low flow conditions. The SWQB continues to design intensive surveys to sample on a seasonal basis in order to assess New Mexico's waters over varying flow conditions. We believe this is the best approach for assessing and protecting the waters of the state.

References:

Grissino-Mayer, H. 1996. A 2129-year reconstruction of precipitation for northwestern

New Mexico, U.S.A. Pages 191-204 in J. S. Dean, D. M. Meko, and T. W. Swetnam, editors. Tree Rings, Environment and Humanity. Radiocarbon, Tucson, AZ.

NMED/SWQB. 2004a. State of New Mexico Procedures for Assessing Standards Attainment for the Integrated §303(d)/§305(b) Water Quality Monitoring and Assessment Report. Santa Fe, NM.

———. 2004b. State of New Mexico 2004-2006 Clean Water Act Integrated §303(D)/ §305(B) List of Assessed Waters. December. Santa Fe, NM.

———. 2004c. Record of Decision for the State of New Mexico 2004-2006 Clean Water Act Integrated §303(D)/ §305(B) List of Assessed Waters. December. Santa Fe, NM.

Conclusion

Based on the discussion above, and as SJWC repeatedly has stressed to SWQB, SJWC urges SWQB to carefully review its methods for determining stream impairment in general to ensure that no impairment decision is based on inadequate data. If a stream is impaired, appropriate actions need to be taken to improve its quality under both state and federal law. However, if a stream is not truly impaired, an improper impairment designation may have unintended and long-term adverse consequences. Further, SJWC requests that SWQB revise its Draft TMDL Document to address the specific concerns raised above. The TMDLs, as proposed, are neither scientifically valid nor in the best interests of the state.

Thank you for your consideration of these comments. If you have any questions, please do not hesitate to call me. I look forward to receiving the information we have requested in these comments at your earliest convenience.

Sincerely,

L. Randy Kirkpatrick, Executive Director
San Juan Water Commission

Comment Set B:

(PDF of letter received inserted)

Domestic Return Receipt Article Number 7005 1820 0000 0608 5176 initial public comment on draft TMDL for San Juan Watershed Part Two made before deadline but in the hopes of being able to review draft after receiving it in mail and submitting a revised comment before deadline

Page 1 of 3

September 24, 2005
135 Rincon Valverde
Ponderosa, NM 87044

RECEIVED
SEP 27 2005
SURFACE WATER QUALITY BUREAU

Jennifer Ickes
New Mexico Environmental Department
Surface Water Quality Board
Room N2109
P.O. Box 26110
Santa Fe, NM 87502

Dear Jennifer,

I do not have access to computer or telephone. I pay land taxes to Sandoval County and live in the Rio Jemez Watershed near where Rito Vallecito has a confluence with Rio Jemez. I wish to make written comment for inclusion in the public record after I have reviewed draft "total maximum daily load" documents for the San Juan Watershed, defined as Navajo Nation Boundary at the Hogback to Navajo Dam (Draft Part Two also

Domestic Return Receipt Article Number
7005 1820 0000 0608 5176

public comment on draft TMDL for San Juan Watershed Part II made before deadline put in the hopes of being able to review draft after receiving it in mail and submitting a revised comment before deadline

September 24, 2005

Including Animas River and La Plata River). This is also a request for Total Maximum Daily Load For The San Juan Watershed Part One, as well as Total Maximum Daily Load San Juan Watershed Part Two to be sent, immediately, respectfully, so that I may be able to have reasonable time to make an informed request. Should I, for some unforeseen reason, not be able to review the documents requested (and, also, physical descriptions or maps of pertinent areas), my initial comment on Total Maximum Daily Load For The San Juan Watershed Part Two is as follows:

"This is only my initial public comment and will stand if I do not receive necessary documents to review in a timely manner so that I might revise this comment. I hope the

Stephen H. Ryan

Domestic Return Receipt Article Number 7005 1820 0000 0608 5176 initial public comment on draft TMDL for San Juan Watershed Part Two made before deadline but in the hopes of being able to review draft after receiving it in mail and submitting a revised comment before deadline

Page 3 of 3

September 24, 2005

officials putting this plan into action address what's caused by the biggest polluters as the major priority. It was depressing, as a homeowner/homebuilder here in rural Ponderosa to see the details Sandoval County officials "wore scalps on their belts" devising to look like they were going after the "major polluters". Entel continues to spew but the rest of us country folk have to look over our shoulders to make sure a police officer isn't coming when we're trying to fireproof our property.

Respectfully,

(P.S. Please send revised draft document as amended as soon as it is ready.)

Response: Thank you for your comment and request for the San Juan Watershed Part 1 and 2 TMDL documents. The documents you requested were sent out via U.S. Postal Service certified mail on September 30, 2005 and received on October 5, 2005.

Comment Set C:

(PDF of letter received inserted)

Domestic Return Receipt Article Number 7005 1820 0000 0608 5282 for revising public comment on Draft Total Maximum Daily Load for The San Juan watershed (Part Two) that was submitted 9-29-05 to Jennifer Ickes Domestic Return Receipt Article Number 7005 1820 0000 0608 5176. This final 10-14-05 comment reaches you before 10-23-05.

Page 1 of 6

October 14, 2005

135 Rincon Valverde
Ponderosa, NM
87044

Jennifer Ickes
New Mexico Environmental Department
Surface Water Quality Board
Room N2109
P.O. Box 26110
Santa Fe, NM 87502

RECEIVED
OCT 20 2005
SURFACE WATER QUALITY BUREAU

Dear Jennifer,

I wrote you an initial comment on the Draft Total Maximum Daily Load or the San Juan Watershed (Part Two) Navajo Nation Boundary At The Hogback To Navajo Dam, September 23, 2005, New Mexico Environmental Department Surface Water Quality Bureau, public comment period on same ending October 23, 2005, that I am revising in this letter.

One meeting on the above in Farmington is inadequate. Before you can enact the above you must publish the

Domestic Return Receipt Article Number 7005 1820 0000 0608 5282 for revising public comment on Draft Total Maximum Daily Load For The San Juan Watershed (Part Two) that was submitted 7-24-05 to Jennifer Jokes Domestic Return Receipt Article Number 7005 1820 0000 0608 5176. This final 10-14-05 comment reaches you before 10-23-05.

October 14, 2005

drafts for the TDML of the Upper, Middle and Lower Rio Grande with more details on subjects discussed/displayed on pages 34, 35, 37 and 55 of Draft Total Maximum Daily Load For The San Juan River (Part Two) Navajo Nation Boundary At The Hogback To Navajo Dam. The entire potentially impacted populace of the Upper, Middle and Lower Rio Grande must get a chance to learn about and comment on the NMED/SWQB's TMDL before any component of the total plan is considered approved and implementation is initiated.

My comment is as follows:

Staff needs to quantify and present to the public what fines this TMDL's violation will impose on small-scale private landowners living within 100 meters of an impaired waterbody, or, with staff taking a more holistic watershed approach in implementation, upland and upstream of the impaired waterbody, and said

Respectfully yours,

Domestic Return Receipt Article Number 7005 1820 0000 0608 5282 for revising public comment on Draft Total Maximum Daily Load For The San Juan Watershed (Part Two) that was submitted 9-24-05 to Jennifer Ickes Domestic Return Receipt Article Number 7005 1820 0000 0608 5176. This final 10-14-05 comment reaches you before 10-23-05.

Rebecca D. Perry-Rogers

October 14, 2005

small-scale private landowners owning on-site waste disposal systems (septic tank/cesspool), and/or engaging in landscape maintenance, and/or owning backyard livestock, and/or owning pets adjacent to or impacting an impaired riparian corridor. I am curious as to how many of the small-scale private landowners of the 131 houses located within 100 meters of the Animas River in New Mexico (Pages 35 and 37 of Draft Total Maximum Daily Load For The San Juan River Part Two) Navajo Nation Boundary At The Hogback To Navajo Dam) were contacted by staff to attend the October 12, 2005 public meeting in Civic Center Room C, Farmington, New Mexico at 6:00 P.M. If there wasn't a quorum of the small-scale private landowners, displayed on said Page 37, in attendance of this meeting, it was an invalid public meeting. These small-scale private landowners on Page 37 need to know what sort of civil

Domestic Return Receipt Article Number 7005 1820 0000 0608 5282 for revising public comment on Draft Total Maximum Daily Load For The San Juan Watershed (Part Two) that was submitted 9-24-05 to Jennifer Ickes Domestic Return Receipt Article Number 7005 1820 0000 0608 5176. This final 10-14-05 comment reaches you before 10-25-05.

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October 14, 2005

action in district court for appropriate relief if NMED determines that actions of a "person" (as defined in New Mexico's Water Quality Act) have resulted in a violation of a water quality standard including a violation caused by a nonpoint source in terms of dollars and cents correlated with degree of contributing to impairment of an adjacent, downstream or downland riparian corridor. These small-scale private landowners on Page 37 need to know if the State of New Mexico Surface Water Quality Standards (NMAC 20.6.4.10.C, NMAC 2002) grant "the Commission" or any other entity the power to take away property rights if voluntary compliance to nonpoint source water pollution concerns does not occur, i.e. the small-scale private landowner does not have a wastewater treatment system to access, does not wish to landscape as told to, does not wish to stop owning backyard livestock,

Domestic Return Receipt Article Number 7005 1820 0000 0608 5282 for revising public comment on Draft Total Maximum Daily Load for The San Juan Watershed (Part Two) that was submitted 9-24-05 to Jennifer Ickes Domestic Return Receipt Article Number 7005 1820 0000 0605 5176. This final 10-24-05 comment reaches you before 10-23-05.

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October 14, 2005

and/or does not wish to stop owning pets. This Draft Total Maximum Daily Load (TMDL) For The San Juan River Watershed (Part Two) Navajo Nation Boundary At The Hogback To Navajo Dam cannot be implemented, nor considered to have received appropriate public comment, until the public has been presented the entire plan for the waterstreams of New Mexico. The public needs to see how you've mapped them and scrutinized them. They need to see how you plan to impose yourself on their Constitutional rights, stripped as they have been since the revisitation of where emminent domain and condemnation stand these days with the recent U.S. Supreme Court ruling on Kelo vs. New London, to life, liberty and the pursuit of happiness. Show the public the whole plan; especially show all smale-scale private landowners affected in each watershed what's in store for them if they can't comply.

Rebecca D. Perry Rep

Domestic Return Receipt Article Number 7005 1820 0000 0008 5282 for revising public comment on Draft Total Maximum Daily Load For The San Juan Watershed (Part Two) that was submitted 9-29-05, to Jennifer Fekes Domestic Return Receipt Article Number 7005 1820 0000 0608 5176. This final 10-14-05 comment reaches you before 10-23-05.

October 14, 2005

Then have meetings, have a comment period for the whole plan for all affected. This is pretty much an "underpopulated area speaking for all the uninformed populated areas" or a "divide and conquer" type of approach that New Mexico Environment Department Surface Water Quality Bureau is taking. If what you are doing is a good thing you'll show every aspect of it to the public and they'll get a true majority up to back it." end of comment

Respectfully

Rebecca G. Perry Piper

Rebecca G. Perry-Piper
small-scale private landowner,
with a septic tank, upstream
of an impaired riparian corridor

Response: Thank you for your additional comments on the San Juan Watershed Part 2 TMDL. Since the TMDL is not a regulatory document the SWQB to date has not imposed fines on small-scale private landowners for not meeting the designated TMDL for a waterbody. Neither the SWQB nor the WQCC has the power to take away property rights if voluntary compliance of a nonpoint concern does not occur.

The TMDL values are used when the U.S. Environmental Protection Agency (Region 6) is issuing or revising NPDES or industrial permits within an impaired watershed. For nonpoint source pollution from septic tanks, landscape maintenance, livestock grazing, or pets adjacent to the riparian corridor, implementation of the TMDL is on a voluntary basis through watershed group formation and the development of watershed restoration action strategies by watershed groups and stakeholders. NMED has the authority under Chapter 74, Article 6-10 NMSA 1978 to issue a compliance order or commence civil action in district court for appropriate relief if NMED determines that actions of a "person" (as defined in the Act) have resulted in a violation of a water quality standard including a violation caused by a nonpoint source. The NMED nonpoint source water quality management program has historically strived for and will continue to promote voluntary compliance to nonpoint source water pollution concerns by utilizing a voluntary, cooperative approach.

TMDL meetings are voluntary and do not require a quorum. SWQB holds TMDL public meetings as stated in the Public Participation flowchart in Appendix F. TMDL meetings are held in the watershed of concern. We also place a public notice in the legal section of the newspapers of greatest distribution (i.e. Albuquerque Journal and Santa Fe New Mexican.