APPENDIX F
RESPONSES TO COMMENTS

Comment Set A:
Navajo Nation Environmental Protection Agency

April 11, 2005

Lynette Guevara, Monitoring and Assessment Program Manager
New Mexico Environment Department
Surface Water Quality Bureau
Room N2056
P.O. Box 26110
Santa Fe, NM 87502

RE: TMDL for the San Juan River Watershed (Part One)

Ms. Guevara,

Thank you for the opportunity to comment on the proposed total maximum daily loads (TMDLs) for the San Juan River Watershed. As both an upstream and downstream water user within the basin, we have a vested interest in maintaining high water quality on the San Juan River. We commend NMED for proposing a fecal coliform TMDL on the lower San Juan River that meets the Navajo Nation water quality standard for that reach. We look forward to working closely with NMED to address water quality concerns there and elsewhere within the basin. Below are the comments that the Navajo EPA Water Quality/NPDES Program has on the draft TMDL:

1) Page 4: The watershed of interest and waterbody of interest should be identified in the map instead of the HUC. Also, it is unclear if the information presented in the table is limited to the area under NMED jurisdiction or if the entire watershed of interest is covered. If the latter is the case, than the percent of land in agriculture is significantly underestimated given the presence of the Navajo Indian Irrigation Project (NIIP). This also applies to the table on p. 7.

***RESPONSE**: The small maps at the top of the summary pages are imported from USEPA's Surf Your Watershed and are intended only to orient the reader to the USGS 8-digit HUC location. There are SWQB-generated maps in the main body of the TMDL that detail the waterbodies of interest. The Land Use/Cover statistics in the review draft were for the entire Gallegos Canyon basin, based on a USGS Land Use/Cover GIS coverage dated 1981. SWQB has since acquired a land use coverage dated 2000. The percentages on page 4 and associated map in Figure 2.4 were updated. Please note that the % agriculture was only increased from 1% to 9% because some of the NIIP irrigation plots are outside of the Gallegos watershed on the available GIS coverage, and the pixels in between the circular plots are classified as "rangeland."*

2) Section 2.2, p. 10: The Mancos Shale outcrops west of the Hogback, not between Farmington and the Hogback. Also, a better reference for this section would be "Hydrogeology and water resources of San Juan Basin, New Mexico"—New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6 by W. J. Stone et al.

***RESPONSE**: The reference to Mancos shale was corrected.*

3) On p. 13, the designated uses for the San Juan River and perennial tributaries should also include Fish Consumption.

***RESPONSE**: Fish Consumption was added as a designated use.*

4) In Figures 2.3 and 3.2, another Navajo EPA sample site is located on the unnamed tributary to the San Juan River west of Ojo Amarillo, downstream from NPDES permit NM0028193.

***RESPONSE**: A symbol was added to both figures to note the additional sample site.*

5) Figures 2.3 and 2.4 need to be updated to reflect the large area under irrigation on the NIIP. These figures currently show the NIIP as all rangeland. The land use statistics in sections 3.2 and 3.3 should also be adjusted where appropriate.

***RESPONSE**: The Land Use/Cover statistics were for the entire Gallegos basin, based on a USGS Land Use/Cover GIS coverage dated 1981. SWQB has since acquired a land use coverage dated 2000. The percentages on page 4, associated map in Figure 2.4, and statistics in section 3.3 were updated.*

6) In Figures 2.4 and 3.3, The Navajo EPA sample site on Gallegos Canyon should be located about four miles upstream from the junction with the San Juan River.

***RESPONSE**: A symbol was added to correct the location.*

7) Section 3.2 (mid-paragraph), p. 26: The Animas drainage is not part of the Middle San Juan River Watershed.

***RESPONSE**: The reference to the Animas was removed.*

8) Section 3.3, p. 29, 2nd paragraph: The reference to Figure 2.7 near the end of the paragraph should be Figure 3.3.

***RESPONSE**: The reference was changed to 3.3.*

9) Section 5.1, p. 50: The E. coli standard has already replaced the total coliform standard on the Navajo Nation portions of the San Juan River, which are between the Colorado border upstream to the La Plata River (not Animas) in New Mexico.

***RESPONSE**: The sentence was corrected.*

10) Table 5.2, p. 51: It looks like the Shiprock gage was used to calculate the 4Q3 for the San Juan River between the Hogback and the Animas River. This may underestimate the discharge in this reach because 100-200 cfs bypass the gage via the Hogback canal during the time of year when these low flows occur. It may be better to use the Farmington gage for this reach. Also, the 4Q3 calculation for the San Juan River between the Animas River and Cañon Largo assumes that both the San Juan and Animas have low flows at exactly the same time. This may not necessarily be the case because the San Juan is artificially elevated during the driest months to ensure that downstream water users are not shorted. It may be better to use the San Juan River gage at Archuleta.

***RESPONSE**: Calculating 4Q3s for the San Juan River basin is very challenging due to the large number of ungaged diversions and returns flows throughout the basin. SWQB concurs that the SJR USGS Gage at Farmington may be the better choice to calculate 4Q3s for the assessment unit between the Hogback and Animas River due to the large impact the Hogback Canal has on flow between the Hogback and the Shiprock gage, although the use of this gage may slightly overestimate flow due to withdrawals for the Fruitland Irrigation Canal, Jewitt Valley Canal, and San Juan Power Plant. Table 5.2 and the subsequent TMDL calculations were changed accordingly.*

SWQB does not believe the SJR USGS Gage at Archuleta should be used to calculate the 4Q3 for the San Juan River between the Animas River and Cañon Largo. The USGS program SWSTAT 4.1 is used to calculate 4Q3s from daily flow values. The program does not assume any particular time of year is low flow. It determines the 4-day low flow period of each individual year of record (April 1- March 31), wherever it may fall, to calculate the 4Q3.

11) Table 5.8, p. 55: The WLA for San Juan River (Navajo bnd at Hogback to Animas River) should be 2.84×10^{10}.

***RESPONSE**: The exponent was corrected.*

12) Section 6.1, p. 62, 3rd paragraph: The 2004 NNWQS should be cited instead of the 1999 version.

***RESPONSE**: The reference was corrected.*

13) Section 6.2: There are about 13 months worth of mean daily flow data from a USGS gage located near the mouth of Gallegos Canyon. The gage is number 09357255 and was in place between September of 1993 and October of 1994. This may have been when the NIIP was regularly releasing water into Gallegos in an attempt to dilute flows. If not, these data would provide a better estimate of critical flows than the one-time estimate by NMED staff. Also, given the lack of flow data and the difficulty in measuring flow for this waterbody, it may be more useful to set the TMDL as a target concentration instead of a load.

***RESPONSE**: SWQB disagrees that the one year of gage data from 1993 to 1994 would provide a more accurate flow estimate for calculations of current target loads and measured loads. SWQB has no information on whether NIIP was releasing during that time period. If they were releasing during this time, this gage record would not provide a good estimate of critical flow because the flow values would be much higher than normal. The nature of this channel would also make it difficult to generate a reliable rating curve, which would lead to a high number of estimated values in the USGS gage record. Also, it would not be possible to generate a reliable 4Q3 value using SWQSTAT with only one year of data. Although limited, SWQB believes the estimated flow value during the October 2002 sampling event is "best available" and sufficient for calculation of this 100% nonpoint source TMDL.*

14) Table 6.3, p. 65: The third column heading should have "Total recoverable selenium" instead of "Dissolved Al".

***RESPONSE**: The column heading was changed.*

15) Section 6.4 and Table 6.5, p. 66: There seems to be an inconsistency between load reduction calculations for the fecal coliform TMDLs and the selenium TMDL. For fecal coliforms, the TMDL was subtracted from the measured load to obtain the load reduction. For selenium, the load allocation was used instead of the TMDL in this equation. Please explain why the reductions on the San Juan River are only designed to meet the TMDL whereas the reductions on Gallegos Canyon are designed to meet a level 25% below the TMDL.

***RESPONSE**: Table 6.5 was corrected.*

I hope that these comments are helpful. Please contact me at 505-368-1037 if you have any questions. Thank you.

Sincerely,

Stephen A. Austin, Senior Hydrologist
Navajo Nation EPA Water Quality/NPDES Program

Comment Set B:
USEPA Region 9 – San Francisco, CA

April 13, 2005

Ms. Lynette Guevara
Monitoring and Assessment Section
Surface Water Quality Bureau
1190 S. St. Francis Drive (N2050)
Santa Fe, NM 87502

RE: EPA Region 9 Comments on San Juan River Watershed TMDLs

Dear Ms. Guevara:

Thank you for the opportunity to review and comment on the draft San Juan River Watershed TMDLs. EPA Region 9 appreciates that that you have worked with EPA Region 6 and Navajo EPA in the development of these TMDLs. EPA Region 9 limited our review to the TMDL's method of addressing discharges in and from the Navajo Nation. As you know, EPA Region 9 is the lead EPA Region working with the Navajo Nation EPA on water quality management issues and EPA Region 6 asked us to review the TMDL's treatment of discharges from the Navajo Nation.

In general, we were impressed by the TMDLs and the straightforward manner in which they addressed TMDL development for a large watershed despite significant data limitations in some areas. We offer a few specific comments concerning the bacteria and selenium TMDLs, principally with the intent of ensuring that the TMDLs reflect the appropriate distinction between State and tribal jurisdiction regarding different discharge sources in the watershed. We also have a few suggestions concerning the manner in which the TMDLs and allocations are expressed (mass vs. concentration based) and the margin of safety considerations for the selenium TMDL.

<u>Comments Concerning Bacteria TMDL</u>

The draft bacteria TMDL for the San Juan River (Navajo Boundary to Animas River) is designed in part to ensure attainment of the applicable Navajo Nation water quality standards for bacterial indicators. We commend the State's recognition of the importance of setting TMDLs that will result in attainment of the neighboring tribal jurisdiction's applicable water quality standards, that are, for fecal coliform, more stringent that New Mexico's standards.

We recommend that you revise the wasteload and load allocations for the bacteria TMDLs for San Juan River (Navajo Boundary to Animas River) to more accurately reflect the limits to the State's jurisdiction over bacteria sources in the Navajo portion of the watershed.

The draft TMDL establishes a separate wasteload allocation (WLA) for the BIA/Nenahnezad Boarding School, which is located in the Navajo Nation and discharges to a tributary to the San Juan River. The TMDL also establishes a general load allocation applicable to all nonpoint sources in the watershed. It is appropriate for the New Mexico TMDL to consider and account for all point and nonpoint sources of bacteria discharge in the San Juan watershed in this TMDL. In cases where a TMDL accounts for discharges from a neighboring jurisdiction located upstream from the TMDL assessment unit, we generally recommend setting a load allocation at the border location where the water body in question flows into the downstream state or tribal water. The downstream state TMDL should not set specific wasteload allocations for the point sources located in the upstream jurisdiction. In the case of the San Juan, the situation is more complex as the Navajo Nation and New Mexico lie on opposites sides of the San Juan River in this area; thereby making it more difficult to distinguish allocations among jurisdictions. In this case, we recommend that you add text clarifying that the WLA for the BIA/Nenahnezad Boarding school is identified for information only as this discharge and its regulation are beyond the State's jurisdiction. We recommend that you set a single load allocation at the state-tribal "border" that accounts for all loads from sources in the Navajo Nation. When the Navajo school's NPDES permit is up for renewal, this allocation will be considered in setting the appropriate effluent limitations for bacteria.

***RESPONSE**: Footnote "(b)" on Tables 5.5 and 5.6 acknowledged that the BIA/Nenahnezad Boarding school is under USEPA Region 9/Navajo Nation jurisdiction. An additional note was added to both footnotes to clarify that inclusion of these permits in the table is for information only.*

SWQB does not believe it is possible to set a single load allocation at the state-tribal "border" because the Navajo Nation and New Mexico share jurisdiction of the San Juan River between the Hogback and the La Plata River. There is not a identifiable point in the river where the jurisdiction changes from New Mexico to the Navajo Nation through this assessment unit. Additionally, we do not have adequate data to discern what portion of the load allocation is coming from Navajo Nation sources vs. state sources. Data is limited because New Mexico currently does not perform specific TMDL studies for all individual impairments identified on our Clean Water Act 303(d) list due to staff and financial limitations. Instead, we generally use the same data collected during our intensive surveys 1) to determine impairment for development of the 303(d) list, and 2) to develop any subsequent TMDLs. In the case of the San Juan River basin, we were able to collate some additional surface water quality data for other agencies, but not enough to determine which portion of the load allocations are coming from various probable sources.

As a practical matter, we recommend that you consider setting a "concentration" based load allocation applicable to loads from the Navajo Nation into San Juan River set equal to the applicable water quality standards for e. coli and fecal coliform. This would provide useful guidance for identifying appropriate point and nonpoint source controls in the future. Moreover, setting concentration-based bacteria TMDLs may also provide an implicit margin of safety to account for uncertainties in the analysis concerning critical flows and attainment of applicable

standards under different flow conditions.

***RESPONSE**: SWQB appreciates the suggestion to set concentration based load allocations. We will look into this approach, utilized by several USEPA Region 9 states based on research performed to respond to this request, for future TMDLs. New Mexico has not used this approach in the past, and has not discussed the merits of this approach with our USEPA Region 6 counterparts, SWQB Point Source Regulation Section, or the New Mexico Water Quality Control Commission (our governing body that approves TMDLs for inclusion into the state's water quality management plan).*

The target loads in the draft TMDL are calculated with the applicable Navajo Nation and New Mexico fecal coliform and E. coli standards, so the current approach seems to meet the same end as proposed. We also include the following statement in the TMDL regarding the use of TMDL targets as goals to achieve water quality standards:

> "*It is important to remember that the TMDL itself is a value calculated at a defined critical condition, and is calculated as part of planning process designed to achieve water quality standards. Since flows vary throughout the year in these systems, the actual load at any given time will vary based on the changing flow. Management of the load to improve stream water quality should be a goal to be attained. Meeting the calculated TMDL may be a difficult objective.*"

For the above reasons, SWQB believes a change in TMDL methodology is not warranted at this stage in the development of the San Juan River TMDLs.

Finallly, we note that the bacteria TMDLs include information on loading reductions needed to attain the TMDLs. We recommend that the state clarfiy that the load reduction amounts in tables 5.11 and 5.12 are provided for information only and are not part of the TMDL/load allocation itself. Setting TMDLs and/or allocations in terms of needed reductions needlessly multiplies the analytical uncertainty underlying the TMDL. We recommend that you retain the reduction information for information purposes but express load reductions needed in terms of percent reductions compared with current estimated loads in order to more clearly communicate the level of control or reduction needed in different parts of the watershed.

***RESPONSE**: A sentence was added to the load reduction tables to clarify that these tables are for informational purposes only. Since the inception of our TMDL program, SWQB has always included load reduction tables to indicate the magnitude of impairment to the reader. These tables are not a required element, and are not identified as part of the TMDL calculation. SWQB concurs that expressing the load reductions needed in terms of percent reduction further clarifies the magnitude of the impairment, and has added this information to the load reduction tables.*

<u>Comments Concerning Selenium TMDL</u>

We also reviewed the selenium TMDL proposed for Gallegos Canyon. We recommend that a single load allocation applicable to discharges from the Navajo Nation be set to apply at the "border" where the Canyon flows enter state waters. We also recommend setting this allocation (and possibly the TMDL as a whole) on a concentration basis as this approach may be more defensible and sensitive to varying flow regimes than the proposed approach of setting a mass based TMDL based on a single, potentially unreliable, flow estimate. In flowing systems of this type it may not be necessary to set mass-based TMDLs in order to effectively protect uses threatened by selenium exposures. Moreover, if the load allocation is set on a concentration basis, the proposed numeric margin of safety to account for flow uncertainty would be unnecessary. By establishing concentration-based TMDLs, a lower margin of safety would be warranted.

***RESPONSE**: SWQB appreciates the suggestion to set concentration based load allocations. We will look into this approach, utilized by several USEPA Region 9 states based on research performed to respond to this request, for future TMDLs. New Mexico has not used this approach in the past, and has not discussed the merits of this approach with our USEPA Region 6 counterparts, Point Source Regulation Section, or the New Mexico Water Quality Control Commission (our governing body that approves TMDLs for inclusion into the state's water quality management plan).*

The target loads in the draft TMDL are calculated with the applicable New Mexico selenium standard, so the current approach seems to meet the same end as proposed. We also include the following statement in the TMDL regarding the use of TMDL targets as goals to achieve water quality standards:

> "*It is important to remember that the TMDL is a planning tool to be used to achieve water quality standards. Since flows vary throughout the year in all natural surface water systems, the target load will vary based on the changing flow. Management of the load to improve stream water quality should be a goal to be attained. Meeting the calculated target load may be a difficult objective.*"

For the above reasons, SWQB believes a change in TMDL methodology is not warranted at this stage in the development of the San Juan River TMDLs.

If a mass-based TMDL and load allocation is retained, we recommend that the State clarify that the load reduction amount estimated to be needed in table 6.5 is not part of the TMDL/load allocation itself and is presented for information only. By clarifying that the TMDL and load allocations themselves are not a function of the loading estimate, it becomes unnecessary to include the extra margin of safety proposed in Section 6.7 to account for uncertainty in the loading estimate. In other words, setting the TMDL and allocations in terms of reductions required unnecessarily multiplies the uncertainty in the TMDL calculations. We do recommend that you retain the information concerning loading reductions needed (and express it in terms of estimate percentage reductions needed) as that approach provides useful information in targeting irrigated agriculture controls or practices to implement the TMDL and load allocation.

***RESPONSE**: A sentence was added to the load reduction tables to clarify that these tables are for informational purposes only. Since the inception of our TMDL program, SWQB has always included load reduction tables to indicate the magnitude of impairment to the reader. These tables are not a required element, and are not identified as part of the TMDL calculation. SWQB concurs that expressing the load reductions needed in terms of percent reduction further clarifies the magnitude of the impairment, and has added this information to the load reduction tables.*

We would be happy to discuss these comments, and appreciate the opportunity to comment. Please don't hesitate to call me at (415) 972-3416 if you have any questions.

Sincerely,

/original signed by/

David Smith
TMDL Team Leader
EPA Region 9 (WTR-2)

Comment Set C:
City of Farmington

Lynette Guevara
New Mexico Environment Department
Surface Water Quality Bureau
Room N2056
P.O. Box 26110
Santa Fe, NM 87502

Dear Ms. Guevara:

Thank you for allowing the City of Farmington to comment on the proposed Total Maximum Daily Load (TMDL) for the San Juan Watershed (Part One). As you are aware, the City of Farmington is an active participant in the activities of the San Juan Watershed Group (SJWG), including the SJWG's evaluation and identification of potential impairments to the watershed. Farmington is very aware of the quality of water of the Animas and San Juan Rivers.

After careful review of the proposed TMDL document, the City appreciates the importance placed by the New Mexico Environment Department (NMED) in developing the proposed TMDLs and recognizes the investment of NMED resources in developing the document for comment. The City offers NMED the following comments for consideration in completing their work.

1. The City of Farmington is pleased that the drought-related impacts to water quality in the watershed are recognized in this document because of the timing of the testing.

2. Table 13 also suggests that point source fecal coliform pollutants are only a small percentage of potential sources of pollutants and their volume may only marginally impacting surface waters within the basin. The City of Farmington recently completed a $13 million upgrade to their wastewater treatment plant to implement point source management techniques so as to minimize bacterial source loadings to surface waters.

   Water analysis completed by NMED and the SJWG have not identified the sources of these loadings as from point or non-point sources. The City agrees that a more detailed bacteria source tracking analysis is needed to identify bacterial source loading.
   The best approach to improving water quality from non-point sources is Best Management Practice (BMP) programs that are implemented by local stakeholders with the collaboration of state and federal agencies.

3. Farmington's wastewater treatment plant (Facility 0020583) design capacity is 6.67 million gallons per day (mgd) after the plant expansion was completed in 2004. The

facility's design capacity on page 54 of the document is listed as 5.8 mgd.

***RESPONSE**: The design capacity change had not yet been entered into SWQB's NPDES tracking database at the time the bacteria TMDLs were drafted. Based on your comment, the design capacity in tables 5.5 and 5.6, as well as all subsequent calculations utilizing this value, were changed to reflect the plant expansion to 6.67 mgd.*

4. The City is very concerned with the proposed fecal coliform and/or *E. Coli* point source impairment levels in the San Juan River (Navajo bnd at Hogback to Animas River) reach as described in the document. If the proposed TMDL standards are implemented the City is concerned that it will be required to meet more stringent standards than the adjacent reaches since its wastewater treatment plant's point of discharge into the San Juan River is only 990 feet below the confluence with the Animas River and 770 feet from the San Juan River (Animas River to Canon Largo) reach.

Although the City's NPDES permit has been submitted for renewal, the existing permit allows a fecal coliform count of 200 cfu/100 mL (30-day geometric mean) and 400 cfu/100 mL (7-day geometric mean). After reviewing the Calculation of Load Reduction for fecal coliform and *E.* Coli (page 57) and Pollutant Source Summary for Fecal Coliform (page 58), the City is apprehensive about point source changes to fecal coliform standards found on page 53. The proposed San Juan River (Navajo bnd at Hogback to Animas River) reach 30-day geometric mean standard for fecal coliform of 100 cfu/100 mL 30-day geometric mean and a 200 cfu/100 mL maximum single fecal coliform sample or *E. coli* of 126 cfu/100 mL 30 day geometric mean and 235 cfu/100 mL maximum single *E. coli* sample are extremely stringent.

The proposed standards for the lowest San Juan River reach will be challenging and, under certain circumstances, may be difficult during certain time periods. Moreover, to meet the more stringent standards, there is, in the City's opinion, little question that there will be an additional expense to the City's ratepayers for infrastructure development and treatment costs.

Because point source dischargers appear to have minimal contribution to fecal coliform/E. Coli impairment found in the San Juan River System and considering a San Juan and Animas River dilution factor, it seems reasonable for the Surface Water Quality Board to implement an upgradient waiver policy for those point sources in the upper reaches of the San Juan River (Navajo bnd at Hogback to Animas River) Assessment Unit. The City's vision is the waiver would allow a fecal coliform 30-day geometric mean of 200 cfu/100 mL and a single sample requirement of 400 cfu/100 mL similar to other point source dischargers in other nearby reaches.

Another consideration for the Surface Water Quality Bureau is to reduce in size the length of the reach. For example, the San Juan River (Navajo bnd at Hogback to Animas River) reach

would be shortened to include only the San Juan River (Navajo bnd at Hogback to the Bisti Bridge) allowing the City the benefits of a San Juan and Animas River mixing zone.

Again, the City of Farmington appreciates the opportunity to provide input and comment on the proposed TMDL regulations.

***RESPONSE**: The bacteria limits in the current NPDES permit for the City of Farmington WWTP are water quality-based limits, based on the existing New Mexico water quality standards for the receiving water. When the permit was issued on 7/1/1999, the Navajo Nation had not yet established surface water quality standards. The Navajo Nation now has standards in place. Since the Navajo Nation is the downstream user on the San Juan River, and the state of New Mexico and the Navajo Nation share jurisdiction between the Hogback and the La Plata River, the Navajo Nation's water quality standards must be considered during NPDES permit development and/or renewal to be protective of their designated uses. The TMDL document is not driving the proposed change in the City of Farmington WWTP bacteria limits. This reduction to meet Navajo Nation water quality standards would be implemented even in the absence of a TMDL or impairment listing. In addition, DMR data received from the City of Farmington (01/2003 through 2/2005) indicate that the 2004 plant improvements have been successful in reducing the concentration of fecal coliform in the effluent to well below both the existing permit limits and proposed permit limits in the draft TMDL.*

Both the Navajo Nation and the state of New Mexico have proposed replacing their respective current fecal coliform water quality standards with E. coli standards. Both entities have proposed 126 cfu/100 mL 30 day geometric mean and 235 cfu/100 mL maximum single E. coli criteria for this portion of the San Juan River. These changes were approved by the Navajo Nation Council and the New Mexico Water Quality Control Commission, respectively. These E. coli limits should eventually be used to replace the existing fecal coliform limits in all WWTP permits once the USEPA approves these changes and the permits come up for renewal. Again it is important to note that this process is being driven by changes to the water quality standards, not the existence of the TMDL document or the impairment. Both the fecal coliform and E. coli scenarios were included in the document to stress the point that the standards change, and subsequent change to WWTP permit limits, are forthcoming.

Sincerely,

Jeffrey Smaka, P.E.
Water/Wastewater Administrator

CC:
Bob Hudson, City Manager
Mike Sullivan, Acting Community Development Director
Ruben Salicido, O & M Contracts Manager

Paul A. Montoia, Water Resources
Ron Rosen, OMI

Comment Set D:
San Juan Water Commission

(PDF of letter received inserted)

San Juan Water Commission

7450 East Main Street, Suite B • Farmington • New Mexico • 87402
Office: 505-564-8969 • Fax 505-564-3322 • Email: sjwcoffice@sjwc.org

MEMBERS:
City of Aztec
City of Bloomfield
City of Farmington
San Juan County
S.J. County Rural Water Users Assoc.

April 13, 2005

Ms. Lynette Guevara
Surface Water Quality Bureau
New Mexico Environment Department
Room N2056
P.O. Box 26110
Santa Fe, NM 87502

Via e-mail (Lynette_Guevara@nmenv.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 One)

Dear Ms. Guevara:

Pursuant to the public notice of a 30-day comment period on the New Mexico Environment Department's ("NMED") draft Total Maximum Daily Load ("TMDL") for the San Juan River Watershed (Part One), I hereby submit the following comments to NMED on behalf of the San Juan Water Commission ("SJWC").

General Considerations

On July 22, 2003, SJWC submitted comments on the draft Procedures for Assessing Standards Attainment for the Integrated §303(d)/§305(b) Water Quality Monitoring and Assessment Report: Assessment Protocol that has been used as a basis for the draft San Juan River TMDLs. In addition, on October 14, 2004, SJWC commented on proposed changes to the sediment/siltation listings in the San Juan River Basin. In those comments, SJWC objected to the use of certain methodologies, including the use of drought data. Specifically, with regard to the sediment/siltation listing, SJWC questioned the application of the chosen methodology (Heinz, *et al.*, 2004) to the San Juan River Basin, noted the fact that biological data did not support the sediment/siltation (bottom deposit) impairment designation of the San Juan, and pointed out the misinterpretation of the impact of dam operations on the lower San Juan. Although the proposed TMDLs will have no immediate impact on current point source discharges, SJWC reiterates the concerns it previously expressed with NMED's methodology. Should EPA or the state begin regulating nonpoint sources in the future, the proposed sediment/siltation and bacteria TMDLs could have an adverse and unnecessary impact on land and water use activities in the San Juan Basin. Thus, it is imperative that impairment determinations be made, and TMDL calculations be developed, applying appropriate assumptions and using a valid data set.

Specific Comments

2.0 San Juan River Basin Background

2.4.1—Survey Design: "Surface water quality samples were collected monthly between March and October for the 2002 intensive SWQB study."

2.4.2—Hydrologic Conditions (p. 22): "Also, flows during the 2002 survey year were below average based on the period of record."

Comment: 2002 was one of the driest years on record in the San Juan Basin, if not the driest. Data collected during this period is not representative of conditions in the San Juan River from a quantity or quality standpoint. Nor is the data likely representative of even typical low flow conditions in the San Juan River. Conducting an assessment and using results under these conditions for establishment of TMDLs is not appropriate.

SJWC proposes that, rather than simply stating that "flows during the 2002 survey year were below average based on the period of record," NMED should state that the flows were among the lowest on record and cite statistical determination of the exceedence for 2002 for each of the rivers in the San Juan Basin that are addressed in this document. The statement that these flows were "below average" is misleading.

4.0 Sediment/Siltation (Stream Bottom Deposits)

Comment: On October 14, 2004, SJWC submitted comments regarding the lack of validity of the stream bottom deposit impairment determinations for the 2004-2006 Clean Water Act Integrated §303(d)/§305(b) List of Assessed Surface Waters. [*See* letter from Jolene McCaleb to Ms. Lynette Guevara, Surface Water Quality Bureau, attached and adopted by reference.] Those comments addressed SJWC's concerns that (1) the non-supporting use determinations were not valid and are contradicted by biological data, (2) the determination failed to recognize historic conditions in the San Juan Basin, and (3) statements regarding the impacts of Navajo Dam were inaccurate and misinterpreted the influence of Navajo Dam on sedimentation. The stream bottom deposit standard is designed to protect aquatic life uses. Aquatic life data shows that the San Juan River has an abundant fish population. The impairment determination and the resulting TMDL are, therefore, both inappropriate.

5.0 Bacteria

5.2 Flow

Comment: This discussion is confusing. A statement is made (p.50) that "[c]ritical low flow is defined on an annual basis for these TMDLs because exceedences occurred during both low and high flow conditions." However, in the preceding sentence the statement is made that "the target flow was set at the critical low flow condition or 4Q3, defined as the minimum average four consecutive day flow which occurs with a frequency of once in three years (4Q3)." If the 4Q3 is based on a frequency of once in three years, why is NMED defining this critical low flow on an annual basis for these TMDLs?

In the third paragraph it is stated: "It is important to remember that the TMDL itself is a value calculated at a defined critical condition, and is calculated as part of [the] planning process designed to achieve water quality standards." If the target flow is set at 4Q3, *i.e.*, "defined critical condition" for bacteria, why is this not applied to sediment loading? In the sediment discussion (Section 4.8 Consideration of Seasonal Variation (p.47)), the statement is made:

> Data used in the calculation of this TMDL was collected during the fall, which is a biological index period. . . . Fall is also generally the low-flow period of the mean annual hydrograph in New Mexico when stream bottom deposits are most likely to settle and cause impairment. . . .

There is no reference to the 4Q3 in Section 4. Section 4 uses the *lowest* flow period to define impairment.

5.4 WLAs and LAs

Comment: Table 5.5 includes waste load allocations for fecal coliform, including allocations to the City of Aztec, City of Farmington, Kirkland Sewer Treatment Facility, BIA/Nenahnezad Boarding School,

Harper Valley, City of Bloomfield, Blanco School, and McGee Park. It appears that the current permit conditions are factored into the TMDLs for fecal coliform (Table 5.7), and that no additional treatment by these entities will be required to achieve the TMDLs. If this is the case, it needs to be clearly stated in the document.

Tables 5.7 and 5.8 regarding the calculations for fecal coliform and E.coli include numbers in exponential form ($5.1.5 \times 10^8$; 1.83×10^{12}). Given that these numbers are additive across the rows, they should also be expressed in a common exponent, such as 10^8.

Margin of Safety

Comment: The margin of safety varies for constituents discussed in this report as follows:

Constituent	***MOS (%)***
Sediment	20
Bacteria	15
Selenium	25

What is the basis for the margin of safety for each constituent? How is the margin of safety determined for each constituent?

Conclusion

In conclusion, SJWC appreciates the hard work NMED does to protect and improve the water quality of the surface waters of this state. Developing TMDLs for impaired streams is one part of that effort. However, SJWC urges NMED 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 for the citizens of San Juan County. Further, SJWC requests that NMED consider revising its draft TMDLs with regard to the specific concerns raised above.

Thank you very much for your time and consideration of these comments. If you have any questions, please do not hesitate to call me.

Sincerely,

L. Randy Kirkpatrick, Executive Director
San Juan Water Commission

Enclosure

San Juan Water Commission • 7450 East Main Street, Suite B • Farmington • New Mexico • 87402
Office: 505-564-8969 • Fax 505-564-3322 • Email: sjwc@cyberport.com

RESPONSE TO SECTION 2.0: *The statement "Flows were among the lowest on record" was added to the text. It is unclear what is meant by "…cite statistical determination of the exceedence for 2002 for each of the rivers in the San Juan Basin…" 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), associated Record of Decision (ROD) (NMED/SWQB 2004c), and San Juan River Basin Sedimentation/Siltation Impairment Determinations document (NMED/SWQB 2004d).*

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.

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.

———. 2004d. San Juan River Basin Sedimentation/Siltation Impairment Determinations for the for the 2004-2006 Clean Water Act Integrated §303(D)/ §305(B) List of Assessed Waters September.

RESPONSE TO SECTION 4.0: *SWQB believes the Sedimentation/Siltation impairment determinations are appropriate. The New Mexico Water Quality Control Commission*

(WQCC) and USEPA Region 6 agree with SWQB as indicated by their approval of the impairment listings. See attachment A for previously prepared responses to SJWC concerns detailed in the October 14, 2004 letter to SWQB. These comments and SWQB responses were considered by the WQCC and USEPA during their decision-making process.

RESPONSE TO SECTION 5.2: *SWQB has clarified the statement in the text. The reference to "annual basis" was added to note that for each available year of record, all USGS daily values for the entire year vs. values for any one particular season were used to determine the 4Q3 value for the TMDL calculations. Some of our previous bacteria TMDLs, such as the one prepared for the Middle Rio Grande, utilized daily values from the summer "monsoon" season only because all exceedences of the standards occurred during this season. In the San Juan Basin, there was no discernible pattern of exceedences, so a 4Q3 was generated from all daily flows.*

The 4Q3 was not applied to the Sedimentation/Siltation TMDL because the load was expressed in terms of percent fines instead of a concentration multiplied by a flow value. USEPA Region 6 supports this approach to Sedimentation/Siltation TMDLs.

RESPONSE TO SECTION 5.4: *The proposed or current fecal coliform, and proposed E. coli effluent used to determine the Waste Load Allocations in Tables 5.5 and 5.6 are set at the applicable Navajo Nation and New Mexico current and proposed fecal coliform and E. coli standards, respectively. This is stated in the second paragraph of section 5.3. It would be inappropriate for SWQB to include a statement that "no additional treatment by these entities will be required to achieve the TMDLs" in the TMDL document because this is an issue to be decided by the USEPA Region 6 Permits Branch in consultation with the SWQB Point Source Regulatory Section and the permittees based on discharge monitoring reports and compliance monitoring activities at the individual plants. Also, the City of Farmington's WWTP permit is up for renewal. The city's current permit does not take into account the Navajo Nation's water quality standards while their new permit must (see Comment Set C for details).*

There are separate sections in the TMDL document for each of the pollutants of concern. Under each of these sections, there is a Margin of Safety subsection that explains how the margin of safety was determined for that particular parameter (see subsections 4.7, 5.7, and 6.7).

ATTACHMENT A:

RESPONSE TO COMMENTS
ON PROPOSED CHANGES TO SAN JUAN RIVER BASIN
SEDIMENTATION/SILTATION (STREAM BOTTOM DEPOSIT)
IMPAIRMENT DETERMINATIONS FOR THE
2004-2006 STATE OF NEW MEXICO
INTEGRATED §303(d)/ §305(b)
LIST OF ASSESSED WATERS

October 14, 2004

Ms. Lynette Guevara
Surface Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Via e-mail(lynette_guevara@nmenv.state.nm.us) and U.S. mail

Re: Comments of San Juan Water Commission on Proposed Changes to the Sedimentation/ Siltation Listings in the San Juan River Basin on the Approved 2004-2006 State of New Mexico Clean Water Act Integrated §303(d)/§305(b) List of Assessed Surface Waters

Dear Ms. Guevara:

Pursuant to the public notice of a 30-day comment period on the New Mexico Environment Department's ("NMED") proposed changes to the sedimentation/siltation listings in the San Juan River Basin on the approved 2004-2006 State of New Mexico Clean Water Act Integrated §303(d)/§305(b) List of Assessed Surface Waters ("Section 303(d) List"), I hereby submit the following comments to NMED on behalf of the San Juan Water Commission ("SJWC").

SJWC's General Comments

First, let me note that SJWC commends NMED's efforts to safeguard water quality throughout the state. SJWC particularly appreciates all of the hard work NMED has put into developing a protocol for determining sedimentation/siltation, or stream bottom deposit, impairment in the State's large rivers and reassessing certain waters in the San Juan River Basin under the new protocol. As you know from previous written comments and testimony submitted by SJWC in various proceedings, SJWC has been concerned that several stream segments in the San Juan River Basin have been improperly listed as impaired because of stream bottom deposits. Specifically, SJWC has been concerned that, in the past, NMED failed to adequately consider natural sediment contributions when determining impairment. SJWC is therefore pleased to see that NMED is now recommending the de-listing of four stream segments in the San Juan River Basin: (i) the San Juan River from the Navajo Nation boundary at Hogback to the Animas River; (ii) the San Juan River from Cañon Largo to Navajo Dam; (iii) the Animas River from the San Juan River to Estes Arroyo; and (iv) the Animas River from Estes Arroyo to the Colorado border. SJWC fully supports NMED's

proposal to de-list these stream segments.

That said, SJWC is concerned that NMED's recent stream bottom deposit analysis of the San Juan River was based on some invalid assumptions and, as a result, NMED improperly has proposed retaining the impairment listing for the San Juan River from the Animas River to Cañon Largo. Based on the following considerations, SJWC requests that NMED modify its new stream bottom deposit protocol, as appropriate, and determine that the San Juan River from the Animas River to Cañon Largo (Reach 2) is fully supporting its designated uses in terms of stream bottom deposits.

SJWC's Specific Comments on NMED's September 14, 2004
San Juan River Basin Sedimentation/Siltation (Stream Bottom Deposit)
Impairment Determinations for the 2004-2006 Clean Water Act
Integrated §303(D)/§305(B) List of Assessed Waters

Both SJWC and its technical expert, Tom Pitts, P.E., have reviewed the two documents underlying NMED's proposed changes to the Section 303(d) List for the San Juan River Basin: (i) NMED's September 14, 2004 San Juan River Basin Sedimentation/ Siltation (Stream Bottom Deposit) Impairment Determinations for the 2004-2006 Clean Water Act Integrated §303(D)/§305(B) List of Assessed Waters (NMED's "Report"); and (ii) the National Sedimentation Laboratory's ("NSL") August 2004 Research Report Number 47—Bed-Material Characteristics of the San Juan River and Selected Tributaries, New Mexico: Developing Protocols for Stream-Bottom Deposits. Based on that review, SJWC has the following specific comments on NMED's Report and NMED's recommendation to keep the impairment designation for Reach 2 of the San Juan River.

1. Section 2.2 Ecoregion and Basin Study Design

On pages 3-4 of its Report, NMED states that all sampling to determine ecoregion bed sediment values occurred in October and November 2003. SJWC believes, however, that long-term sampling of the San Juan River and its tributaries is necessary to determine ecoregion characteristics. Sampling during two months of a drought year does not provide representative data. Also, the procedure followed by the NSL did not take into account antecedent hydrology, which is a determining factor in sedimentation/siltation during the brief sampling period. Thus, basing the impairment determination for Reach 2 of the San Juan River on such an extremely limited data set for the highly complex sedimentation phenomena is not technically valid.

***RESPONSE**: NMED believes the National Sedimentation Lab study, the associated NMED impairment determination document, and information from previous studies such as the San Juan River Basin Implementation Recovery Program (SJRIP) provides sufficient information to make these sedimentation/siltation impairment determinations. The study was spatially extensive -- 92 San Juan River sites, 21 Animas River sites, and 23 tributary sites. This is the most extensive effort NMED has taken to date to determine potential Sedimentation/Siltation impairment. Our wadeable stream protocol which has been in place for several years, is deemed acceptable by USEPA Region 6, and has been referenced as a model for several other states, only requires one sample at one station per assessment unit and reference reach to make Sedimentation/Siltation determinations. NMED believes the approach used in the San Juan Basin is technically valid to*

determine Sedimentation/Siltation impairment in the context of the Clean Water Act and associated USEPA guidance.

2. Section 2.4 Embeddedness Measurements

NMED assumed in this section, and throughout the Report, that the normal condition of the entire San Juan River is "substrate that is plentiful, sufficiently large and varied, and [] not surrounded or buried by fines . . ." on a year-round basis. However, given both the geology and the climate of the San Juan Basin, Reach 2 historically has experienced sediment deposition during much of the year from post-runoff storm events. This is a normal and natural characteristic of Reach 2 rather than an impairment.

***RESPONSE**: SJWC is misinterpreting and representing this comment in Section 2.4. This is general comment that "substrate that is plentiful, sufficiently large and varied, and is not surrounded or buried by fines appears to offer the best attributes for habitat suitability for many aquatic organisms adapted to such conditions." This comment is simply describing the general relationship between substrate and aquatic organisms. This quote is not stated as a characterization of the entire San Juan River.*

Further, on page 5 of the Report, NMED states: "Therefore, this approach that utilizes embeddedness measures applies to streambeds composed of 50% or more coarse materials (i.e., gravel and cobbles)." Based on this statement, it appears that NMED assumes impairment is defined by stream beds composed of *less than* 50% or more coarse materials. SJWC questions whether the lower San Juan River is routinely composed of "50% or more coarse materials." SJWC further questions the validity of this assumption as it applies to Reach 2 of the San Juan, particularly on a seasonal basis.

***RESPONSE**: SJWC is misinterpreting this comment in Section 2.4. Nowhere does it state or imply that NMED assumes impairment is defined by streambeds composed on less than 50% or more coarse material. The embeddedness approach utilized in this study quantifies the extent to which coarse-material dominated river beds (in excess of 50% of bed material greater than 2 mm) are covered by fine sediments (Heins et al. 2004). Sampling occurred in representative riffle areas. Figure 2.4 displays how the percent fines were generally much higher in these representative riffle areas in Reach 2 because these areas were buried with fine sediment, primarily from Cañon Largo. Regarding the general substrate characteristic of the San Juan River between the Hogback and Navajo Dam, Holden (1999) states "Reach 6 (RM 155 to 180, below Hogback Diversion to the confluence with the Animas River)…Cobble and gravel substrates dominate, and cobble bars with clean interstitial space are more abundant in this reach than in any other." Also, "Reach 7 (RM 181 to 213, Animas River confluence to between Blanco and Archuleta, New Mexico) is similar to Reach 6 in terms of channel morphology…dominant substrate is cobble…"*

3. Section 2.5 Results

A. Section 2.5.1 Rapid Geomorphic Assessments

On page 6 of its Report, NMED states: "Stable (stage I or VI), gravel dominated (i.e., >50% cobble/boulder) sites were identified as candidate reference sites for the determination of reference

condition." Once again, NMED assumes that ">50% cobble/boulder" sites are representative reference sites for the San Juan River and are typical conditions for the Basin. Put another way, NMED assumes impairment is occurring if conditions are less than 50% cobble/boulder.

This inherent bias is built into the definition of impairment—any site with less than 50% cobble/boulder is not representative of the San Juan River Basin or certain river reaches, seasonally, and such sites are therefore impaired. However, no data from sources other than the NSL study is provided to support this position. Furthermore, the NSL's very limited sampling period, which occurred during a drought year, provides only a snapshot of conditions—it cannot form the basis of a valid definition of an impaired site. Given this fundamental problem with the definition of impairment, use of the NSL methodology and data set to define Reach 2 of the San Juan River as impaired is not valid.

***RESPONSE**: Again, SJWC is misinterpreting this comment in Section 2.4. Nowhere does it state or imply that NMED assumes impairment is defined by streambeds composed of less than 50% or more coarse material. Stable, gravel dominated sites (>50% cobble/boulder) represent the best available, riffle habitat in the ecoregion. Sites that were <50% cobble/boulder were not used to determine a reference condition or benchmark because they do not represent best available riffle habitat, which was the focus of this study.*

NMED believes the National Sedimentation Lab study, the associated NMED impairment determination document, and information from previous studies such as the San Juan River Basin Implementation Recovery Program (SJRIP) provides sufficient information to make these sedimentation/siltation impairment determinations. The study was spatially extensive -- 92 San Juan River sites, 21 Animas River sites, and 23 tributary sites. This is the most extensive effort NMED has taken to date to determine potential Sedimentation/Siltation impairment. Our wadeable stream protocol which has been in place for several years, is deemed acceptable by USEPA Region 6, and has been referenced as a model for several other states, only requires one sample at one station per assessment unit and reference reach to make Sedimentation/Siltation determinations. NMED believes the approach used in the San Juan Basin is technically valid to determine Sedimentation/Siltation impairment in the context of the Clean Water Act and associated USEPA guidance.

B. Section 2.5.3 Determination of Bed-Material Reference Values

On page 9 of its Report, NMED states that the Oregon Department of Environmental Quality is considering using the "90th percentile values as their fine sediment benchmark . . . ." It therefore appears that NMED's selection of the 75th percentile benchmark is somewhat arbitrary. What is the basis for selecting the 75th percentile?

***RESPONSE**: Oregon's choice of the 90th percentile was somewhat arbitrary and based on their desire to balance Type I and Type II errors associated with making impairment decisions (Doug Drake, OR DEQ, personal communication). While the National Sedimentation Lab provides no official opinion on which percentage to use, they have worked with some states who have chosen the 50th percentile (median) while other states have chosen the 75th percentile. NMED believes the 75th percentile is protective of the environment, acknowledges inherent sources of error in the data due to the challenges associated with measuring substrate characteristics, and balances the costs associated with Type I and Type II errors.*

4. Section 3.2 San Juan and Animas River Assessments

In this section, NMED concludes that Reach 2 of the San Juan River is "Non-Supporting" of aquatic life use because of sedimentation. For all of the reasons discussed below, SJWC does not believe this conclusion is valid for Reach 2.

A. Section 3.2.1 Biological Data and Biorelevance

In this section, NMED states that available biological data does *not* confirm the non-supporting aquatic life use impairment determination for Reach 2 of the San Juan River. However, NMED dismisses the need for biological proof of impairment by stating that "it is not necessary to prove biorelevance because the latter part of the narrative [stream bottom deposit water quality] standard states: '. . . *or significantly alter the physical or chemical properties of the bottom*.' Therefore, this expanded geomorphic approach is adequate to determine impairment status." (Emphasis in original.) SJWC rejects this conclusion because it is supported only by NMED's interpretation of the narrative standard. NMED's conclusion is *not* supported by the facts.1

SJWC believes that, for a stream segment to be designated as impaired, there must be corresponding biological data to support the impairment designation. This clearly is not the case in Reach 2. As discussed on page 12 of NMED's report, biological data do *not* support NMED's proposed impairment designation: "Benthic macroinvertebrate assessment of the San Juan sites indicates no or slight impairment as compared to the selected reference site." Because available biological data indicates that Reach 2 of the San Juan River is not impaired, it should not be listed as impaired on the Section 303(d) List.

***RESPONSE**: NMED believes our interpretation of the narrative standard is accurate, as the language in the Water Quality Standards clearly states ". . . or significantly alter the physical or chemical properties of the bottom*" (NMAC 20.6.4). *Section 3.2.1 discusses the challenges associated with identifying a benthic macroinvertebrate reference condition in the San Juan Basin due to the effects of the dam and lack of comprehensive benthic macroinvertebrate sampling protocols for large rivers. The section notes that a benthic macroinvertebrate reference site or condition for the San Juan River could not be defined within the scope of this project due to the above-mentioned issues. SJWC's footnote acknowledges that they don't believe the benthic macroinvertebrate conditions below the dam represent reference conditions for the San Juan River Basin. The available benthic macroinvertebrate data and interpretation by Dr. Jacobi (Appendix A) defines a station from Reach 3 below the dam ("San Juan River below Soaring Eagle Lodge HWY 173") as the "selected reference site" to conclude that the three San Juan sites in Reach 2 are slightly or not impaired. If SJWC does not believe the station in Reach 3 is a valid reference site, they cannot possibly support the conclusions in Appendix A or the sentence quoted from page 12 regarding biological impairment. NMED shares the same option -- "San Juan River below Soaring*

---

1 SJWC concurs with NMED's statement on page 11 that the benthic macroinvertebrate conditions of the stream segment below Navajo Dam do not represent a reference condition for the San Juan River Basin.

Eagle Lodge HWY 173" in not a valid reference site to determine biological condition due to the effects of the dam on the benthic macroinvertebrate community at this site.

B. 3.2.2 Discussion of Cañon Largo and Navajo Reservoir Operations

As noted on page 12 of NMED's report, high suspended sediment loads from Cañon Largo have occurred historically. SJWC agrees that these loads result from the geology of the San Juan Basin, particularly Cañon Largo, and the occurrence of intense summer storms. As recognized by NMED, "[i]ntense summer and fall precipitation events contribute to the amount of sediment transported into the mainstem of the San Juan River," and "[l]arge, temporary increases in flow and sediment [are] common during intense, convective summer and fall precipitation events."

Nevertheless, SJWC disagrees with NMED's statement on page 12 that "[h]igh sediment input during summer and fall storm events, combined with a loss of sediment transport due to the effects of Navajo Dam, filled low-velocity habitats with sediment." It is true that the primary sediment-moving event in the San Juan River, both before and after the construction of Navajo Dam, was/is spring runoff. Spring runoff events scour sediment to a large degree and reshape habitat for endangered fish. However, such runoff has no effect on the removal of sediment resulting from intense summer precipitation events that occur after spring runoff. Any sediment deposited by these events can be moved only by base flows in the San Juan River.

***RESPONSE**: NMED believes this statement on page 12 is accurate and is supported by documents produced during the San Juan River Basin Recovery Implementation Program, including Holden 1999. The point of the statement on page 12 is that the loss of annual high spring runoff below the dam, as a result of Navajo Dam operations, resulted in the loss of this annual source of sediment transport. Spring runoff is no longer an annual occurrence due to past reservoir operations. Holden states "Prior to Navajo Dam's regulation of the San Juan River in 1962, flows were highly variable and dominated by the spring snowmelt runoff…Since the closure of Navajo Dam, flows in the San Juan River have been significantly altered by operations that typically store water during spring runoff and release storage during summer, fall, and winter months." Spring runoff is an important component of a natural hydrograph in the San Juan basin, which is in part why the preferred alternative in the Navajo Reservoir Operations EIS includes spring releases whenever predicted hydrologic conditions allow. NMED disagrees with SJWC's statement that spring flows have no effect on the removal of sediment from intense summer precipitation events and that this sediment can only be moved by baseflows. Adequate spring flows the following spring would likely have an effect, which again is one of the reasons behind the preferred alternative in the Navajo Reservoir Operations EIS. Regarding the SJRIP test period when they tested various spring release scenarios, Holden (1999) states "These studies showed that relatively high flows were needed to build and clean these habitats [cobble bars and backwaters], but that lower flows were needed to make them more abundant at the proper time of year...The change to the more-natural hydrograph during the research period resulted in more cobble and less sand habitats in the river…"*

Further, Navajo Dam releases have *increased* San Juan River base flows throughout the year to well above historic levels:

> Base flows were substantially elevated in the post-dam compared

> with the pre-dam period. The median monthly flow for the base-flow months of August through February averaged 168% of the pre-dam period. Minimum flows were also elevated. The near-zero flow periods were eliminated, with a minimum monthly flow during base-flow periods of 250 cfs compared with 65 cfs for the pre-dam period. Summer storm runoff was not directly affected by the dam, especially in terms of high sediment input, because these events can be generated below the influence of the dam."

(Holden, 1999) Even with these increased base flows, however, removal of sediments from summer thunderstorms does not occur below Cañon Largo due to high sediment loads from that source.

The fact that base flows increased after the construction of Navajo Dam contradicts NMED's statement on page 13 that "[p]ast dam operations did not generate flows sufficient to transport sediment through the system as indicated by measured sediment accumulation between spring runoff events (Holden 1999)." NMED has taken this statement from Holden out of context and misapplied it. Historically, sediment undoubtedly built up in the San Juan River as a result of intense summer storms throughout the year, and this is still a common condition of the River. Base flows were incapable of moving the storm-driven sediment even prior to the construction of Navajo Dam.

In the same vein, NMED also states, on page 13 of its Report, that "[e]ven though Cañon Largo is the primary source of excessive fine sediment loads and storm events during the summer and fall are the primary source of sediment transport from ephemeral tributaries, the anthropogenic influence of the dam and dam operations are contributing to impairment in Reach 2." However, as evidenced by the discussion above, it is clear that NMED's statements concerning the Dam's influence on sediment transport in Reach 2 of the San Juan River are incorrect. The Dam did reduce spring peak flows, which resulted in a narrowing of the channel of the San Juan River below Navajo Dam. However, spring peak flows are adequate to transport sediment under that narrowed condition. There is no evidence that the channel is continuing to narrow as a result of sediment deposition in the channel in Reach 2. The sediment deposition that is occurring results from seasonal events, and that sediment is removed by the spring flows resulting from post-Dam hydrology. NMED's statement that continuing sediment deposition is the result of Dam operations is erroneous. If anything, higher post-Dam base flows have enhanced conditions in Reach 2.

***RESPONSE**: NMED's statements concerning the influence of reservoir operations on sediment transport in Reach 2 are correct. SJWC's comments create the false impression that spring runoff is still an annual event in the San Juan River post-dam. SJWC is also contradicting earlier statements by now stating the spring flows can remove sediment occurring from seasonal events. In earlier statements, SJWC contends "Any sediment deposited by these events can be moved only by base flows in the San Juan River."*

NMED is not taking Holden's statements out of context and does not believe the above quote from Holden contradicts the statement in the protocol regarding the loss of sediment transport due to the loss of spring runoff. The above quote from Holden is simply stating the fact that baseflows have been elevated post dam. Regarding the SJRIP test period, Holden (1999) states "These studies showed that relatively high flows were needed to build and clean these habitats [cobble bars and

backwaters], but that lower flows were needed to make them more abundant at the proper time of year...The change to the more-natural hydrograph during the research period resulted in more cobble and less sand habitats in the river…" NMED's statements are supported by Holden (1999).

NMED goes on to state on page 13 that "it cannot be stated that sediment impairment in the San Juan River is completely due to natural causes" and cites cattle grazing and unimproved roads associated with oil and gas development. However, no specific citations of such cattle grazing or unimproved roads are made with respect to Reach 2. Post-spring runoff sediment deposition in Reach 2 is a common event that has occurred historically, as indicated in the 2004 report of Heins, *et al.* Such sediment deposition would be occurring with or without anthropogenic influences. It would also be occurring with or without the presence of Navajo Dam.

***RESPONSE**: NMED clearly acknowledges that Cañon Largo "…is the primary source of excessive fine sediment loads…", as stated in the first half the quote on page 13 listed above. NMED is acknowledging that land management practices, such as grazing and road development associated with oil and gas, do occur in the watershed that could be contributing to sediment impairment. The National Sedimentation Lab report (Heins et al 2004) also mentions anthropogenic changes in the watershed.*

Finally, NMED states that

> USEPA Region 6 has determined that Reach 2 of the San Juan River does not fall under Category 4B because the Navajo Reservoir Operations Final Environmental Impact Statement with the preferred alternative is not yet in place. Spring releases are only required when adequate water is available based on anticipated inflow predictions and current reservoir storage. Spring releases did not occur in 2002, 2003, or 2004 based on the decision matrix. Therefore, Reach 2 will be categorized as Category 5A and scheduled for TMDL development.

For all of the reasons outlined above, SJWC disagrees with this position, and with the impairment designation for Reach 2 of the San Juan River. To summarize:

1. The definition of sedimentation/siltation impairment is arbitrary based on the methodology used.

2. Two months' of sampling during a drought is inadequate to characterize Reach 2 as impaired.

3. Sediment accumulation in Reach 2 has occurred historically and would occur with or without anthropogenic influences.

4. NMED has misinterpreted the influence of Navajo Dam on sedimentation.

5. Biological data contradicts the impairment designation.

Thus, SJWC requests that NMED (i) re-evaluate its position with respect to Reach 2 and (ii) recommend to the WQCC that Reach 2 be de-listed as impaired for stream bottom deposits.

***RESPONSE**: Thank you for your comments. NMED's hopes our responses have increased SJWC's understanding of the National Sedimentation Lab study, SWQB protocol, and impairment determinations. NMED believes the study and protocol are technically-sound and adequate to make the proposed Sedimentation/Siltation impairment determination.*

Thank you for your consideration of these comments. If further discussion would be helpful, please do not hesitate to contact me or the Executive Director of SJWC, Mr. Randy Kirkpatrick.

Sincerely,

Jolene L. McCaleb

JLM:ma