

<b>SOUTHWEST ENVIRONMENTAL CENTER COMMENTS</b> <b>(Letter dated October 3, 2003, received by fax on October 8, 2003)</b>		
Comment No.	Comment(s)	Response*
1	Evapotranspiration by desired riparian vegetation within the Rio Grande floodplain.	Some estimates have been added to the Plan; however to specifically quantify riparian water use in the planning area is beyond the scope of this report. If analyses are conducted to address a) and b) it could be referenced in subsequent edition of the Plan.
2	Surface water for instream flows needed to sustain desired aquatic species.	There are currently no plans to release water in the off season.
3	Surface water to provide channel-forming flows and overbank flooding in late spring/early summer.	There are neither specific plans (nor water) to release flows for channel forming pulses and overbank flows.
4	Total annual water needed for the environment in the future: 45,000 to 84,000 acre feet for instream and peak flows, plus enough water to support 20,000 acres of mixed riparian.	Please see reference provided by World Wildlife Fund (Comment No. 1).

\*Specific comments are addressed in more detail in response letter to the Southwest Environmental Center dated 12/05/2003.

<b>WORLD WILDLIFE FUND MEMO</b> <b>Dated September 30, 2003</b>		
Comment No.	Comment(s)	Response*
1	Provided reference to a report prepared for river restoration publish by World Wildlife (this was in response to a verbal comment made during the Public meeting held on August 28, 2003 in Las Cruces.	This reference also addresses SWEC comment No. 4.
2	Numbers in Table 6.12 seem deflated for wildlife and evaporation.	Agree modified Table 6.12 (moved to Chapter 7 and re-labeled as Table 7.13). However, this table does not include a demand for the environment since it does not constitute an appropriation of a water right. Environmental demand for riparian vegetation evapotranspiration between Caballo and the state line is estimated to be 25,000 to 90,000 for a full supply year, when the river runs all irrigation season. The table also does not include evaporation since that is defined by ISC as evaporation amounts for reservoirs that store greater than 5,000 acre-feet of water. There are no reservoirs of that size within the Planning Region.
3	Please consider providing an estimate of environmental demands.	Agree included.
4 a	Add Agricultural Water Conservation to Section 8.2.1.5.	Agree included.
4 b	Add Water Pricing to Section 8.2.1.5.	Discussion added.
5 a	Add suggested language to	Agree included.

<b>WORLD WILDLIFE FUND MEMO</b> <b>Dated September 30, 2003</b>		
Comment No.	Comment(s)	Response*
	Section 8.2.2.1	
5 b	Expand section 8.2.2.6 to include leasing agricultural water to the environment.	Agree included.
6 a, b, c	Section 8.4 of the Evaluation of Water Supply Plan Alternatives	Discussion added.

\*Specific comments are addressed in more detail in response letter to World Wildlife Fund dated 11/28/ 2003.

<b>INTERSTATE STREAM COMMISSION-BRIAN WILSON COMMENTS</b> <b>Dated September 9, 2003</b>		
Comment No.	Comment(s)	Response
1	Sections 8.1.1.1 through 8.1.1.3 should be added to executive summary; and the language should be modified to avoid confusion.	Agree language has been modified in the Plan and Executive Summary will be modified to reflect changes (after the final revisions to the Plan have been made).
2	What growth scenarios are future demands based upon. Add tables with supply vs. demand for the low, medium and high growth scenarios.	Future demands are based on the medium growth scenario (added to text), included graphs with high, medium and low growth scenarios for Hatch, Dona Ana Mutual Domestic Water Users Associations and the City of Las Cruces.
3	Annotate Table 7.5 – 7.13 to indicate the year the data represents.	Most data is from 1995, date added to table headings.

<b>INTERSTATE STREAM COMMISSION-NABIL SHAFIKE COMMENTS</b> <b>Dated September 11, 2003</b>		
Comment No.	Comment(s)	Response
1	Section 6.1.1.4.4, add summary of flow statistics of the listed gages.	Additional work on flow statistics is not feasible for this report.
2	Section 6.1.1.4.5, add an estimate of ungaged tributaries inflow.	Language changed from ungaged streams to ungaged tributaries to decrease confusion. There are no perennial tributaries to the Rio Grande in the Planning Region.
3	Section 6.1.1.4.1, add a detailed analysis with figures and table about the variability of the supply of the Rio Grande project.	A summary graph for three gages on the Rio Grande is provided in Figure 6.13 and is also provided in Table 7.1.2. Additional analysis is not feasible for this report.
4	Figure 6.14 does not show groundwater basin boundaries.	Figure 6.14 is actually Figure 6.10 and has been re-labeled. Figure 6.14 showing groundwater basin boundaries was added.
5	Figures 6.10 and 6.16 thru 6.22 are missing from this copy of the report.	Agree, have been added to web page, and converted to .pdf files for final inclusion on the CD.
6	The Rio Grande Project is not obligated to provide water to Hudspeth County.	This item has been clarified. Additional text was be added to the Plan.

<b>INTERSTATE STREAM COMMISSION-NABIL SHAFIKE COMMENTS</b> <b>Dated September 11, 2003</b>		
Comment No.	Comment(s)	Response
7	Table 7.13, revise irrigated agriculture.	The table has been revised.
8	Table 7.23 assumes 6af/a-this is low.	Table is confusing and value varies. Deleted table.
9	Add column to Table 8.4 describing how each alternative will impact the region supply and also add a cost benefit analysis.	This is beyond the scope of this study. Separate studies will be conducted to access the cost benefit for the preferred alternatives.
10	Section 8.3 drought contingency plan is not provided	Section is mislabeled as 8.1-Changed to 8.3. Committee reviewing revised plan.

<b>INTERSTATE STREAM COMMISSION-MORRISON/JOHNSON COMMENTS</b> <b>Dated September 12, 2003</b>		
<b>General (Bulleted )Comments</b>		
Bullet No.	Comment(s)	Date Due
1	The Plan does not address uncertainties resulting from the sharing of the Mesilla Basin and Hueco Bolson with Texas, NM and Mexico	Agree added additional text to second paragraph Section 8.1.1.
2	Conflict resolution should be considered for the region.	Do not agree.
3	Plan does not describe how junior groundwater users will obtain "offset water"	Agree added additional text to Section 8.2.2.6.2.
4	Legal issues needed resolution should be amplified and expanded.	Agree added additional text to Section 5.7.
5	Add a discussion of legal limitations.	Agree added additional text (new sections in Chapter 5).
6	Need to discuss the role of the OSE in the Plan.	A discussion has been added.
7	More consideration should be given to the impacts of changing farm operation to improve irrigation and water quality.	A discussion has been added.
8	The Plan does not contain a Drought Contingency Plan.	See response to Nabil Shafike No. 10.
9	The need for improved water measurements is not discussed.	A discussion has been added.
<b>Specific Comments</b>		
Comment No.	Comments	Response
1	The amount of water available for pumping provided in the Executive Summary does not take into consideration land	Agree re-worded and included.

<p align="center"><b>INTERSTATE STREAM COMMISSION-MORRISON/JOHNSON COMMENTS</b>  <b>Dated September 12, 2003</b></p>		
	ownership, engineering and economical constraints.	
2	There is no estimate of total current use and project demand in the Executive Summary.	A graphical comparison of water rights versus future demands for the City of Las Cruces, the Village of Hatch and DAMDWCA was added.
3	Update the TOC to include definitions and Executive Summary.	Agree updated TOC to include Definitions and Executive Summary.
4	Reference is not fully cited.	Agree modified reference.
5	Water Rights Administration, Section 5.5 does not discuss water quality laws and regulations.	Agree revised Chapter 5.
6	Section 5.5.1.4.2 the NASA-WSTF site is listed in the wrong area.	Agree changed location.
7	Section 5.7 is incomplete.	
8	Figure 6.10 is missing from the copy reviewed.	Agree Figure 6.14 is actually 6.10-it was mislabeled, see response to Nabil Shafike No. 4.
9	It is stated here that gage locations are provide in Table 6.9 and Figure 6.12 but not all of the location are mapped.	Committee agrees that this information would be useful but is not available and would be impractical to produce at this time.
10	The location of the basins is not shown on Figure 6.14.	Agree see response to Nabil Shafike No. 4.
11	More recent data is available.	This information was not available when Plan was being prepared. It should be included in next update.
12	Figures 6.16 thru 6.22 are missing.	Agree see response to Nabil Shafike No. 5.
13	The contours on Figure 6.27 are illegible on the southern portion.	Agree will try to improve quality.
14	Figure 6.42 is referenced as illustrating mountain front recharge in the Rincon Basin but does not include the Rincon Basin.	Agree moved figure reference to Section 6.1.2.4.1.
15	Section 6.1.2.5.1 should address the potential for pumping to induce saline water intrusion.	Agree; however will require additional studies-included text to reflect this. The results of these additional studies will be included in future updates.
16	Section 6.4.6.4.4 appears to be out of place.	Agree section was moved to surface water quality.
17	Section 7.1 should state that the NMOSE guidelines for the Jornada Basin and Hueco Bolson are informal.	Agree added to text.
18	Section 7.1.1.7 flows from the Del Rio and East Drains return to the Rio Grande above El Paso.	Agree changed text.
19	Section 7.1.2.1 suggested additional wording.	Agree added to text.

<p align="center"><b>INTERSTATE STREAM COMMISSION-MORRISON/JOHNSON COMMENTS</b>  <b>Dated September 12, 2003</b></p>		
20	Section 7.2.2 it would be useful to identify those entities that are nearing the limits of their permits.	Obtained water rights information for the Village of Hatch, Dona Ana Mutual Domestic Water Consumers Association and City of Las Cruces and compared with projected demands.
21	There are several anomalous per capita water usage presented in Table 7.5	These values include golf course watering, Table was annotated to reflect the communities where this was the case.
22	Table 7.9 appears to be data from Wilson and Lucero (1997). There is more recent data.	The data is from Wilson and Lucero (1997). The recent information was not available when Plan was being drafted. It should be included in next updates.
23	Table 7.13 has entries misplaced.	Agree corrected table.
24	No figures beyond 6.58 were provided.	Updated TOC to include Figures 7.1 thru 7.4 and 8.1 thru 8.5. Web page has copies of all of the figures.
25	Section 7.2.3.1.3 would be a good place to discuss the anomalously high rates.	Agree added to text.
26	Table 7.15 should include a brief location description.	Added a map showing locations of census tracts (Figure 7.1).
27	Table 7.16 does not have the same value for Dona Ana County.	Agree corrected value (the text is correct for the study area-also corrected text to Plan area instead of Dona Ana County).
28	Section 7.3.2.3 per capita water supply use rates comment.	Agree comment reworded and included in text.
29	Table 7.2.8 was missing from report.	The text was incorrect, changed to refer to the correct table, which is Table 7.24.
30	Table 8.1, 8.2 and 8.3 do not state high, medium or low growth rate scenario.	Tables annotated to indicate medium growth scenario.
31	Section 8.1.1.1 the statement "near equilibrium conditions" should be re-worded.	This paragraph was incorrect, replaced.
32	Section 8.1.1.2 irrigation water use in the Jornada Basin is not mentioned.	Changed to include the amount of irrigated agriculture that is actually present in the Jornada.
33	Section 8.2.1.3 septic to regional wastewater systems should also be considered as a supply.	Agree added.
34	Section 8.2.1.5 states that water seeps into canals and laterals-this should be from these features.	Agree changed wording.
35	Section 8.2.4 does not discuss non-impairment to existing water rights or the State's interstate stream obligations.	Statute says that the responsibility for this evaluation is OSE's. Statute has been added to text.
36	Section 8.2.2.8 use of impounded storm run-off? Should also add constraints.	Added discussion on storm-water run-off.
37	Section 8.2.2.9 the use of the Gila River Central Arizona	Removed discussion from Plan, comment no longer relevant.

<b>INTERSTATE STREAM COMMISSION-MORRISON/JOHNSON COMMENTS</b> <b>Dated September 12, 2003</b>		
	Project is unclear.	
38	Section 8.2.2.9 the Nutt-Hockett Basin is mentioned as a possible source area but it may have adverse impacts to surface water supplies.	A discussion regarding the Nutt-Hockett water was added.
39	Tables 8.5B and C there should be some discussion of possible basin criteria parameters for the Jornada and Hueco Basins.	Included discussion in text and draft basin criteria for the Jornada del Muerto in an Appendix.
40	Tables 8.6A, B and C there is no criteria for ranking is provided and all rankings appear the same.	Agree clarified and defined criteria and definition of low, medium and high. Committee has ranked all alternatives based on discussion and definitions.
41	Section 8.4.3.2 should have some discussion of possible basin criteria parameters for the Jornada and Hueco Basins.	Included basin criteria in an Appendix and referenced in text.
42	Please e-mail the EXCEL file "pump tests.xls".	Excell file will be sent by Shomaker & Assoc. to OSE Hydrology Bureau. OSE to follow up with Shomaker.

<b>INTERSTATE STREAM COMMISSION-FOLLINGSTAD COMMENTS</b> <b>Dated October 10, 2003</b>		
Comment No.	Comment(s)	Response
1	Many mistakes in the Executive Summary.	Agree corrected typos and address other comments once the Plan has been completed.
2	The maps developed by WRII could be inserted into the Plan.	A tab has been placed before the Illustrations.
3	The water supply analysis includes the portion of EBID within Sierra County-this should be noted.	Agree made notation.
4	The Legal Section needs a summary or conclusion as to how legal issues affect water supply.	Agree, added.
5	Table 6.12 should be in the Water Demand Section. Suggest surface water quality follow surface water supply and ground water quality follows surface water supply.	Table has been re-labeled as Table 7.14 and moved to the appropriate location. The template shows quality <u>after</u> supply.
6	Something is awry with Table 7.13. There is no discussion of water demands for Endangered Species, Riparian Vegetation or other evaporative losses and recreational uses of water.	Agree corrected the table. Water demands for Endangered Species, Riparian Vegetation or other evaporative losses and recreational uses of water will be included.
7	There is no meaningful water balance discussion.	See response to Morrison/Johnson Comment No. 20.
8	Analysis of alternatives point	Agree included a discussion on the high, medium and low

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	by point is missing. Were there any “no go” alternatives?	ranking criteria. Included discussion of “no go” alternatives.
9	Implementation schedule does not include the El Paso-Las Cruces Sustainable Project.	Included the applicable El Paso-Sustainable Project alternatives in the Implementation Schedule.

# ***Southwest Environmental Center***

A VOICE FOR THE ENVIRONMENT IN SOUTHERN NEW MEXICO

By fax to (505) 527-1092

October 3, 2003

Mary Wells, P.E.  
Terracon  
P.O. Box 5067  
Las Cruces, NM 88003

Dear Ms. Wells:

The Southwest Environmental Center is a nonprofit conservation organization dedicated to protecting and restoring the unique natural heritage of the Southwestern borderlands. We appreciate the opportunity to comment on the draft Lower Rio Grande Regional Water Plan.

The plan appears to contain a great deal of useful information. Our comments are limited to two major shortcomings of the plan: public participation and environmental water demands.

## Public participation

We are extremely disappointed in the way public participation in the draft plan has been handled. SWEC has been very interested in the regional water planning process for many years. On July 16, 1997, we requested in writing to the Lower Rio Grande Water Users Organization that representatives of environmental interests and the general public be added to that group to help develop a regional water plan. Our request was denied, we were told, because only governmental entities could be included in the joint powers agreement by which the LRGWO is constituted. On May 7, 2001, we reiterated our concerns in a letter to LRGWO about the need to provide for genuine public involvement in the planning process. A copy of that letter is attached. We have verbally asked Terracon about the status of the plan on numerous occasions, dutifully checking the website for updates.

In view of this longstanding interest, and as an obviously interested stakeholder, we were surprised and disappointed not to receive direct notice of either the availability of the draft plan for review or the public meetings at which the draft plan was unveiled. We learned about these meetings indirectly, on short notice. We were also disappointed to learn that there would be only one round of "here it is, what do you think?"-type public meetings, scattered around the region, to answer questions and take public comments. In our view, this process does not begin to engage the public in a meaningful way.

We recommend that the Lower Rio Grande Water Users start fresh with multiple rounds of public meetings that will serve to inform, engage, encourage and incorporate public participation and input through an iterative process. Otherwise, we do not view this plan as having complied with or benefited from the type of public involvement which the Interstate Stream Commission and the New Mexico Legislature intended in the development of regional water plans, and which is clearly laid out in the ISC's guidelines.



### Environmental water demand

It should be obvious that the natural environment has a quantifiable need for water for many purposes, including ground and surface water to support evapotranspiration by plants, surface water for instream and peak flows in the Rio Grande to sustain aquatic habitats and species, and surface water for consumption by wildlife.

We were quite surprised, and dismayed, to find that the draft plan seems to be completely devoid of any consideration of present or future environmental water demands. When we raised this issue at the public meeting in Las Cruces (8/28/03), we were asked to help provide such numbers. While we are happy to contribute whatever we can, we can only suggest an approach to follow since it is beyond our capabilities, in the time allotted (30-days) and without funding, to provide more precise numbers. (Frankly, we view the determination of such numbers as the job of the LRGWUO and its hired consultants. Indeed, at one point, at a public presentation probably in 2001 or 2002, we specifically asked a Terracon representative how "environmental" water demand would be handled in the plan, and were told that the U.S. Fish and Wildlife Service and other environmental experts would be consulted to help develop such numbers.)

In the interest of providing a constructive suggestion for how to proceed, the following is a list of types of environmental water demands that we think should be analyzed in the plan, as well as suggested methodologies for determining future demands and some rough preliminary numbers.

#### *1) Evapotranspiration by desired riparian vegetation within the Rio Grande floodplain.*

The pre-1850 Rio Grande floodplain in the planning region sustained a dynamic mosaic of riparian habitats, including cottonwood/willow bosques, sumpwillow (*Baccharis*) stands, tornillo thickets, saltgrass meadows, and marshes (see *Historic Reconstruction of the Ecology of the Rio Grande/Rio Bravo Channel and Floodplain in the Chihuahuan Desert*, Nancy Stotz, WWF, 2000). Of these plant communities, the cottonwood/willow bosques probably consumes the most water.

Currently, very few of these original native plant communities still exist in the planning region. SWEC and other conservation groups are actively working to restore this mix of habitats wherever possible on the floodplain. Our primary focus is on the federally owned river corridor, a portion of the Elephant Butte Irrigation District drains, and a handful of private lands working with conservation-minded landowners. Assuming we will attain some measure of success, the following method suggests itself for quantifying this kind of future water demand:

- a) Determine the desired ratio of restored native plant communities. An initial suggestion, subject to refinement, is 50 percent cottonwood bosque, 20 percent grass meadows, 15 percent tornillo, 10 wet meadow/marsh, and 5 percent open water, excluding the river channel itself.
- b) Determine through a review of existing data the average ET rate for each of these habitat types, and then an overall average ET rate based on the desired ratio of habitats.

- c) Determine the total acreage to be restored: approximately 15,000 acres.
  - i) Federal land:
    - (1) The International Boundary and Water Commission, U.S. Section manages the Canalization Project, which consists of 106 miles and approximately 8300 acres of river floodplain corridor from near Percha Dam to the American Bridge. A portion of this corridor lies in Texas, but most of it is located within the planning region.
    - (2) The Bureau of Reclamation owns an estimated 100 acres total around the Percha, Leasburg and Mesilla Diversion Dams.
  - ii) EBID drainage ditches: Approximately 1400 acres (assuming 400 miles of ditches with a 30' vegetated right-of-way on either side).
  - iii) Private and other lands: 5000 acres
- d) Multiply the average ET rate by total restored acreage to arrive at an estimate of the amount of water needed to sustain ET from restored riparian vegetation.
- e) Do the same for existing riparian vegetation (assuming it will be preserved into the future, or, if comprised of non-native species, will be converted to desired native vegetation). Estimated acreage of existing riparian vegetation: 5000 acres.
- f) Total acreage of riparian vegetation comprising future ET water demand within planning region: 20,000 acres (rough approximation)

2) *Surface water for instream flows needed to sustain desired aquatic species.*

Within the planning region, flows in the Rio Grande are reduced during the non-irrigation season to the point where they cannot sustain fish and other aquatic creatures dependent upon moderate to deep water levels in the river. Restoration of the river ecosystem requires that winter flows be augmented. How much additional water is needed? The answer requires knowledge of the flows requirements of targeted aquatic species and an assumption that the existing channel will be reworked to provide greater aquatic habitat diversity. A modest working assumption is that an additional 200-400 cubic feet per second (cfs) will need to be released from Caballo between October 15 and January 15, on average, to maintain minimum instream flows through the planning region.

Using the conversion rate 1 cfs = 1.98 af/day, this translates to roughly 35,000 to 70,000 additional acre feet annually that would be needed to maintain instream flows through the planning region in the Rio Grande.

- 3) *Surface water to provide channel-forming flows and overbank flooding in late spring/early summer.*

Another requirement for restoration of the Rio Grande ecosystem is that the river must occasionally be subjected to flows of sufficient duration and magnitude so as to keep the channel free of vegetation, create and sustain aquatic habitat diversity, and provide overbank flooding at the right time of year for riparian plant communities to regenerate and native fish to spawn. These flows do not have to occur each year, but rather on a frequency of four of every ten years, on average (Jim O'Brien, Tetra Tech, personal communication). If we assume that the maximum rate of these flows is determined by the 5000 cfs limitation of the Caballo outlet works, and that these flows could piggyback on peak irrigation releases of 2500 cfs, the amount of water needed would then be 2500 cfs (5000-2500 cfs) over a period of, say, 5-7 days, once every 2.5 years.

This translates to about 25,000 to 35,000 acre feet every 2.5 years, or 10,000 to 14,000 additional acre feet annually, on average, that is needed to provide channel forming and overbank flows, to sustain a healthy Rio Grande ecosystem.

- 4) *Total annual water needed for the environment in the future: 45,000 to 84,000 acre feet for instream and peak flows, plus enough water to support 20,000 acres of mixed riparian habitats.*

Again, these numbers should be viewed as preliminary estimates. We hope they will be further refined during the process of producing an environmental impact statement for the Canalization Project, by the International Boundary and Water Commission U.S. Section. Obviously the question of where this water will come from is significant. We have a variety of thoughts on this matter which we would be happy to share if you think it is germane to the plan.

Thank you for the opportunity to comment. Despite our disappointment in the process to date, we remain willing and ready to assist in improving the plan, resources allowing. Please let us know how we may be of further assistance.

Sincerely,



Kevin Bixby  
Executive Director

Enclosure



# ***Southwest Environmental Center***

A VOICE FOR THE ENVIRONMENT IN SOUTHERN NEW MEXICO

May 7, 2001

Lower Rio Grande Water Users Organization  
c/o Mayor Ruben A. Smith, Chairman  
P.O. Drawer 20000  
Las Cruces, NM 88004

Re: Draft Regional Water Plan

Gentlepersons:

In July of 1997 Kevin Bixby wrote to you, requesting that you expand your membership to include two additional representatives, one to represent environmental interests, the other to represent the public-at-large. (Copy of letter attached) His interest was in seeing to it that the regional water planning process be open to all members of the community, particularly during those critical early stages when planning priorities are set and alternatives are first formulated. As stated in the Interstate Stream Commission's Water Planning Handbook:

"Broad public participation is necessary in the development of regional water plans to enhance their acceptance locally and to increase their potential contribution to state decision making in regard to 'public welfare' and 'conservation' determinations."

While we understand that the Joint Powers Agreement that gave rise to the LRGWUO may limit membership to "public agencies," that does not obviate the need for public participation in the planning process. Clearly the ISC contemplated such participation during all stages of the process. Its Water Planning Handbook sets out the following General Guidelines:

7. A critical element of the regional water plan is public participation in the planning process. Planners must demonstrate that reasonable and diligent efforts have been made to reach the public so as to invite, value and reflect public comment. These efforts may be tailored in their specifics to fit the particular regions. All regional plans, however, must reflect:
  - a. Identification of stakeholders in the planning process, and efforts to make specific invitations to those stakeholders to participate. A list of these entities, together with any support or refusal letters for them, shall be part of the plan's documentation.
  - b. Public meetings of a number, time and place calculated to maximize the ability of the public to participate. Notice of these meetings must be widely disseminated, including specific notice to entities on the list generated under a., above. *The public meetings shall occur while the plan is being developed.*
  - c. *Post-plan comment period.* When a draft plan has been completed, it must be made available to all entities identified on the list. Copies of the draft plan must also be made available at public places, and notice of their availability promulgated. After a sufficient time of study of the draft, public meetings shall be held to receive comments on the draft.

We understand that Terracon, Inc. has already completed portions of a draft plan and that those portions are to be submitted to the ISC and the LRGWUO for comment. To our knowledge there have been no

public meetings held, nor is the draft plan being made available to the public, or to any stakeholder group identified in your regional water planning proposal to the ISC. Clearly, this is not the level of public participation called for in the ISC guidelines, or in your proposal. Both contemplate a two-stage public process. Section 7(b) of the Guidelines states "the public meetings shall occur while the plan is being developed." Section 7(c) provides for a subsequent public comment period. This is in conformity with the Regional Water Plan Time-Line Schedule in your proposal to the ISC. Your time-line clearly shows public involvement both during and after the draft planning stage. This is no doubt in recognition of the fact that the draft plan is of critical importance in building momentum.

Your proposal to the ISC further calls for the hiring of a Public Involvement Consultant "who will advise the LRGWUO on the best approach to make the planning process an inclusive process." The proposal anticipates that "a planning advisory group will be formed which includes stakeholders." This statement is followed by a long list of stakeholders who were to be invited to participate, including environment groups.

Has a Public Involvement Consultant been hired? Has a "planning advisory group" been formed? If so, who are the stakeholders?

It appears that the regional water planning process is proceeding toward the formulation of a draft plan without any measure of public participation, contrary to both the ISC Guidelines and the terms of the LRGWUO proposal. If we are incorrect in this, please forgive the misunderstanding. We are simply trying to ensure that the very important work that you are doing is not, as Kevin said, undermined by a perception that important stakeholders were excluded from the process.

We would be grateful for an opportunity to participate, as a stakeholder, in the preparation of the draft regional plan. That would include the opportunity to review and comment upon any draft plan that is submitted to the ISC and/or the LRGWUO. We would also hope to see the commencement of a series of public meetings designed to elicit public comment regarding available water supplies, future water demand, and how this region will undertake to meet the demand with supply. As stated in the ISC Handbook,

"The planning process should encourage local people to express local concerns and discuss the difficult decisions faced by every community. Successful plans are marked by the support, understanding and consensus generated by the planning process."

Thank you for your attention to this matter.

Yours truly,

Steven R. Hatch  
Rio Grande Campaign Coordinator

cc: Mary Helen Follingstad  
bcc: Councilman Steve Trowbridge

# Lower Rio Grande Water Users Organization

c/o City of Las Cruces Utilities – P. O. Box 20000 – Las Cruces, NM 88004  
505-528-3511 telephone / 505-528-3619 fax

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December 18, 2003

Mr. Kevin Bixby  
Executive Director  
Southwest Environmental Center  
275 N. Downtown Mall  
Las Cruces, New Mexico 88001-1213

Re: Lower Rio Grande Water Users Organization  
Regional Water Plan

Dear Mr. Bixby:

Thank you for your comments on the draft version of the Lower Rio Grande Regional Water Plan. Although hard data is sparse regarding the environmental uses and needs of the river, we are including information that is currently available and the recommendation that this portion of the Plan be strengthened in future revisions.

We have thoroughly reviewed, discussed and researched your questions and comments and present the following responses.

## **PUBLIC PARTICIPATION**

We appreciate your concern and suggestions for obtaining additional public input for the Plan, however we have advertised and held public meetings in the main areas covered by the Plan (Las Cruces, Hatch, Chaparral and Gadsden) and now consider this portion of the work complete. We will be holding a public hearing for the final version of the Plan in December. Thirty days prior to the hearing, we will advertise the time and place.

## **ENVIRONMENTAL WATER DEMAND**

### *1) Evapotranspiration by desired riparian vegetation within the Rio Grande floodplain.*

Evapotranspiration (ET) by “desired” and “undesired” riparian vegetation is implicitly included in the river efficiency (diversion/release) since it is one of the loss terms in the river. While explicit quantification of the ET by riparian vegetation in the river reach from Caballo to the Texas state line has not been done, some general information has been developed from research in the Middle Rio Grande. For example, Bawazir (2000) reported that a dense, monotypic saltcedar stand with shallow groundwater would evapotranspire about 4.5 acre-feet per acre per year. Open canopy cottonwood with

minimal understory and deeper groundwater lost about 3 acre-feet per acre per year. Luo (1994) used data collected by the Bureau of Reclamation at Bernardo, New Mexico to develop crop coefficients for several riparian vegetation species. She reported that saltgrass used about 2 acre-feet per acre per year. While these provide general guides to riparian water use, it should be stressed that the ET is dependent not only on plant species, but also canopy structure and density, and depth to groundwater. In some cases, salinity will also affect ET.

In order to specifically quantify riparian water use in the Caballo – state line reach, it would be necessary to map the plant species, depth to groundwater, and plant density, a formidable task that has not yet been accomplished. It is certainly beyond the scope of this Plan.

a), b)...f) There really isn't any specific current plan for native plant establishment that is definite enough to justify the substantial analysis you have proposed. The scenarios presented are somewhat arbitrary, and the point of such an evaluation is unclear. If such an analysis were conducted for the river between the levees by the IBWC in its current EIS process, it could be referenced in subsequent editions of this document.

2) *Surface water for instream flows needed to sustain desired aquatic species.*

There are currently no plans to release water in the offseason (October 15-January 15) until authorized Project Water users have water in storage and call for it. While there has been discussion of instream flows for habitat, the primary driver for water management is delivery to authorized users and there are no plans for offseason instream flows.

3) *Surface water to provide channel-forming flows and overbank flooding in late spring/early summer.*

There are no specific plans (and, unfortunately, no water) to release flows for channel forming pulses and overbank flows. In fact, unless and until the IBWC changes its management objectives in the current EIS process, such practices would be contrary to river management and operational objectives. This document is a finite description of the system, and does not examine all of the infinite possibilities. If the current IBWC EIS does significantly change management and operational objectives . . . (see the following response to Item 4)

4) *Total annual water needed for the environment in the future; 45,000 to 84,000 acre feet for instream and peak flows, plus enough water to support 20,000 acres of mixed riparian habitats.*

The following is a suggested source of water, repeated from **King and Maitland, "Water for River Restoration: Potential for Collaboration between Agricultural and Environmental Water Users in the Rio Grand Project Area", 2003:**

The first and most critical project that must be executed before, or at least in parallel with, physical restoration projects is the development and negotiation of the rules and institutional framework under which water can be acquired, transferred, managed, and accounted for. The details of this framework will have profound effects on what is feasible and how projects are executed.

Several issues must be addressed, and several agencies will necessarily need to be involved. The irrigation districts are the logical place to begin negotiations, because the government agencies will be much more likely to cooperate with a unified district -environmentalist proposal than a divided one. Experience suggests that it is not productive to try to satisfy everyone at the same time; so choosing single entities to initiate the process will be most productive.

A logical starting point would be for an environmental group to approach one of the districts to jointly develop a policy creating a class of water use for environmental use paralleling that developed by EBID and the City of Las Cruces for transfers to municipal use. This policy should cover the acquisition of water rights, on a permanent basis, through sale, donation, or reclassification, and transfer of water on a temporary basis. Criteria for suitability and classification of land for restoration should be discussed. The details for accounting for the water, land appurtenance, application of water to land that is not irrigable or is owned by the federal government along the river, consumptive use, and transfers from one part of a given district to another must be addressed.

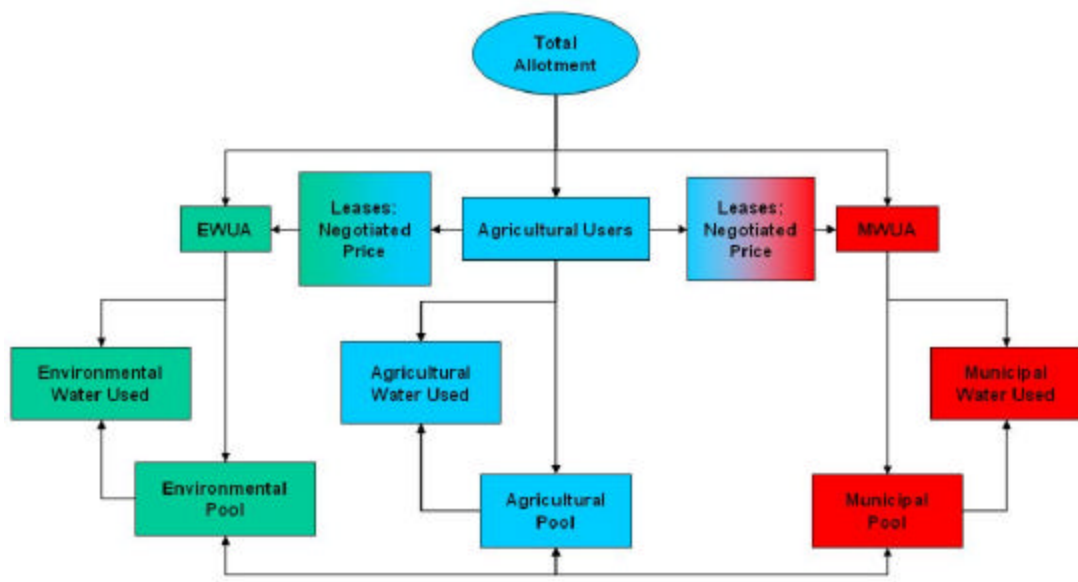
The other agencies involved in water regulation and management will obviously have to be addressed. Parallel negotiations to develop the institutional means to acquire, manage water for restoration with the state regulatory agencies (New Mexico Office of the State Engineer), and federal agencies involved in river management and administration of water compacts and contracts (U.S. Bureau of Reclamation, the International Boundary and Water Commission, Fish and Wildlife Service, Army Corps of Engineers) should be undertaken when negotiation with the irrigation districts is making progress.

While the development of the institutional infrastructure for restoration will not in itself immediately put water to use in restoration projects, it is the most important step in the long-term restoration of the river. Irrigators, regulators, and water managers are accustomed and required by statute to follow a uniform set of rules for the allocation and management of water that ensures equity in distribution and protection of individual property rights. Any collaborative restoration effort will have to maintain these qualities. Other projects may certainly be attempted in parallel, but until the institutional arrangements are made to allow water to be put to use for river restoration, the projects will be highly contentious and limited in scope.

Estimating the cost for developing the institutional framework for applying water to river restoration is very difficult. Legal costs will likely be the largest component of such an effort, and technical evaluation will also be necessary. As the districts are all rather fully committed to fighting legal battles on multiple fronts (including with each other), a grant to help them defray the legal and technical costs of negotiation would certainly make them more receptive to an institutional framework proposal. A pilot project could probably be launched for as little as \$10,000, but it is not unreasonable that total costs of such a negotiation could run up to \$100,000 or more, if issues are difficult to resolve. In any case, it is a necessary investment.

Returning to the example of EBID and the City of Las Cruces, that negotiation process and resulting policy on Special Water Users Associations (SWUA) can provide a model for the development of a policy on Environmental Water Users Associations (EWUA), to coin an acronym. In fact, the EWUA could be classified as a specific type of SWUA. While there are many issues to address, a starting point for negotiations between irrigators and environmentalists could be a policy mirroring that for SWUAs. Allowing EWUAs to acquire water through purchase, lease, or from transfer through an environmental pool would provide access to surface water for restoration activities through the market or by donation. A first cut at an organizational structure is presented below in Figure 1. Presumably, many of the same restrictions on water use and service area discussed for SWUAs would apply to EWUAs.





**Figure 1: Potential structure for Environmental Water Users Association within EBID.**

Several issues come to mind that would have to be addressed in negotiations and with legislation. For example:

1. The EWUA does not have a defined service area, so the location of leased water rights would have to be addressed.
2. Some sort of definitive statement that river restoration is a beneficial use of water would need to be made by the participating District and probably the appropriate state if the EWUA is to receive water or water rights.
3. Much of the land that would be preferred for restoration activities is not suitable for water use under current agricultural criteria. Some modified criteria for environmental water would have to be developed.

Once the institutional details are worked out, many projects are possible for obtaining water for river restoration.

### **PURCHASE OF WATER RIGHTS**

If an EWUA has the financial resources and the institutional framework has been implemented to facilitate it, outright purchase of water rights is the simplest and most flexible method of obtaining water rights. Most irrigators are strong proponents of private property rights, including water. Purchase of the water right for restoration with a willing buyer and a willing seller is likely the most acceptable method to irrigators for acquisition of water.

As the institutional framework now stands, land would have to be purchased or already owned by an environmental group or its members if they are to purchase water rights. The going price of water righted land varies widely, depending on parcel size, parcel location, quality of land for agriculture, existing permanent crops and other improvements, zoning, and general trends in the

real estate market. Currently in EBID, water righted agricultural land in parcels of a few dozen acres or larger sells for \$4,000-\$5,000 per acre in the northern Rincon Valley near Arrey and Garfield, \$5,500-\$6,000 per acre in the vicinity of Hatch and Rincon, over \$10,000 per acre in the Las Cruces area, \$6,000 per acre south of La Mesa, and about \$8,000 in the Anthony, New Mexico area. Parcel size is a major factor as well, with a 5 acre lot in Mesilla Park selling for \$25,000 per acre.

The drawback, of course, is the price. While McGuckin (2001) suggested an average return of \$45.45 per AF delivered to an EBID farm, one must consider the opportunity cost to a water rights holder. Growing competition for water, particularly due to the rapid urban growth in the area, has made the price of water rights escalate rapidly. In EBID, the City of Las Cruces is acquiring rights for water on a 40-year lease basis that amounts to an outright purchase for the water right. The City pays \$1,000 per acre for small tract (flat rate, less than two acres) water rights, which would be \$333/AF in a full allocation of three feet. They pay a sliding scale for farm rate water rights, going from \$607 per AF for a two acre parcel to \$1,000 per AF for a parcel that is 20 acres or larger. They assume a 3 acre-foot allotment in calculating the total price, so a two acre parcel would receive \$1,821 per acre, and twenty acres or larger would receive \$3,000 per acre. Note that the price of water approaches the lower end of land prices in EBID. Values between two and 20 acres are linearly interpolated. Of course, if the allocation is short due to drought, the City's allocation will be reduced in the same proportion as the farmers'. Since Las Cruces has no surface water treatment capacity on line yet, they have not used any of the water.

The lease amounts to a purchase because at the term of the lease, the City has the option to extend the lease or purchase the water right for no additional compensation. Basically, the water rights are controlled by the City until the City can work out the details of land to which the rights are appurtenant, because the City is not buying the land from which the water rights come.

The City of Las Cruces also purchased water righted land, and maintains the rights appurtenant to those lands. The infamous Kmart parking lot in downtown Las Cruces is an example of water righted land whose water has been going to the Conservation Pool for many years, and will continue to do so until Las Cruces has surface water treatment capability. The City of Las Cruces' preference would be to lease water as described above, so that they do not have to pay for land as well. The problem is that currently, the only way to own District water rights is to have land to which the rights are appurtenant.

## **LEASES OF WATER**

Leases offer much the same advantages as purchase. They are a contractual agreement between a willing lessor and a willing lessee to convey the use of property. Long term leases are a multiple year lease, as opposed to an annual transfer of water. As stated previously, the City of Las Cruces has a long term lease program building water rights for the time when their surface water treatment plants go online, but in this case it really amounts to a sale.

In 1999, EPCWID commissioned a study of water prices in the western United States by Business Valuation Services. Adjusting various complicated contract terms and details for sales and leases to common dollars per acre-foot per year that study showed the following transactions:

To	From	\$/AF/yr	Purpose	Quantity	Year	Lease/ Buy	Term, yr
City of Westminster (CO)	Irrigator	\$1,026.67	Municipal	22.5	1997	Buy	
Residential Developer (UT)	Irrigators	\$480.00	M&I	15	1999	Buy	
Town of Taos (NM)	Irrigators	\$382.00	Municipal	98	1997	Buy	
San Diego County Water Authority (CA)	Imperial Irrigation Dist.	\$249.00	M&I, Ag	130000	1997/98	Transfer	45
Santa Fe County Utility (NM)	4 individuals	\$244.90	M&I	588	1997/98	Buy	
City of Fort Collins (CO)	3 irrigators	\$165.82	Municipal	30.25	1997/98	Buy	
City of Boulder (CO)	Irrigator	\$140.00	M&I	25.5	1998	Buy	
City of Boulder (CO)	2 irrigators	\$114.71	Municipal	39.44	1997/98	Buy	
Lower Colorado River Authority	Garwood Irrigation Co.	\$89.11	M&I	101000	1998	Buy	
City of Brownsville (TX)	Brownsville Irrigation Dist.	\$85.20	Municipal	1152	1998	Buy	
North Alamo Water Supply Corp. (TX)	Hidalgo County Irrigation Dist.	\$76.80	Municipal	68	1997/98	Buy	
Bexar Municipal Water District (TX)	BMACWCID	\$56.00	Municipal	6000	1997	Lease	20
Sacramento County Water Agency (CA)	Browns Valley Irrigation Dist.	\$50.00	Municipal	4000	1997	Lease	1
Sacramento County Water Agency (CA)	Browns Valley Irrigation Dist.	\$50.00	M&I	3000	1999	Lease	1
Martindale Water Supply Corp. (TX)	Green Valley Farms	\$45.00	M&I	396	1999	Lease	5
Sandy City (UT)	Irrigators	\$34.73	M&I	492.66	1999	Buy	
San Antonio (TX)	Irrigators	\$34.00	Municipal	550	1999	Buy	
San Antonio Water System (TX)	Irrigators	\$30.00	M&I	2219.8	1999	Lease	5
San Antonio (TX)	Irrigators	\$25.00	Municipal	588	1999	Lease	3
San Antonio Water System (TX)	Irrigators	\$25.00	M&I	1126	1999	Lease	3

**Table 1: Water prices in the Western United States, from Business Valuation Services, 1999.**

### **PASSIVE USE OF WATER FOR RESTORATION**

One major consideration in planning restoration activities is that not all restoration needs to have water allocated to it. If a restoration project can be implemented without impairing other water rights, most farmers would not object. Of course, it would have to be demonstrated that the quantity, timing, and quality of water deliveries are not impaired, and developing acceptable methods based on the best available science would be a valuable contribution to the field of river restoration.

This passive use of water, in which water need not even be allocated or diverted, could occur in the river channel as improvements are made along its course. Various forms of this approach are being analyzed in an EIS process being conducted under the supervision of the IBWC for restoration of varying degrees in the canalized sections of the river. The alternatives are not being well received by the irrigators, at least in EBID, because the alternatives other than no action will increase riparian depletions along the river, and there is no way for the IBWC to offset these depletions other than taking it from the Project water supply. This appears to many farmers in the Project to be a government taking of their water right. Unfortunately from a river restoration perspective, the river has been engineered and manicured for many decades to minimize riparian evapotranspiration, maximize flood conveyance capacity to protect property, and convey water as efficiently as possible to the diversion points of the Rio Grande Project. The river is maintained in an incised, relatively straight channel, and the overbank between the flood control levies is kept mowed except for a bank stabilizing fringe of native and exotic trees at the edge of the main channel. Any significant attempt to restore the river to a more natural stream will result in increased depletions, so before any such project is attempted, some way of addressing the institutional issues discussed in previous sections of this chapter and offsetting depletions with acquired or conserved water will be necessary if farmer cooperation or approval is expected.

On the other hand, the drain system of EBID represents an opportunity for creation of riparian habitat. The drains represent about four times the length of the river in the study area. They are generally more heavily vegetated than the river. The flow velocities are much lower than in the river channel, and their flow tends to continue through the non-irrigation season. Since the drains already are fairly heavily vegetated, largely by the high consumptive use exotic species salt cedar, riparian restoration projects could be implemented in the drains without increasing the depletion to the system. The drainage system of EBID is in many respects the most viable riparian habitat in the study area.

This approach is the basis for a collaborative project among EBID, the City of Las Cruces, and the Southwest Environment Center (SWEC). Using a parcel of land owned by the New Mexico Game and Fish Department, the cooperating organizations are developing a Bosque Park at the confluence of the Picacho Drain and the Rio Grande. The site has large stands of heavy salt cedar that are to be removed and replaced with a more open canopy of native vegetation species. Work by Bawazir (2000) at the Bosque del Apache indicates that the difference in evapotranspiration between a dense salt cedar stand and a restored cottonwood stand with less dense canopy was more than one foot. The reduction in evapotranspiration due to the change in vegetation at the Bosque Park allows restoration of native vegetation and even some open water and wetlands without increasing net depletion. EBID agreed to this particular project as a pilot to explore the possibility of restoration within existing frameworks.

There are drawbacks to restoration in the drains. In times of drought the drains may dry out for months or even a year at a time. This could cause the loss of plant materials and habitat. One possible solution would be to hold some water rights, either by ownership, donation, or lease that could be applied to the drain to keep it alive in times of drought. Basically, this amounts to irrigating the drain when the water table drops below the drain invert.

While the rights-of-ways are narrow enough to present some restoration problems (typically 75 to 100 feet, including maintenance roads), they also present an opportunity for farmer collaboration. Much of the extensive length of drains is adjacent to private farm land. The width of the drains as

riparian habitat could be widened, at least in sections, by implementing a conservation easement program. Under such a program, either incentive based or purely voluntary, farmers could set aside frontage along drains to provide extra width to the riparian zone. Environmental groups could assist in planning and construction of restoration corridors along the drains and conservation rights-of-way, and farmers would receive the benefit of the improved habitat literally right in their own back yards.

The depletion within the drain right-of-way could generally be maintained as unchanged, and the conservation right of way would already be water righted. The cost to the farmer would be the loss of potentially productive farm land, and so some sort of an incentive program would likely be necessary. A logical place to start on this concept would be to do a comprehensive survey of irrigated land owners along the drains to see what the level of interest would be in such a program, what the spatial distribution of interest along the drains would be, and what sort of incentives would be necessary to motivate irrigators to participate. EBID and EPCWID have geographical information systems that could perform a spatial query to identify all land owners along suitable drains who could then be surveyed. Agreements with the districts would also need to be negotiated to allow restoration in the drain rights-of-ways while maintaining the function and maintenance access to the drains.

The feasibility of restoring habitat in the drains would have to be carefully evaluated and planned. In the agricultural areas, the depth of the water surface below the surrounding land generally runs from about six feet to as much as ten feet. Generally the drains need to be as deep as they are to avoid elevated groundwater in local agricultural lands. The interaction of riparian vegetation with the groundwater table is a critical element of restoration planning, so depth to groundwater in the drainage and conservation rights-of-ways would also have to be evaluated.

## **SUMMARY**

Much of the information in this letter will be included in the final Plan. We agree that this aspect of the Plan was weak and the Committee has directed the consultant to include not only this information but a strong recommendation to update and increase the environmental section of the Plan in future revisions. However, additional research is needed so that by the time the next update occurs (within 5 years) many of the questions will be answered and the additional data will be available.

Your comments letter and this response will be included in the Appendix of the final version of the Plan. We greatly appreciate your time and comments.

Sincerely,

Karl Wood, Chairman  
Lower Rio Grande Water User Organization

## MEMO

TO: Mary Wells, Senior Engineer  
Terracon

FROM: Beth Bardwell, Program Officer  
World Wildlife Fund

RE: Comments to Draft Lower Rio Grande Regional Water Plan

DATE: September 30, 2003

Thank you for the opportunity to submit comments on the Draft Lower Rio Grande Regional Water Plan. World Wildlife Funds' comments follow:

1. Phil King's and Julie Maitland's report "Water for River Restoration: Potential for Collaboration between Agricultural and Environmental Water Users in the Rio Grande Project Area" was published by World Wildlife, Chihuahuan Desert Program, Las Cruces, New Mexico. The final report is available in pdf at the following URL:

<http://cagesun.nmsu.edu/~jpkking/wwf/reportdownload.htm>

2. With respect to Sec. 6.1.1.4 Stream Flow and Sources of Stream Flows, please consider undertaking further research to estimate and/or verify the data included in Table 6.12 Summary of Water Use in Dona Ana County for fish and wildlife and evaporation. These numbers seem exceptionally deflated. Unfortunately, we do not have the technical expertise in-house to estimate these figures for the Plan. We do think that estimates of current and future anticipated environmental use are important and should be included in a plan of this nature. If the plan cannot accurately estimate environmental use, the plan should explicitly set forth a disclaimer and acknowledgement of the omission of this information.

3. With respect to Sec. 7.0 Water Demands, please consider making the following additions:

- a. Here again, our concern is that the Plan omits any reference or estimate of environmental demands on both surface and groundwater sources. The Regional Water Plan should address this critical class of water use.

4. With respect to Sec. 8.2.1, Water Management Alternatives, please consider including the following alternatives:

- a. Sec. 8.2.1.5--Agricultural Water Conservation: Pages 108 to 126 of King's report summarizes available water conservation tools. Omissions

in your report include farm delivery metering (see p. 108), high flow turnouts (p. 116), production of low-water use crops (p. 118), on-farm cultural practices (p.119), and system-level conservation tools beginning on page 120. If you would like to include the text from the report verbatim, WWF would authorize it as long as the WWF report is identified as the source.

- b. Please consider including a section on water pricing as an effective conservation tool. There is extensive research to date on this issue both by Professor T. McGuckin of NMSU but also Professor J.A. Chermak at UNM. WWF is developing legislation for introduction in the 2004 NM legislative session to assess a user fee on water use statewide which revenues would be dedicated to water conservation and state acquisition from voluntary sellers of water rights for public use and benefit. If you would like more information on this proposed legislation, please contact me.

5. With respect to Sec. 8.2.2 Water Development Alternatives, please consider including the following changes/additions:

- a. Sec. 8.2.2.1—Watershed Management: WWF supports phreatophyte removal with appropriate safeguards for the surrounding native terrestrial and aquatic plant and animal communities. Because the riparian corridor provides critical habitat for plants and animals and successful phreatophyte control and management will necessitate revegetation, we feel it is important to specify in this alternative that revegetation will occur with key native riparian plant communities. For descriptions of key native riparian plant communities in the lower Rio Grande, we refer you to Appendix C of the “Hope for a Living River: A Framework for a Restoration Vision for the Rio Grande” available from World Wildlife Fund or on the web at <http://www.rioweb.org/>.
- b. Sec. 8.2.2.6—Leasing of Agricultural Water Use: Please expand this section to include the concept of leasing agricultural water to the environment. Although this concept has not been authorized, to date, by E.B.I.D., we believe the concept is a sound one and that it should be included in the plan as a possible alternative for securing water for the environment. This concept is laid out in King’s report beginning at page 96 of the report. If you would like to include the text from the report verbatim, WWF would authorize it as long as the WWF report is identified as the source.

6. With respect to Sec. 8.4 Evaluation of Water Supply Plan Alternatives, please consider making the following additions:

- a. The evaluation and recommendation of water supply alternatives for the Mesilla-Rincon area does not include agricultural water conservation. Is there a reason why this source was omitted?
- b. The evaluation and recommendation of water supply alternatives should include water pricing.

- c. The evaluation and recommendation of water supply alternatives should include environmental options such as the environmental water users bank referenced above.



November 28, 2003



Ms. Beth Bardwell  
Program Officer  
World Wildlife Fund

**Re: Memo from World Wildlife Fund  
Dated September 30, 2003  
Comments to Draft Lower Rio Grande Regional Water Plan  
Terracon Project No. 68997620**

Dear Ms. Bardwell:

Thank you for your comments on the draft version of the New Mexico Lower Rio Grande Regional Water Plan (Plan). The Lower Rio Grande Water Users Organization has thoroughly reviewed, discussed and researched your questions and comments. Their responses are addressed in the following table. In response to your comments, we have incorporated the information from the document that you referenced in your letter and other information that is currently available into the Plan. It is the recommendation of the LRGWUO that future revisions of the Plan be strengthened with regard to the considerations for the environment.

<b>WORLD WILDLIFE FUND MEMO</b>		
<b>Dated September 30, 2003</b>		
<b>Comment No.</b>	<b>Comment(s)</b>	<b>Response</b>
1	Provided reference to a report prepared for river restoration publish by World Wildlife (this was in response to a verbal comment made during the Public meeting held on August 28, 2003 in Las Cruces.	This reference also addresses SWEC comment No. 4.
2	Numbers in Table 6.12 seem deflated for wildlife and evaporation.	Agree modified Table 6.12 (moved to Chapter 7 and re-labeled as Table 7.13). However, this table does not include a demand for the environment since it does not constitute an appropriation of a water right. Environmental demand for riparian vegetation evapotranspiration between Caballo and the state line is estimated to be 25,000 to 90,000 for a full supply year, when the river runs all irrigation season. The table also does not include evaporation since that is defined by ISC as evaporation amounts for reservoirs that store greater than 5,000 acre-feet of water. There are no reservoirs of that size within the Planning

Arizona ■ Arkansas ■ California ■ Colorado ■ Georgia ■ Idaho ■ Illinois ■ Iowa ■ Kansas ■ Kentucky ■ Minnesota ■ Missouri  
Montana ■ Nebraska ■ Nevada ■ New Mexico ■ Oklahoma ■ Tennessee ■ Texas ■ Utah ■ Wisconsin ■ Wyoming

WORLD WILDLIFE FUND MEMO		
Dated September 30, 2003		
Comment No.	Comment(s)	Response
		Region.
3	Please consider providing an estimate of environmental demands.	Agree included.
4 a	Add Agricultural Water Conservation to Section 8.2.1.5.	Agree included.
4 b	Add Water Pricing to Section 8.2.1.5.	Discussion added.
5 a	Add suggested language to Section 8.2.2.1	Agree included.
5 b	Expand section 8.2.2.6 to include leasing agricultural water to the environment.	Agree included.
6 a, b, c	Section 8.4 of the Evaluation of Water Supply Plan Alternatives	Discussion added.

If you have any questions or additional comments, please call me at 505.527.1700.

Sincerely,  
**TERRACON**



Mary E. Wells, P.E.  
Las Cruces Manager

# MEMORANDUM

## **New Mexico Office of the State Engineer** *Water Use and Conservation Bureau*

Date: September 9, 2003

To: Maryhelen Follingstad, ISC

From: Brian C. Wilson, Chief, Water Use and Conservation Bureau

Subject: Review of the draft Lower Rio Grande Regional Water Plan dated July 24, 2003.

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Overall this is a well crafted report and a great improvement over earlier attempts to prepare a planning document for the region. The most important feature of this document is the comparative analysis of projected water demands with the available water supplies, and the specification of the approximate year when groundwater supplies and demand will no longer be in balance. This is ultimately what regional water plans need to do, but only a few of the regional water planning units have been successful in accomplishing this.

I have but three suggestions to improve upon this document.

First, the conclusions described in Sections 8.1.1.1 through 8.1.1.3 should be included in the Executive Summary. The background behind these statements should also be described in more detail in the Executive Summary and the statements could use some tweaking. The language used should be consistent to avoid confusing readers. For example in one statement reference is made to “growth in demand for groundwater” in another the term “additional withdrawals” is used, and yet in another, “future water demands.” This left me wondering whether or not we were comparing apples with apples or apples with oranges. The statements I am referring to are listed below.

“The growth in demand for groundwater from the Mesilla-Rincon basins can only be met until the year 2010. After 2010, impacts to the Rio Grande will occur.”

“Results of hydrologic modeling efforts indicate that the additional [groundwater] withdrawals planned in the Jornada Basin can be satisfied with limited/minimal impacts through approximately the year 2020. “

“Future water demands in the Hueco Bolson can be satisfied without treatment only through approximately the year 2012. After that, the local groundwater in the Chaparral area will have levels of TDS greater than 1,000 mg/l.”

My second suggestion would be to document the above such that readers know which population projection scenario these conclusions are based upon. Are they based on the high, medium, or low? I would expect that the year that the imbalance in supply and demand occurs may vary depending upon the population scenario. It would be helpful to make the comparison for each population scenario and summarize this in a table that should be included in the Executive Summary. This is one of the most important points that needs to be conveyed to readers of the report and it should be presented in such a way that it will capture their attention.

My third suggestion is to annotate Tables 7.5-7.13 to indicate the year the data represents. In their present form, these tables leave readers scratching their head trying to figure this out.

C:\wtrplans\eval\reg11-1.doc

# MEMORANDUM

## New Mexico Interstate Stream Commission

Date: September 11, 2003

To: Maryhelen Follingstad, ISC

From: Nabil Shafike

Subject: Review of the draft Lower Rio Grande Regional Water Plan dated July 24, 2003.

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Page and I reviewed the SW/GW supply, water demand, and Alternatives sections in the Lower Rio Grande Water Plan. Over all the SW/GW supply section is adequate and relatively well documented compared to the previous document. Specific comments are:

- Section 6.1.1.4.4, add summary of flow statistics of the listed gages.
- Section 6.1.1.4.5, add an estimate of ungaged tributaries inflow.
- Section 6.1.1.4.1 add a detailed analysis with figures and tables about the variability of the supply of the Rio Grande project.
- Section 6.1.2 Groundwater Supply: this section discusses 4 groundwater basins: Jornada del Muerto, Mesilla, Hueco, Rincon Valley. My only comment is that the map that is referenced to illustrate these groundwater basins (figure 6.14) does not actually show groundwater basins. It is a surface water map of watersheds. While the groundwater basins somewhat coincide with the watersheds, they don't exactly overlap. The watershed map (fig 6.14) also gives different names to the surface water basins so that there is no way to tell which groundwater basin is where on the map. I suggest that either they explain in the text how the watershed boundaries differ from the structural groundwater basin boundaries or they provide another map of groundwater basins. Maps of the groundwater basin boundaries can be found in the introduction to Keller and Cather (1994) Basins of the Rio Grande Rift; Structure, Stratigraphy and Tectonic Setting, and Wilkins (1998) Summary of the Southwest Alluvial Basins Regional Aquifer-System Analysis in Parts of Colorado, New Mexico and Texas
- Figures 6.10, 6.16 thru 6.22 are missing from this copy of the report.
- Section 7.1.1.3 RG project is not obligated to provide water to Hudspeth county, they can only use project return flow.

- Table 7.13 please revise irrigated agriculture.
- Table 7.23 irrigation diversion of 6af/a is a low estimate; currently EBIS divert about 8 af/a.
- Table 8.4 add column to the table describing how each of these alternative will impact the region supply and also add a cost benefit analysis.
- Section 8.3 drought contingency plan, there is no plan provided.

**MEMORANDUM**  
**Office of the State Engineer**  
*Hydrology Bureau*

DATE: September 12, 2003

TO: Mary Helen Follingstad, ISC

FROM: Tom Morrison and Mike Johnson, Hydrology Bureau *MA JK*

CC: Estevan Lopez, Interstate Stream Engineer

SUBJECT: Review of Draft Lower Rio Grande Regional Water Plan (dated 07/24/03).

As requested, we have reviewed the subject document and offer the comments below. While the draft plan contains a good compilation of available information, we suggest additional efforts be performed to meet the objectives of the Regional Water Planning Handbook (Handbook).

**General Comments**

The Handbook indicates that the heart of the planning exercise is to identify what measures the region should undertake to meet demand with supply. The alternatives in the draft plan seem incomplete, and for the alternatives identified, the plan does not quantify the potential water supply that may be achieved. Accordingly, the plan does not address the important question of how the region will balance supply and demand. As an example, although the plan acknowledges a shortage in surface water to meet existing demands, no substantive plan is presented to increase supplies.

All of the water development alternatives for every basin in the region are ranked as having high feasibilities and low impacts, making the ranking not very useful for prioritizing these alternatives. No criteria or justification for these rankings is provided. Since the impact these alternatives will have upon water supply and demand has not been included in the plan, no focus is provided on the measures that will have the highest impact with respect to meeting future water demands.

The draft plan seems incomplete in the following areas:

1.  The plan does not fully address future supply uncertainties resulting from the fact that New Mexico, Texas and Mexico all share the Rio Grande and the Mesilla and Hueco Basin aquifers. For example, potential impacts of pumping just outside the region within the Mesilla Basin to meet external demands, such as at the City of El Paso's Canutillo well field and potential wells just across the border in Mexico, do not appear to have been considered.

*Phil/Steve*

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9/12/2003

2. Conflict resolution will be critical to this region and the authors may wish to consider attention to this topic.

3. Phil. The draft plan states that junior groundwater users will need to obtain "offset water" but the options for achieving this deserve more discussion, particularly the options for those water users which are not Special Water Users Associations.

4. Steve. The discussion on the legal issues needing resolution should be amplified and expanded to include other issues.

5. Steve. The Regional Water Planning Template suggests plans contain a discussion of the water supply considering legal limitations; the draft plan is lacking in this area.

6. Steve Phil. The role of OSE and how state water administration will fit into the future of the region is not discussed adequately in the plan, and no recommendations for specific OSE actions are made. Basic information, such as the boundaries of the declared basins, has not been provided. It does not appear that a discussion was provided concerning the use and limitations associated with supplemental wells.

7. More consideration should be given to the impacts of changing farm operations to improve irrigation efficiencies and water quality. EBID

8. The draft plan does not contain a drought contingency plan nor does it evaluate plans that have already been developed by a few entities. - Include other plan in Appendix?

9. Chapters? OSE. The need for improved water measurement in the region is not discussed. OSE has suggested ... EBID is cont. to improve the best measuring system ... but they have

The draft document contains a good compilation of information related to the water resources of the Lower Rio Grande region. However, the organization is somewhat confusing; for example some figures occur within the text while most are gathered together at the end of the document. Also, many tables are unnecessarily separated onto two or more different pages (see Table 7.2). Some tables and several figures were missing from the copy reviewed; these are specifically noted below. A map of the Rio Grande Project would be a useful addition to the figures in the final document. Finally, the text contains numerous typographical and syntax errors, which are not commented on separately in recognition that this is a draft document.

Comments on specific topics follow.

Specific Comments

1. Executive Summary (pages 3-5): Statements are made for each of the four basins indicating the quantity of groundwater that is "available for pumping" or the amount of "recoverable groundwater in storage". These estimates exceed 60

W...  
New word



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million acre-feet for the region and may be misleading, as they may not take into account institutional, land ownership, engineering, and economical constraints. While the authors do consider engineering and economic factors for some areas in the body of the report, the water supply quantifications should be qualified to acknowledge the other factors that may limit supply. For this region, the legal limitations on water use overshadow physical water availability.

Mary  
Tr add

2. Executive Summary (page 8-12): This section is entitled "Current Water Use and Project Water Demand" but does not contain estimates of the total current use and projected demand.

WREI?  
to definition

3. Executive Summary: No discussion is provided concerning the ability of supply to meet demand. The table of contents should include the Definitions and Executive Summary sections. XVI

TI

4. Sections 4.1.2 and 4.1.3 (pages 10-11): "Bullock and Neher (1980)" is cited as the source for much of the information in these sections, but the full citation is not included in the "References Cited" section at the end of the report.

EBID  
Steve

L

5. Section 5.5 (page 23): This section is titled "Water Rights Administration Policies Specific to the Region", but the sub-sections that follow discuss water quality laws and regulations, not water rights administration policies. Nowhere in the section are the policies and procedures of the OSE mentioned. Specifically, the OSE criteria and guidelines for administration of water rights in the Mesilla Valley Administrative Area, discussed in a subsequent section, should be included in this section per the planning template in the Handbook. No discussion is provided on supplemental wells. State water law and OSE administration practices place limitations on the drilling and use of wells.

TI  
Oyler  
& fix

6. Section 5.5.1.4.2 (page 27): In reference to groundwater pollution problems, the NASA-White Sands Test Facility is described as being located "on the eastside of the Organ Mountains", which is incorrect. The NASA-WSTF site and associated groundwater pollution plume are located west of the San Andres Mountains in the Jornada del Muerto basin.

Steve

7. Section 5.7 (page 33): The section on Legal Issues Needing Resolution is incomplete.

TI

8. Section 6.1.1.2 (page 39): Figure 6.10 is missing from the copy reviewed. added

TI

9. Section 6.1.1.4.4 (page 44): It is stated here that gage locations are provided in Table 6.9 and Figure 6.12. Figure 6.12 does not provide the locations for all the gages. It would be useful to provide a figure showing the irrigation and stream system at a readable scale to locate specific canals, drains, and gages.

EBID

foot

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10. Section 6.1.2 (page 57): The locations of the four groundwater basins are said to be shown in Figure 6.14. Figure 6.14 does not show the location of Rincon Valley. The Hueco Basin is not mentioned on Figure 6.14. It is recommended that the figure be revised to show the OSE administrative boundaries.

11. Table 6.12 (page 55-56): More recent data for the years 1999-2000 are available (Wilson and others, 2003), and should be included in the table and text discussion.

12. Sections 6.1.2.1 and 6.1.2.2 (pages 58-70): Figures 6.16 through 6.22 were missing from the copy reviewed.

13. Figure 6.27: The contours in the southern portion of the figure are illegible.

move to Mesilla Basin

Roger may have not done in org. lot.

14. Section 6.1.2.4.4 (page 79): The figure referenced as illustrating mountain front recharge in the Rincon Basin (Figure 6.42), does not include the Rincon Basin. A modified version of Figure 4.8 from Weeden and Maddock (1999), which shows Rincon Basin recharge locations but not amounts, might be considered.

moved to Mesilla Basin section

include address

15. Section 6.1.2.5.1 (page 81): Regardless of methodology, estimates of recoverable groundwater should also take into account the potential for pumping to induce saline water intrusion, affecting the freshwater supply and economics of recovery. The institutional constraints question the extent to which the "recoverable" supplies may be obtained.

if too much is pumping

Future studies will need to be performed to assess the impacts of where it goes pumping on salt

to

16. Section 6.4.6.4.4 (page 107): This section appears to be out of place.

moved to surface water quality

add sentence

17. Section 7.1 (page 108): It should be stated that the NMOSE guidelines for other basins in the region besides the Mesilla Basin (for example the Jornada Basin) that are mentioned in this section are informal in that they have not been through a public comment process, and have not been formally adopted by the State Engineer.

agree added

use wording & like env.

to

18. Section 7.1.1.7 (page 119): Flows from the Del Rio and East Drains return to the Rio Grande above El Paso, not below as stated in no. 4. Agree - change

to

19. Section 7.1.2.1 (page 125): The 40 wells in the Hueco Basin listed in the referenced report (Johnson, 2000; page 4 and table 1) are not presented in that report as all the wells in the Hueco Basin. Some 120 wells are included in the listing of Hueco Basin water rights in Appendix B and the model well file in Appendix C of that report, which is a closer estimate to the total number of wells in the basin. The WATERS database lists some 190 wells total in the Hueco Basin. The WATERS listing represents all water rights permits and applications, and therefore may include wells that have not yet been drilled.

agree incorporated in total

Jorge Dan - CLC

Mohen - Sunland Park Hatch Marino

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this section would be useful to identify those entities that are nearing the limits of their permits. Elsewhere in the plan the authors may wish to estimate the point in time when demands for the major public suppliers will exceed their permitted water rights.

- TT 21. Table 7.5 (pages 126-130): There are several anomalous per capita usage rates in this table that should be explained. For example, Santa Teresa has the highest per capita usage in the region at 1,112 gallons per capita per day (gpcd). Other examples are Picacho Hills (846 gpcd) and the White Sands Missile Range (797 gpcd), only the last of which is mentioned in the text. *There include \*Foot note includes golf course use golf course*
- No. Comm. 22. Table 7.9 (page 136): The source of the data in this table appears to be Wilson and Lucero (1997), and should be specifically cited. Again, more recent data are available (Wilson and others, 2003) and probably should be used here.
- TT 23. Table 7.13 (page 138): Several of the entries in this summary water use table are misplaced. Diversions listed for livestock are actually for commercial, the commercial diversion numbers are for irrigated agriculture, and the irrigation amounts should actually be reported for livestock.
- F 24. Section 7.2.2.9 (page 138): No figures beyond Figure 6.58 were provided in the copy reviewed. *All figure 6.58 to T.O.C. N/A Revised T-O-C however Figure 52 is missing*
- TT 25. Section 7.2.3.1.3 (page 139): This discussion of per capita water withdrawal rates would be a good place to explain the anomalously high rates for Picacho Hills and Santa Teresa, as mentioned above, which are likely attributable to irrigation of golf courses in these communities. *State this agree-added*
- TT 26. Table 7.15 (pages 142-143): Along with the census tract number this table should include a brief location description so that the tracts can be put in geographic context. *Agree Footnoted table & referred to figure ~~Figure 7.1~~ ~~Table 7.1~~ ~~Table 7.1~~ updated T-O-C.*
- 27. Table 7.16 (page 143): The population figure for the year 2000 reported in this table (189,436) does not match the figure reported for Doña Ana County in the text on page 141 (174,682). Presumably the value in the table is for the larger region, which includes areas outside of Doña Ana County. If so this should be stated. *agree-changed Region*
- Agree Committee 28. Section 7.3.2.3 (page 145): The assumption that current per capita public water supply use rates will continue into the future is a good one for a conservative analysis. However, the reduction with time in the use rate postulated in this section will probably only occur in larger systems serving urban areas such as the City of Las Cruces. It is unlikely that use rates in those smaller, rural systems with already low rates ( $\leq 100$  gpcd) will go any lower, and quite possible that they may increase. Given however that these systems constitute a relatively small

Agree Committee  
to add

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proportion of the total usage public water supply in the region, this may not be an important factor in making demand projections.

TT (29) Table 7.2.8 (page 147): The table was missing from the copy reviewed. *Should 7.24 agree - text should read Table 7.24 not 7.2.8 - changed*

TT 30. Tables 8.1, 8.2 and 8.3 (pages 151-153): It should be stated which scenario (medium, high or low) was used to derive the public water supply demand projections for each basin listed in these tables. *check book (medium) added no.*

E-mail to Gary  
31. Section 8.1.1.1 (page 152): The statement that "the groundwater supplies for the Mesilla-Rincon Basin are currently near equilibrium conditions" is unclear and should be reworded. The statement that the demand for groundwater in the Mesilla-Rincon basins can only be met until the year 2010 needs explanation. It is stated that the growth in demand beyond 2010 will be met by use of groundwater from the Jornada Basin. However, on page 153 it is stated that additional withdrawals planned in the Jornada can be satisfied with minimal impacts through approximately the year 2020. It is unclear if the Jornada can sustain required demand after 2020. *check Chapter 6 - e-mail to Kathy*

WRP 32. Section 8.1.1.2 (page 152): Irrigation water use in the Jornada Basin is not mentioned. There is a small amount of irrigated land in the Jornada Basin.

W/ Kathy  
TT 33. Section 8.2.1.3 (page 155): Conversion of rural users in areas where no return to the aquifer from septic occurs, such as the Jornada Basin, from septic to regional wastewater treatment systems may be another option for supplementing regional supply that should be considered. The treated wastewater could potentially be reused, discharged to the Rio Grande to offset pumping effects, or used for aquifer storage and recovery. *reference East mesa*

TT 34. Section 8.2.1.5 (page 158): The reference to conveyance losses between the river diversion and the farm headgate states that water seeps "into" the canals and laterals. Because the canals and laterals tend to be situated above the water table, water seepage is generally *from* these features, not into them.

35. Section 8.2.2.4 (page 159): The last paragraph in this section discussing the aquifer storage and recovery (ASR) rules mentions some requirements for evaluating projects. Non-impairment to existing water rights and the state's interstate stream obligations are not discussed, but are very important considerations in the evaluation of proposed ASR projects that should also be mentioned.

36. Section 8.2.2.8 (page 163): What would the impounded storm run-off be used for? Potential uses and constraints should be discussed. To realize some benefit from this source, conveyance systems may be necessary. For example, if the water were contemplated to augment public water supply, the water would have to be transported from the impoundments to a water treatment plant. *east mesa?*  
Bobby write  
Gary City Comm.

To: M. H. Follingstad  
Re: Draft LRG Regional Water Plan  
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Eddie  
Not viable  
option  
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37. Section 8.2.2.9 (page 163): Use of the term "Gila River Central Arizona Project" is unclear. The 18,000 acre-feet referred to is not technically Central Arizona Project (CAP) water and should not be referred to as such. The Colorado River Basin Project Act of 1968, which authorized the CAP, allows for the consumptive use of an annual average of 18,000 acre-feet of Gila River water in any period of ten consecutive years by New Mexico users, beyond the consumptive uses provided for in Article IV of the 1964 Supreme Court decree in *Arizona v. California*. Development of this supply for New Mexico would be accomplished through contract with the Secretary of Interior. Use of this water in New Mexico would be junior to any pre-existing downstream water rights and could not negatively impact those rights. Craig Roepke of ISC should be consulted for specific language suggestions.

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Roger

38. Section 8.2.2.9 (page 163): The Nutt-Hockett Basin is mentioned as a possible source area for importing water into the region. The Nutt-Hockett Basin has a limited supply and is experiencing water-level declines. Groundwater in the Nutt-Hockett Basin may be hydrologically connected to the Rincon Basin and Rio Grande, so exportation may have adverse impacts to surface water supplies. If it is connected if it is not

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Bobby

39. Tables 8.5(B) and 8.5(C) (page 167): "NMOSE Basin Criteria" is listed in these tables as a water management alternative for the Jornada and Hueco Basins, but is not discussed in the text. There should be some discussion in the Water Management section of the plan (8.2.1) of possible basin criteria parameters for the Jornada and Hueco Basins. How were the political and financial feasibilities of NMOSE criteria in these basins determined to be "Medium"?

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40. Tables 8.6(A), 8.6(B) and 8.5(C) (pages 168-169): The technical, political, legal and financial feasibility for every alternative in all three basins in the region is ranked as "High", and the impacts for every alternative in all three basins is ranked "Low". This makes the ranking not very useful for prioritizing alternatives. No criteria or justification for these rankings is provided.

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41. Section 8.4.3.2 and 8.4.3.3 (page 170): Although NMOSE Basin Criteria is listed in Tables 8.5(B) and 8.5(C) it is not discussed in these sections. Again, if development of criteria for these basins is desirable it should be explicitly recommended here.

take out

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Roger  
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actual  
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42. Appendix B: The OSE Hydrology Bureau is compiling a statewide database of aquifer pump test data, and requests an electronic version of the Excel file ("pump tests.xls") listed as the source for the Aquifer Pump Test Inventory included as Appendix B of the report.

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Re: Draft LRG Regional Water Plan  
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#### References

Johnson, M. S., 2000, Hydrologic evaluation of applications HU-153, HU-153-S and HU-153-S-2 for permit to appropriate ground water in the Hueco Underground Water Basin, Doña Ana County, New Mexico: New Mexico Office of the State Engineer Technical Division Hydrology Report 00-2, July 2000.

Weeden, A. C. and Maddock, T., III, 1999, Simulation of groundwater flow in the Rincon Valley area and Mesilla Basin, New Mexico and Texas: University of Arizona Department of Hydrology and Water Resources HWR No. 99-020, 9/30/99.

Wilson, B. C., and Lucero, A. A., 1997, Water use by categories in New Mexico counties and river basins, and irrigated acreage in 1995: New Mexico Office of the State Engineer Technical Report 49, September 1997.

Wilson, B. C., Lucero, A. A., Romero, J. T., and Romero, P. J., 2003, Water use by categories in New Mexico counties and river basins, and irrigated acreage in 2000: New Mexico Office of the State Engineer Technical Report 51, February 2003.

# NEW MEXICO INTERSTATE STREAM COMMISSION

## MEMORANDUM

Date: October 9, 2003  
To: Kathy Watson, Mary Wells, and the Lower Rio Grande Water Users Organization (LRGWUO)  
From: Mary Helen Follingstad, Manager, Regional Water Planning Program  
CC: Rhea Graham, Estevan Lopez  
RE: Comments on the Draft Lower Rio Grande Regional Water Plan

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The Lower Rio Regional Water Plan, submitted for agency review and comment in August 2003, is substantially complete with respect to both the scope of work and the Interstate Stream Commission *Regional Water Planning Handbook* (hereinafter referred to as "Handbook").

In general the water plan is well done and the region is to be commended for developing a water plan in the litigious climate of the Lower Rio Grande.

The following comments are provided for your consideration in completing the regional water plan for acceptance by the Interstate Stream Commission (ISC).

- 1) The Executive Summary could be published separately with the maps for ease of public dissemination and education later. Production of the plan on Compact Disks will be necessary for distribution to the ISC.

The Executive Summary appears to be in rough draft form. There are numerous typos, it lacks subtitles to give it a sense that it is organized according to the ISC requirements, and it needs graphics. Specific instances are:

p. 1. Pp. 2 - There is a typo in the first sentence: "build" should be "built"; the ISC *Regional Water Planning Handbook* was published in December of 1994 - the reference must be to the contract the LRGWUO has with the ISC; in the forth bullet add an "ed" to "project".

## MEMORANDUM

- p. 2. Pp. 2 and 3 – These paragraphs should be moved to the discussion on water quality.
- p. 3. Pp. 1 and 2 – Name the recent studies; clarify the second sentence; the “ issues” in the third sentence are really “existing conditions”; spell out EBID and note the relationship to the Rio Grande Project.
- p. 8. This section needs an introductory sentence or two.
- p. 9. Add more detail to the ongoing Lower Rio Grande Adjudication – see Section 5 Legal Issues
- p. 12. Add a section on the water balance in the region – i. e. What is the supply, what is the projected demand; what is the gap between the two and introduce the alternatives that will address the shortage in each basin. Plan is not complete with out this distinction ( the water planning questions).
- p. 13. What is “non-vacant land”?
- P. 15. Add in graphics, conclusions, recommendations, and implementation schedule.
- 2) The maps developed for the region by WRRI could be inserted into the plan. They are now in the back of the plan and this makes them less accessible – especially with out a tab to locate them.
- 3) Note that the water supply analysis includes the portion of EBID in Sierra County. The Socorro Sierra water-planning region includes all of Sierra County. This distinction should be noted in the plan.
- 4) The Legal section lists Federal Laws (Endangered Species Act and the Clean Water Act), State Laws, and relevant court cases. It still needs a summary or conclusion as to how these legal issues affect the water supply. See Water Supply, item c. on page 16 of the Handbook. Also, there does not appear to be text on a legal analysis of the alternatives. There are typos on pp. 19 and 21. The extensive use of acronyms in this section is burdensome to the reader.
- 5) Water Supply – Table 6-12 should appear in the Water Demand chapter. Suggest a graphic to illustrate the wet water approach discussed on pp. 81-84. Suggest surface water quality follow the surface water discussion and ground water quality follow the ground water discussion – this will help the reader distinguish the water quality issues better.
- 6) Water Demand – In Table 7.8 , Commercial demand is listed as 6427.78 acre-feet. In Table 7-13 it is listed 72,157 – something is quite awry with Table 7-13. Also , there is no discussion of water demands for Endangered Species, Riparian Vegetation evaporative losses or other evaporative losses and recreation uses of water.
- 7) There is no meaningful water balance discussion with how the demand will be met by the supply and why certain alternatives are suitable to meet the projected demand in each



MEMORANDUM

basin.

- 8) The analysis of the alternatives point by point is missing – only a summary table is provided – nor is there an appendix as to a process by which the High – Medium – Low feasibility was determined. Each alternative should include a specific discussion of its technical, financial, political and legal feasibility. Moreover, all of the alternatives presented seem “good to go” – were any alternatives considered that ended up in the “no go” pile?
- 9) Your implementation schedule does not include the El Paso – Las Cruces Sustainable Project. It is too general. Which specific projects are targeted for implementation? This is critical if you plan to apply for funds from the Water Trust Board.