Middle Rio Grande Endangered Species Act Collaborative Program
PHVA/Hydrology Ad Hoc Work Group Meeting
January 26th 2010 9:00 am to 11:30 am
Reclamation

MEETING SUMMARY

Action Items

- Tetra Tech will confirm that Paul Tashjian is included on the PHVA/Hydrology work group email distribution list.
- Tetra Tech will forward the request that Steve Kissock (COE) be added to the PHVA/Hydrology work group email distribution list.
- Kathy Dickinson will electronically redistribute the PHVA/Hydro work plan and charter to work group members. Any comments, suggestions, or changes to the charter and work plan are due to Kathy by COB on Thursday, January 28th.
- Leann Towne will look into the possibility of removing the end-of-year El Vado storage target (i.e., the icing on the gates issue) rule from the URGWOM model.

Meeting Summary

- Leann Towne brought the meeting to order.
- Nabil Shafike is working on the potential ability to do 40-year runs but this work has not been presented officially and it is unknown if he is having to string separate 10-year model runs together to complete the continuous 40-year simulations.
    - The work group discussed the possibility of the 40-year runs to be used in lieu of the work already done but it might be an Executive Committee (EC) decision depending on the time frames and effort involved.
- The work group discussed the annual update to their charter and work plan. The PMT liaison made a few minor changes that included (1) updating the membership list; (2) adjusting some of the expected deadlines and omitting some of the specific dates since the BA/BO schedules have been delayed; (3) adding an "s" to all references of BA; (4) adding a new work group product of "documentation of URGWOM"; and (5) slightly changing the language on the approval from the EC. The work plan does has some specific tasks with fall due dates but everything was kept as general as possible to allow for flexibility during the schedule adjustments.
    - The work group discussed the aforementioned changes and the concern with multiple schedules/time frames that are not necessarily in sync (ex. Long-term Plan (LTP), BA, BO, etc.).
    - It was suggested that it be noted on the work plan that the deadlines and due dates are subject to change based on the scheduling for the BA/BOs which is not in the work group's control.
    - Any additional comments, suggestions, or changes to the charter and work plan are due to Kathy Dickinson by Thursday, January 28th 2010 in order to be provided as a CC read ahead by Friday.
- All January action items have been completed with the exception of the historical review of the Article VIII releases. The work group agreed this would be a valuable exercise and would like it to eventually be completed.
- Craig Boroughs then presented an update on the status of URGWOM development. Craig and the tech team completed all their January action items pertaining to the rule development and requested changes. The rule changes and some results were briefly discussed.

  - Concerns with the P&P rules in the model were raised on behalf of the pueblos; this was added as an agenda item for continued discussion at the next meeting.
  - Concern was also raised with the terminology of "conservation storage" from a permitting standpoint and the "reregulation" of storage as compared to "scalping" the hydrograph. It was suggested that "storage re-regulation" be the phrasing used during presentations (the terminology does not have to be fixed in the model which would require recoding from CADSWES).
- The work group then briefly discussed the agenda for the joint session with the PVA/Biology work group. The intent is to (1) describe what is included in the pre-ESA water management scenario and (2) project the Excel template for an example run to showcase the types of data being outputted. The PVA/Bio group will be informed that the actual runs need to be redone to include the most recent model rule adjustments. The meeting will conclude with questions from the group and Dr. Goodman. The handout being provided contains: (1) the pre-ESA water management runs; (2) the sequences from the presentation; and (3) reach and subreach definitions.
- The work group set the next meeting date for March 2nd from 1:30pm to 4:00pm at Reclamation. Tentative agenda items include: (1) Nabil Shafike presentation on the status of the 40-year runs with a focus on (a) longer term coverage and (b) how to get probabilistic numbers that can be fed into the PVA analysis; (2) loss rates for delivery of Albuquerque San Juan-Chama Project water to the surface water diversion; (3) pueblo consultation/input on the P&P inputs in URGWOM; (4) groundwater pumping water offset and ties to the letter water deliveries; and (5) discussion to include the Buckman diversion in URGWOM.

Joint Session with PVA/Biology work group Summary

Joint Meeting Suggestions

- It was suggested that a bulleted list of characteristics and a stated question that defines that particular scenario (ex. what is that management scenario intending to address?) accompany each particular URGWOM scenario.
- The PVA modelers would like the details from the salvage data - the relative "plus/minus" how many fish were impacted with a river drying event; while this information can't relate to the overall population, there is a good handle on how many fish were salvaged versus found dead for drying events. (*available from the Service)*
- The PVA modelers would like to have the "flex" water or water available for others (such as the District and other operations managers) to make decisions about isolated and tracked as part of the regular output.
- The PVA modelers asked that 1 retrospective run (covering the last 15 years) be modeled in URGWOM. This "hind-cast" run would be of great value to the PVA models. (Even though the URGWOM has been calibrated using the historical data, the PVA modelers would like the tech team to take the inputs from the past 15 years and use URGWOM to predict the outcomes as if the data wasn't known.

Joint Meeting Action Items

- Dr. Goodman will be making a specific, detailed data request from the PHVA/Hydrology work group and URGWOM tech team. Included in this request will be (1) for all data to be supplied in ASCII files/formatting instead of Excel spreadsheets; and (2) seepage as a separate and distinct model output.
- Leann Towne will coordinate a conference call between Phil Miller (RAMAs PVA modeler), Dr. Goodman (FORTRAN PVA modeler), Craig Boroughs (URGWOM modeler), Jim Wilber (Reclamation), Leann Towne (Reclamation), Lori Robertson (FWS), Valda Terauds (Reclamation), Jason Remshardt (FWS), Rolf Schmidt-Petersen (ISC, if available; if not,

maybe Rich Valdez); and David Gensler (MRGCD, if available) to discuss data needs and next steps prior to the next joint meeting.

- Jim Wilber will coordinate the scheduling of the next joint meeting (a half-day) between the PHVA/Hydro and PVA/Bio work groups via email communications.

Joint Meeting Meeting Summary

- Jim Wilber called the joint meeting to order and introductions were made.
  - The focus of today's joint meeting is on the output from the pre-ESA water management scenario. Attendees will be briefed on the data and information types that will be available from the URGWOM outputs.
  - It was shared that with the BA development, the main scenario to analyze in the BAs is the pre-ESA (i.e., non-front loaded) water management scenario. The Executive Committee (EC) has provided direction to model 3 scenarios: 1) pre-ESA; 2) 2003 BiOp scenario; and 3) a future scenario with just 8,000 ac-ft of supplemental water available. The first step is the pre-ESA scenario.
- Leann Towne then described the pre-ESA model scenario.
  - The Pre-ESA runs being shown today are model runs without any management for flow targets, or flow requirements at all. The model results are not final but are being provided to the PVA group in order to show what information is available from the URGWOM model. This scenario was tested under all 5 hydrologic sequences. It was clarified that the only San Juan/Chama diversion included is the Water Authorities. It was clarified that the Cochiti deviations are included through 2013 because it is considered a "baseline" operation through 2013 since the Corps has already completed ESA consultation on this action through that period. But there are no additional flow tools included.
  - The pre-ESA URGWOM model runs will be redone in the next few weeks due to several recent rule changes: (1) inclusion of an Article VIII (of the Rio Grande compact) rule; (2) corrections to Angostura diversions when the District is out of storage in El Vado; and (3) other model edits as the PHVA/Hydrology group identified and requested. Attendees were reminded that the information being provided today does not include those rule changes - which do impact the drying in the Albuquerque Reach.
- Craig Boroughs then briefly presented on the URGWOM output template (Excel format) and example analysis from the 50% exceedence hydrological sequence model run.
  - The Excel template has multiple sheets, each containing specific (and often easily manipulated) data and information. The types of model output data and information that were presented include (but are not limited to): (1) the percentage of the reach (or number of miles) dried; (2) the number of days of drying for that particular year by reach; (3) duration of drying in number of days; (4) drying indicators of occurrence (yes/no); (5) drying frequency; and (6) computed May/June flow volumes.
  - Raw data, including daily flows for each gage location and subreach, can be found under the "Control" sheets. Any questions on the model slot names, please contact members from the PHVA work group or the tech team.
  - The URGWOM model has been calibrated and compared with historic data and on-the-ground experience. The predicted river drying was also verified against the 2007 RiverEyes data and calibrated with an evaluation of residuals computed as the difference in historical gage data and modeled flows from simulating historical operations. The calibration and verification process has been documented by the PHVA/Hydrology work group.

- It was commented that recurrence information (for recruitment and overbank flows) is contained in the URGWOM model outputs and that it would be easy for the PVA/Biology group to do their own post-processing in the Excel template. The amount of flow, and the number of days at or above that flow rate, that are defined as providing a recruitment or overbank flow can be changed in the spreadsheet.
- Attendees then discussed the drying resolution and how the URGWOM model predicts "worst case" drying. The calculation for miles of drying is on the conservative side in that if the modeled subreach outflow does not exceed the trigger flow for river drying, it is assumed that the entire subreach is dry based on the current post-processing approach used in the output spreadsheets. When the reported drying is at the resolution of a whole reach between the diversions, the indicator for river drying in the reach is based on drying being indicated for just one subreach.
    - Attendees discussed the resolution of drain or wasteway outfalls that have already been included in the URGWOM model and their potential impact on drying. The potential to modify the model to include controls at specific drains or wasteways was brought up and the difficulty in disaggregating the drains discussed.
    - Attendees also discussed the need to understand the linkage between the hydrology of river and demography/biology of fish in order to drive the resolution in the analysis. For example, if a reach goes dry it has been presumed that all the fish die. In reality, there are areas that stay wet in every reach. There is a reconciliation that has to take place on what drying really means to the biology at a specific resolution.
- The weight or sensitivity of recruitment and overbank flows has not been determined yet. However, the relationships of drying and spring flows have been worked through with the indication that the spring flows are a better predictor of future minnow population density then are the current measures of summer drying.
- Dr. Goodman then made the strategy observation that the URGWOM modeling team's effort should be focused on completing model runs while PVA/Bio members could take on much of the post processing tasks. He stressed that what is really needed from the PHVA/Hydrology group now is as many model runs as they can provide (the more runs, the better the statistics for the PVA group). He also mentioned that it would be good information to know how much water is available as "flex" for others (such as the District and other operations managers) to make decisions about; he would like to see that "flex" water isolated and made part of the regular output.
- Attendees then briefly discussed that, in most cases, it is assumed that the location of the 12 gages should roughly correspond with the 19 subreaches, as the gages were taken into account when the subreaches were being defined.

Joint Meeting Next Steps

- Leann Towne, URGWOM modelers, Phil Miller, and Dr. Goodman will discuss data needs and next steps in a conference call prior to the next joint meeting.
- A half-day joint meeting between the PHVA/Hydro and PVA/Bio work groups will be coordinated by Jim Wilber via email communications.
    - The PHVA/Hydro work group is scheduled to meet again on March 2nd from 1:30pm to 4:00pm but due to a full agenda is not able to include a joint session during that meeting.
- Future agenda items include:
    - (1) how can the PVA models assess different water management strategies?;

- (2) discuss/develop method(s) for PVA models to use URGWOM data to predict species response to water management scenarios;
- (3) discussion of the formatting of the data and information types that is provided by URGWOM (*has been briefly discussed today, but may require additional discussion*);
- (4) address the long standing concern about the disconnect between the 10-year hydrology sequences and the need for longer-term biology sequences (40+ years); and to figure out how to fully integrate the different approaches;
- (5) the hydrology/biology relationships need to be further explored.

Next meeting dates

- March 2nd from 1:30pm to 4:00pm at Reclamation.
  - Tentative agenda: (1) Nabil Shafike presentation on the status of the 40-year runs with a focus on (a) longer term coverage and (b) how to get probabilistic numbers that can be fed into the PVA analysis; (2) Clarification of direction given by Executive Committee; (3) Timeframes and Priorities for next model runs; (4) approve the December 15th and January 26th meeting minutes; (5) Craig to present results of re-running the pre-ESA water management scenario with the updated URGWOM planning model; (6) Decide which rules and tools should be included in the 2003 BiOp model run

- Future PHVA/Hydro agenda items:
  - (1) Loss rates for delivery of ABCWUA water from Cochiti to point of diversion (OSE rates, SJC accounting rates)
  - (2) Presentation from Nabil on historical Article VIII releases
  - (3) How to include the Buckman diversions in the model
  - (4) How to handle P&P storage and demands in the model (BIA needs to have further discussions with the Pueblos on this)
  - (5) Discuss how groundwater pumping offsets/letter water deliveries are handled in the model
  - (6) Discuss how a monthly time-step model could be incorporated into the PHVA process – could handle the longer runs requested by the PVA modelers - would need to predict river drying probabilistically

- March 3rd (all day), Wednesday PVA/Biology meeting
  - Tentative agenda items include: (1) more discussion of how to assemble the drying database; (2) discuss the details (hypotheses/issues, data requirements, and needed information) for Category 3: fish passage; (3) discuss the details (hypotheses/issues, data requirements, and needed information) for Category 4: habitat restoration and maintenance; and (4) document the process of the impact assessment, the jeopardy assessment, and the RPA selection in flow chart form.
- March 4th (half day), Thursday PVA/Biology meeting
- Joint PVA/PHVA: To Be Determined

Middle Rio Grande Endangered Species Act Collaborative Program
PHVA/Hydrology Ad Hoc Work Group Meeting
January 26th, 2010 9:00 am to 11:30 am
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MEETING NOTES

1. Introductions and Announcements

- Leann Towne brought the meeting to order.
- It was shared that Nabil Shafike is continuing to work on the potential ability to do 40-year runs but this work has not been presented officially and it is unknown if the he is having to string separate 10-year model runs together to complete the continuous 40-year simulations.
    - The work group discussed the possibility of the 40-year runs to be used in lieu of the work already done but it might be an Executive Committee (EC) decision depending on the time frames and effort involved.

Action: Tetra Tech will confirm that Paul Tashjian is included on the PHVA/Hydrology work group email distribution list.

Action: Tetra Tech will forward the request that Steve Kissock (COE) be added to the PHVA/Hydrology work group email distribution list.

3. Review and Approval of Charter and 2010 Work Plan

- It was shared that the annual workplan outlines what each group of the Collaborative Program (Program) expects to be doing over the course of the up-coming calendar year in terms of recommended activities and tasks. Each work group is expected to provide yearly updates to the workplan to reflect any changes and updates.
- The Program Management Team Liaison (PMT), Kathy Dickinson, updated the 2009 workplan with several suggested changes.
    - Some of the 2009 tasks and deadlines were not met due to the schedule changes with the BA/BO (ex. BA by September 2009 with BO by March 2010). Those original dates have been omitted since the new BA/BO timeline is not known for certain.
    - An "s" was added to all references of BA.
    - The membership list was updated to reflect the FWS primary representative as Paul Tashjian and the BIA primary representative as Randy Shaw.
        - It was shared that John Stomp (ABCWUA) has been promoted to Chief Operating Officer and will probably not be able to attend these meetings. The Water Authority's EC member should be asked who their new representative for PHVA/Hydro will be.
    - A new work group product of "documentation of URGWOM" was added.
    - Slight changes were also made to the language on the approval from the EC.
    - Task 4 & 5 are carried over from the 2009 work plan.
- Concern was expressed that the schedule discussion is still in process and that the strawman consultation group and the schedules aren't aligned. It was shared that while the work plan does has some specific tasks with fall due dates but everything was kept as general as possible to allow for flexibility during the schedule adjustments. The PMT is trying to get all updated work group charters and work plans for approval in the February 18th EC meeting, but they will first be reviewed by CC next week. Both the charter and work plan needs to be posted by Friday.
    - ***Concern:*** In relationship to the model run timeline for this group for the BA – the output needed for September is a non-front loaded model run expected to cover a 5 to 10-year period. But somehow in the process there is a disconnect with FWS having

130 days for consultation (and possibly to come back with a jeopardy opinion) and the Long-Term Plan (LTP) which is on another timeline. The LTP will have to get inserted somehow and may result in additional runs with new tools and/or other model runs. Both the schedules have still to be developed and they might not be in sync.

- ***Response:*** It is already known that some of the other model runs will go past December, so any runs that need to be added can be covered under the next annual workplan (2011) as necessary.
- The work group discussed adding a new task to the work plan to cover any additional tool development.
- It was suggested that it be noted on the work plan that the deadlines and due dates are subject to change based on the scheduling for the BA/BOs which is not in the work group's control.

o ***Action:*** Kathy Dickinson will electronically redistribute the PHVA/Hydro work plan and charter to work group members. Any comments, suggestions, or changes to the charter and work plan are due to Kathy by COB on Thursday, January 28th.

4. Action Item Review

✓ Jim Wilber will email the PHVA refresher meeting presentation to Paul Tashjian. – *completed;*

- Nabil Shafike will research the historic Article VIII releases to determine how those releases have occurred in the past. – *ongoing;*
  - This topic was discussed at the tech team meeting; however a historic review of how Article VIII was applied in the past has not yet been supplied to Craig.
  - The Article VIII rule has been included in the current URGWOM version but remember that what is being provided to the PVA/Biology group today does not include the Article VIII rules.

✓ The URGWOM tech team will review the new rules for setting Article VIII releases at their meeting on December 16th. – *completed; see above discussion;*

✓ Randy Shaw will distribute Brian Westfall's memo regarding the P & P details to the work group. – – *completed;*

✓ Valda Terauds will send Tetra Tech the electronic versions of SWM's riparian modeling scope of work, the climate change input for URGWOM scope of work, and an electronic copy of the updated PHVA glossary for distribution to the work group. – *completed;*

✓ Tetra Tech will distribute electronic versions of SWM's riparian modeling scope of work, the climate change input for URGWOM scope of work, and an electronic copy of the updated PHVA glossary to the work group; comments on the SWM scopes are due to Valda no later than noon on December 17th. Comments on the PHVA glossary are due to Valda before the next PHVA meeting. – *completed;*

5. Status of URGWOM Rule Development (Craig's Action Items)

- Craig Boroughs then presented an update on the status of URGWOM development. Craig and the tech team completed all their January action items pertaining to the rule development and requested changes. The rule changes and some results were briefly discussed.
- Policy for setting step down in targets was corrected to include a step down in targets after the continuous flow requirement as now included in the input target table.
  - The presented results now show targets even if the 1 million acre-ft year-to-date Otowi flow volume threshold is reached for conserving supplemental water.
  - Attendees were advised that even though a step down in targets might be triggered, they are just targets and that doesn't necessarily mean supplemental water will be used.

- The work group requested that when this information gets presented to the EC, flags (or some kind of indicator) should be included to specifically point out when supplemental water runs out. This will help make them aware of the periods when there is no supplemental water.
- When the runoff ends before the continuous flow requirement is over, supplemental water will be used to manage the recession – if it is available – based on the step down in targets included in the target table after the continuous flow requirement.
    - The supplemental water supply in the model is 8,000 ac-ft in the first 5 years and 5,000 ac-ft in the second 5 years of the 10-year sequence.
    - Initial conditions are set to estimated 2010 values and are close enough to not warrant redoing the initial conditions analysis at this point.

o Another requested change was the removal of the combined account storage at El Vado.
- The allocated storage space at El Vado for the Combined account (San Juan-Chama Project water) was changed from 5,000 ac-ft to zero.
- This change affected the letter water deliveries in that the rules had to be modified such that the Combined account will payback the debt to the river from Abiquiu.
- The allocated storage space for MRGCD San Juan-Chama Project water was increased to the 183,000 ac-ft.

o For the end-of-year El Vado storage target, the elevation target of 6,879 ft (~120,000 ac-ft) is currently implemented *for when NOT in Article VII*. This means that any San Juan-Chama Project storage water is not evacuated and native Rio Grande water is not evacuated if Article VII is in effect. The purpose of this rule to lower the reservoir level is to prevent icing on gates of the spillway at 6,879 ft.
- The work group briefly discussed how this was an issue in the past.
- The evacuation is gradual starting after the run off (May 29th); the reservoir will fill up to that point. The model then projects what would have to be released (at a daily rate) to evacuate enough to get the reservoir level back down to 6,879 ft by December 1st.
- Reclamation will look into if this provision can be removed since there are now heaters to help prevent the gate icing.

Action: Leann Towne will look into the possibility of removing the end-of-year El Vado storage target (i.e., the icing on the gates issue) rule from URGWOM.

o Regarding the average release rate per Article VIII, the only change made was the replacement of the constant release rate to a computed average rate for that timeframe.
- The rule is set up to apply only if there is enough native water stored in the reservoir *to the extent owed* without going over the debt and it is not set to trigger unless the debt is over 20,000 ac-ft.
- Any emergency drought water for MRGCD or the supplemental ESA account is separate and not used for an Article VIII release.
- The work group discussed the possible implications on P&P which starts filling March 1st.
    - Retagging of native water is not believed to be a legal option.
    - The storage requirement is computed and starts filling March 1st any Rio Grande inflow will go toward filling. Concerns were expressed with the start date of March 1st.
    - However, in the past for really dry conditions, storage has actually started in January.

- The results of the model rule change for setting Article VIII releases are basically the same as was presented last time except the release rate is computed as opposed to being set to an input rate.

- The year classification was changed to be established based on the May 1st forecast. What the year classification is on May 1st is now the classification carried for the remainder of the year.
  - The work group briefly discussed the option to have a reclassification on May 15th, but since that is also based on the May 1st forecast, the result would not actually change.
  - The change in the model did result in one average year at the 50% exceedence that has now been reclassified to a dry year (this has to due with timing for when stipulations of Article VII of the Compact are in effect or not). The year classification is classified as "dry" if Article VII is in effect.

- The monthly loss rates for delivery of ABCWUA San Juan-Chama Project water from Cochiti to the Albuquerque diversion have been incorporated with a constant loss rate (0.0123) used from Abiquiu to Cochiti.
  - The monthly rates were provided by the State Engineer.
  - The rates just apply to Albuquerque Drinking Water.
  - The work group will continue to discuss this topic at the next PHVA meeting.

- Several other model edits were also made.
  - The rule for evacuating Conservation storage at the end of Cochiti deviations period was edited.
    - Starting 15 days before the end of a deviations period, the release is set as needed for targets while also assuring Conservation storage will be evacuated by end of deviations period.
  - A rule that was included to assure the needed release is made from Cochiti for targets was taken out as supplemental water is bypassed at Cochiti (i.e., so this rule is not really needed).
    - Concern was raised regarding the use of the term "conservation" storage. Conservation storage at El Vado has a different meaning than storage for Cochiti deviations.
    - It was shared that Reclamation considers anything in storage "conservation."
      - However, from the State Engineer's permitting stand point– the difference is "reregulation" of storage as compared to "scalping" the hydrograph.
      - It was suggested that "storage re-regulation" be used instead of "conservation." The work group agreed that the terminology does not have to be fixed within the model (which would require recoding from CADSWES) but should be used in all presentations of the model outputs and results.

- The proposed monthly Indian Demand values are NOT incorporated at this time as the values are still being reviewed.
  - Concern was raised with who is performing the P&P review (i.e., Indian demand values). Anything to do with P&P should be consulted with pueblos first.
  - It was clarified that the group is not trying to really model the P&P storage operations; instead, the intent is to try to make it generally close to what is done.

- The pueblos have expressed concern that the URGWOM modeling might in some way impact what they do (regarding storage and operations).
- This topic will be discussed in more detail at the next meeting.

6. Overview of briefing for PVA workgroup on URGWOM outputs for Pre-ESA water management scenario

- The work group briefly discussed the agenda for the joint meeting with the PVA/Biology work group.
  - The meeting is scheduled to last 1 hour and 15 minutes.
  - The introductions from Leann Towne and Jim Wilber will be used to describe the pre-ESA water management scenario. Then Craig will project an example Excel template for that run and he will inform the attendees that the actual run will need to be redone because of the recent rule adjustments. The meeting will conclude with questions and answers from the larger group followed by specific questions that Dr. Goodman had on the refresher meeting presentations.
- The PHVA/Hydro work group is providing a handout that contains: (1) the pre-ESA water management runs; (2) the sequences from the presentation; and (3) the reach and subreach definitions.
- The goal is to briefly present the preESA Management Run post-processing template for the 50% exceedence sequence to showcase the types of data and information provided and allow for questions.
- Leann will notify the joint group that when the runs are redone with the new rule adjustments, it can be expected that there will be more drying and even occasional drying in the Albuquerque reach.

7. Next Meeting Date

- March 2nd from 1:30pm to 4:00pm at Reclamation.
  - Tentative agenda: (1) Nabil Shafike presentation on the status of the 40-year runs with a focus on (a) longer term coverage and (b) how to get probabilistic numbers that can be fed into the PVA analysis; (2) Clarification of direction given by Executive Committee; (3) Timeframes and Priorities for next model run; (4) approve the December 15th and January 26th meeting minutes; (5) Craig to present results of re-running the pre-ESA water management scenario through the updated URGWOM planning model; (6) Decide which rules and tools should be included in the 2003 BiOp model run

- Future agenda items:
  - (1) Loss rates for delivery of ABCWUA water from Cochiti to point of diversion (OSE rates, SJC accounting rates)
  - (2) Presentation from Nabil on historical Article VIII releases
  - (3) How to include the Buckman diversions in the model
  - (4) How to handle P&P storage and demands in the model (BIA needs to have further discussions with the Pueblos on this)
  - (5) Discuss how groundwater pumping offsets/letter water deliveries are handled in the model
  - (6) Discuss how a monthly time-step model could be incorporated into the PHVA process – could handle the longer runs requested by the PVA modelers - would need to predict river drying probabilistically

8. Joint Meeting with PVA work group

- *Please refer to the actual Joint PHVA/PVA meeting notes dated 01/26/10 for the record of this meeting.*

Public Comment

- There was no public comment.

PHVA/Hydro Work Group 26 January 2010 Meeting Attendees					
NAME	**POSITION**	**AFFILIATION**	**PHONE NUMBER**	**EMAIL ADDRESS**	**Primary, Alternate, Other**
Marc Sidlow	Tech Team	COE	342-3381	marc.s.sidlow@usace.army.mil	O
Craig Boroughs	Tech Team	Contractor (BOR)	970-513-4459	boroughs@bhandh.com	O
Don Gallegos	PHVA/Hydro Interim Chair	COE	342-3382	donald.j.gallegos@usace.army.mil	P
Randy Shaw	PHVA/Hydro member	BIA	563-3415	randy.shaw@bia.gov	P
Leann Towne	PHVA/Hydro Chair	Reclamation	462-3579	ptowne@usbr.gov	P
Warren Sharp	PHVA/Hydro member	Reclamation	462-3637	wsharp@usbr.gov	O
Rolf Schmidt-Petersen	PHVA/Hydro Member	ISC	764-3880	rolf.schmidt@state.nm.us	P
Paul Tashjian	---	FWS	248-7958	paul_tashjian@fws.gov	O
Stephen Kissock	---	COE	342-3291	Stephen.r.kissock@usace.army.mil	O
Kathy Dickinson	PMT Liaison	Reclamation	462-3555	kdickinson@usbr.gov	O
Marta Wood	Admin Support	Tetra Tech	(c) 259-6098	marta.wood@tetratech.com	O