

**Middle Rio Grande Endangered Species Act Collaborative Program**  
**PHVA/Hydrology Ad Hoc Work Group Meeting**  
**March 2<sup>nd</sup>, 2010 1:30 pm to 4:00 pm**  
**Reclamation**

**MEETING SUMMARY**

**Recommendations**

- It was suggested for the work group to develop a 1 or 2 page summary on the information from URGWOM provided for the PVA models and details on how that information was determined.
- It was suggested that the PHVA/Hydrology work group specifically meet with members of the Service to make sure everyone is on the same page with the work group's modeling process thus far. Suggested attendees included Paul Tashjian, Lori Robertson, and Jen Bachus.

**Action Items**

- PHVA/Hydrology work group members will review the October 21<sup>st</sup>, December 15<sup>th</sup>, and January 26<sup>th</sup> meeting notes and submit any corrections or revisions to Tetra Tech by COB on March 12<sup>th</sup>.
- Craig Boroughs will develop a first draft Key Points summary page outline and distribute to Jeanne Dye, Rolf Schmidt-Petersen, Leann Towne and Valda Terauds for input via email communications. Topics suggested during the meeting included: post processing for river drying; model calibration; the safety factor applied to targets; and spawning, recruitment overbank flows; and including a spatial diagram of river drying for better visual information on the impact.
- Nabil Shafike will research the historic Article VIII releases to determine how those releases have occurred in the past. (*continued action from 12/15/09 meeting*)
- Craig Boroughs will send Paul Tashjian Albuquerque diversion rules documentation.
- Jim Wilber will ask the ESA consultation team for direction in regards to the needs for a 2003 BO model run. Potential model setup information that needs to be determined includes whether deviations should be included or not and whether any other flow tools should be included besides Reclamation leases of San Juan-Chama Project water and Low Flow Conveyance Channel pumping?
- Valda Terauds will send Tetra Tech the 2009 RiverEyes summary information.
- Valda Terauds and Kathy Dickinson will talk with Jericho Lewis to discuss acquisition options for the 2010 PHVA SOW.
- Valda Terauds and Kathy Dickinson will draft one or more SOWs for discussion at the next PHVA meeting (May 18<sup>th</sup> at 1:30)
- The ESA Consultation Team will discuss their future needs and provide input into the SOWs.
- Marc Sidlow will let Valda Terauds know how much money is left for PHVA URGWOM modeling through the interagency agreement that Reclamation has with the Corps.

**Meeting Summary**

- Leann Towne brought the meeting to order and introductions were made.
- The agenda was reviewed and approved with no changes. The work group extended a welcome back to April Fitzner!
- Approval of the October 21<sup>st</sup>, December 15<sup>th</sup>, and January 26<sup>th</sup> meeting notes was postponed. Members will have until COB on March 12<sup>th</sup> to submit any revisions to these notes. The notes will be finalized with the incorporation of any revisions received by this date, unless there are conflicting revisions suggested.

- The February action items were reviewed; all actions were completed.
  - The CC recommended the EC approve the revised PHVA/Hydro charter, 2010 work plan, and 2009 accomplishments with no additional suggested changes.
  - The possibility of removing the end-of-year El Vado storage target (i.e., the icing on the gates issue) rule from URGWOM was explored but would require changing the Standard Operating Procedures (SOP). Since this rule is not significantly impacting the model results and since Reclamation is still reviewing El Vado operations with focus on potentially changing the downstream channel capacity in the SOP, no revision to the end-of-year El Vado storage target rule will be pursued at this time. It will be added to the list of potential future needs for updating the model.
- Craig Boroughs presented a brief review of the URGWOM safety factor for clarification. It was explained that there are several factors that make it very difficult to identify the exact amount of supplemental water needed for targets. Also, physical operational constraints combined with the travel time from Abiquiu to target locations prevent actual releases from being adjusted with the same precision represented in the model. Thus a safety factor is applied to targets in the model such that modeled supplemental water releases more accurately reflect actual release volumes.
- Craig then presented the Pre-ESA Management Scenario model runs that were completed with the latest (01/29/10) planning module of URGWOM. There are no flow tools and no flow targets - just Cochiti deviations through 2013 in these runs. In general, the results are very similar to results from previously completed runs for the non-front loaded scenario done last July. The difference between the non-front loaded runs done last July and these pre-ESA management runs is mostly seen in the drying in the Albuquerque Reach.
- Nabil Shafike then presented on an approach for completing continuous 40-year or longer model runs. The 40-year sequences are actually four 10-year blocks and can be arranged in any order (i.e., could use any combination of the five available 10-year synthetic hydrologic sequences). While a 40-year hydrology was used, a simulation could just as easily be completed for a 50 year period. The ending conditions of a single 10-year simulation are used as the initial conditions for the next 10-year simulation to effectively create one continuous simulation. The inputs are exactly the same as used for the previous URGWOM runs with the exception of having no Cochiti deviation for the 10-year runs that follow the first run. The benefits to having longer scenarios include seeing potential longer-term trends and calculating probability distributions for flows for each reach using more results.
- Valda Terauds then presented a summary of the 2009 RiverEyes data taken from the final SWCA report. She summarized the information by month - one month per page. 2009 was an average BO target year. Monitoring occurred between July 7<sup>th</sup> and October 31<sup>st</sup>.
- The work group briefly discussed the direction provided by the Executive Committee (EC) at February 18, 2010 EC meeting. The PVA process is really on a different schedule than the PHVA process since URGWOM is ready to be utilized for runs for the consultation but the PVA models are still in development stage. The EC directed the PHVA to move forward with supporting the consultation work instead of postponing work in order to integrate the PVA models. The PVA and PHVA will need to continue meeting periodically in order to keep everyone on the same paths and up to date for the eventual use of the PVA models.
  - The ESA consultation team met last week and discussed the next steps being 3 fold:
    - 1) the Pre-ESA water management run, as agreed, was the main priority for the non-front loaded BA (This step has been completed).
    - 2) a 2003 BO run would be meaningful for comparison purposes (More directions are needed before proceeding with these runs);
    - 3) how to identify the needs and how to use the modeling tools to get to a certain end point; identification of various tools that could be used to build water management in flexible manner. This may include determining how

the PHVA work group could best support negotiations and piece together water management strategy options.

- In a closed session, the work group discussed scope development for additional URGWOM (\$160,000 allocated in MRGESCP budget for FY10).

**Next Meeting Date**

- May 18<sup>th</sup> 1:30pm - 3:30pm at Reclamation
  - Tentative agenda: (1) Review Outline of PHVA Summary Document (to be used for ESA consultation purposes); (2) Status of 2003 BiOp model run for comparative purposes (have we decided what tools will be included and when to do this run?); (3) Discuss how URGWOM can be used to support adaptive management (Rolf); (4) Status of Prior and Paramount (P&P) government-to-government consultations and potential changes for URGWOM (Randy); (5) Review and Revise Draft PHVA 2010 SOWs (Valda) (contractors will be excused for this agenda item)

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

**MEETING NOTES**

**1. Introductions and Announcements**

- Leann Towne brought the meeting to order and introductions were made. There were no announcements.

**2. Agenda Review and Updates**

- The agenda was reviewed and approved with no changes. The work group extended a welcome back to April Fitzner!

**3. Approve Meeting Notes**

- Approval of the October 21<sup>st</sup>, December 15<sup>th</sup>, and January 26<sup>th</sup> meeting notes were all postponed.
- Members were asked to review these notes and send Tetra Tech any revisions by COB on March 12<sup>th</sup>. The work group agreed that the notes could be finalized after incorporation of any revisions received by 3/12 unless there were conflicting revisions.

**4. Action Item Review**

- ✓ Tetra Tech will confirm that Paul Tashjian is included on the PHVA/Hydrology work group email distribution list. – *complete;*
- ✓ Tetra Tech will forward the request that Steve Kissock (COE) be added to the PHVA/Hydrology work group email distribution list. – *complete;*
- ✓ 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 28<sup>th</sup>. – *complete;*
  - Changes to the charter included extending the duration of the work group to accommodate the extension to the BA/BO process and correcting the membership list.
  - The CC recommended the revised charter, 2010 work plan, and 2009 accomplishments for EC approval with no additional changes suggested.
- ✓ 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. – *complete;*
  - This action item pertains to the rule in the model that represents policy to release native Rio Grande water by November 1 when Article VII is not in effect in order to bring the pool elevation down below the gates to prevent icing on the gates. Heaters have been installed on the gates and this operation was not actually implemented two years ago and there were no resulting icing problems; however, it would take a change in the Standard Operating Procedures (SOP) to move forward with any formal modification to policy.
    - Reclamation is also still reviewing El Vado operations with focus on potentially changing the downstream channel capacity in the SOP. Since the El Vado storage target is not significantly impacting the model results, a change to the rule is not a priority at this time.
    - The desire to have Reclamation communicate with the Corps regarding the larger releases associated with a potential increase to the channel capacity

and the impacts of sudden changes to storage at Abiquiu reservoir was expressed.

- Removal of the end-of-year El Vado storage target rule from URGWOM will be put on the list of potential future needs for updating the model.
- Nabil Shafike will research the historic Article VIII releases to determine how those releases have occurred in the past. – *ongoing*;

##### **5. Review of the URGWOM “safety factor” (Craig)**

- After the last PHVA and the joint PHVA/PVA meetings, several participants had questions related to the safety factor. Craig Boroughs provided explanation and clarification to address those questions.
- *Safety Factor Applied to Targets*
  - For actual operations, uncertainty in projected conveyance losses, MRGCD returns, tributary inflows, etc. make it very difficult to identify the exact amount of supplemental water needed for targets. When combined with physical operation constraints and the travel time from Abiquiu Reservoir to the target locations, more water is released in reality than what the model is predicting. Thus a safety factor is now applied to targets in the model such that modeled supplemental water releases more accurately reflect actual release volumes.
  - Please note that the safety factor is *completely independent* of the calibration. The full analysis of the calibration that was completed after the Low Flow Calibration Enhancement did not involve the use of the safety factor.
  - It was also explained that since releases are not adjusted every single day in actual operations, the releases of supplemental water are not adjusted daily in the model either; instead the operations remain constant until the change in the need for supplemental water exceeds a set threshold.
    - The needed release of supplemental water from Abiquiu is determined in URGWOM based on the representation of physical losses, but releases are not actually adjusted on a daily basis, there is an input threshold used for determining when an adjustment is implemented (note that this does not affect the volume of the supplemental water released as the computational approach used for adjusting releases assures the actual release volume matches the needed volume based on the physical losses).
    - Explained sequentially – the calibration of the model was completed first and then the safety factor is applied such that the model results for supplemental water needed better reflect the actual volumes of supplemental water released.
  - The safety factor is 25% in the current model (i.e. a target of 100 cfs will increase to 125 cfs) as determined with reference to the 2003 to 2006 model run with rules included. However, the safety factor is completely inconsequential for the Pre-ESA Management Scenario since there are no targets.
- The work group discussed the potential need to meet with the Service representatives in the Program in the next few months to address similar questions and topics.
  - It was agreed that this would be worthwhile. Other topics to address include the drying and post processing (the understanding from the last PVA meeting was that “the drying and post processing was “good enough for PHVA” but would need to be redone for PVA).

***Recommendation:*** It was suggested for the work group to develop a 1 or 2 page summary on the information from URGWOM provided for the PVA models and details on how that information was determined.

**Recommendation:** It was suggested that the PHVA/Hydrology work group specifically meet with members of the Service to make sure everyone is on the same page with the work group's modeling process thus far. Suggested attendees included Paul Tashjian, Lori Robertson, and Jen Bachus.

**Action:** Craig Boroughs will develop a first draft Key Points summary page outline and distribute to Jeanne Dye, Rolf Schmidt-Petersen, Leann Towne and Valda Terauds for input via email communications. Topics suggested during the meeting included: post processing for river drying; model calibration; the safety factor applied to targets; and spawning, recruitment overbanking flows; and including a spatial diagram of river drying for better visual information on the impact.

## **6. Results from pre-ESA water management model runs (Craig) (a.k.a. non-front loaded model runs)**

- Craig presented on the Pre-ESA Management Scenario runs completed using the latest planning module of URGWOM (01/29/10). There are no flow tools and no flow targets - just Cochiti deviations through 2013 in these runs. All simulations with the five synthetic 10-year hydrologic sequences have the previously determined 2010 initial conditions.
- In general, the results are very similar to results from previously completed runs for the non-front loaded scenario done last July.
- **Question:** What is the difference between the July non-front loaded runs and these pre-ESA runs?
  - **Response:** The model itself has some new updates – such as Article VIII releases and increased Angostura diversions when MRGCD is in a shortage situation - but the scenarios are the same. The model changes have nothing to do with the “name” change.
- Craig then projected several slides and pointed out some details on the results, specifically related to the releases made per Article VIII of the Compact and increased diversions at Angostura when MRGCD is in a shortage situation. *(Please note that not all results were reviewed during the meeting since some aspects of the results were essentially unchanged from what was presented from the non-front loaded runs last July; however, the PowerPoint presentation does include all graphs, tables, and detailed information).*
- Increased Angostura Diversions for Prior and Paramount (P&P) Ops
  - *90% exceedence sequence*
    - There are a lot of shortage periods indicated by the Increased Angostura Diversions for P&P ops with the 90% exceedence sequence.
    - It was clarified that originally, the model was leaving water in the river instead of diverting all water up to the canal capacity at Angostura during P&P operations.
    - Increased diversions at Angostura happen in 6 years during the driest sequence (90% exceedence).
    - It was remarked that we haven't seen this extreme of a dry pattern in recent history; the worst observed matches 75% exceedence (based on the paleo-data) for a 10-year period.
    - In 2003, when extreme drying occurred, supplemental water was released to keep the Albuquerque reach from going dry. Before that, the Albuquerque reach had water quality constraints and 200 cfs was maintained but there were separate agreements with MRGCD to do so.
    - The work group briefly discussed the potential benefits of a spatial map to visually show drying. One of the cautions with developing spatial maps is that a map would be specific to one time step (and there are about 4,000 time steps in 1 run alone).

- *70% exceedence sequence*
  - There are 5 periods of drying and one of the shortage situations actually occurs early in the year (April). But remember there are no continuous flow requirements, no targets, and no supplemental water used in these runs.
- *50% exceedence sequence*
  - There are 4 predicted shortage times for this sequence.
- *30% exceedence sequence*
  - Two periods of shortage are indicated.
  - A fixed annual demand curve for MRGCD is used for all the model runs.
  - A side note - for this wetter sequences, after many years of storing MRGCD's allocated San Juan-Chama Project water at El Vado Reservoir, all the stored water can be used to meet the MRGCD demand at Cochiti in just one dry year.
- *10% exceedence sequence*
  - Even for this wettest sequence, there are 2 periods of shortage that result in drying.
- Article VIII of the Compact
  - Article VIII, which entails calls for releases of native Rio Grande water in storage from post-Compact reservoirs (El Vado) from the Texas Compact Commissioner when there is an accrued Compact debt to bring usable storage up to 600,000 acre-ft, only happens twice in the 50 years of simulation from all the runs.
  - *10% exceedence sequence (wettest)*
    - There is a Compact debt but no Rio Grande water is available in storage until later years but then the usable storage is already over 600,000 acre-ft.
  - *30% exceedence sequence*
    - Same situation that occurred in the 10% sequence. Once the Compact debt reached the threshold amount for a release, the usable storage was over 600,000 ac-ft, so the release call is not made.
    - It was suggested that it would be interesting to show El Vado storage at the same time (displacing the ability to store native).
    - Article VIII is not implemented often because of the tight window of opportunity between being in or out of Article VII, or the threshold usable storage of 400,000 acre-ft before native Rio Grande water would be stored at El Vado and the target usable storage of 600,000 acre-ft for Article VIII releases - the 200,000 ac-ft difference.
  - *50% exceedence sequence*
    - For this sequence, the Compact credit is negative but again there is no Rio Grande water in storage to release.
    - However, in 2017, native Rio Grande water is stored at El Vado as Article VII is temporarily not in effect and on January 2 there is a call for an Article VIII release since the usable storage is below 600,000 ac-ft. In this situation, storage of native Rio Grande water at El Vado drops to zero before the release volume matches the magnitude of the Compact debt but all native Rio Grande water is released from El Vado.
  - *70% exceedence sequence*

- There is an Article VIII release during this sequence that occurs in 2019. And this time, there is enough native Rio Grande water available in storage to make a full release that matches the Compact debt.
- *90% exceedence sequence (driest)*
  - This sequence is too dry and Article VII is in effect the entire time so there is never any native Rio Grande water in storage when needed for an Article VIII release.
  - The work group briefly discussed the last time Article VIII was initiated in reality. It is believed that the last time it occurred was in the mid-1970s meaning there has been 30 years without an actual call. The model is predicting a release twice in the 50 years of simulation (five 10-year runs) which essentially matches the frequency based on history.
  - Nabil Shafike will continue to investigate the actual historic circumstances and details of the last Article VIII releases.

**Action:** Nabil Shafike will research the historic Article VIII releases to determine how those releases have occurred in the past. (*continued action from 12/15/09 meeting*)

- A full review of results from the pre-ESA Management Scenario runs is included in the PowerPoint presentation for the historical and administrative record. Everyone was reminded they also have access to the Excel output spreadsheets with results from the URGWOM runs as well.
- **Question:** Regarding the drying in the other reaches [besides the Albuquerque reach], was there much difference in drying?
  - **Response:** There were only subtle changes in the other reaches. During periods of shortage we were already seeing drying below Isleta so the main difference is the drying now indicated for the Albuquerque reach essentially whenever MRGCD is in a shortage situation and diversions at Angostura are increased for P&P operations.
- It was suggested that on the plots of the sequences, that (1) the flow at Embudo, (2) the timing for Article VII and usable storage, and (3) storage at Abiquiu be plotted for each of the 5 sequences.
- There was only one sequence with curtailments in initial January 1 allocations of San Juan-Chama Project water to contractors, but full allocations could be made with additional allocations made on July 1 in the model.

**Action:** Craig Boroughs will send Paul Tashjian Albuquerque diversion rules documentation.

### **7. Status of 40-year model runs (Nabil)**

- Nabil Shafike then presented on an approach for completing continuous 40-year or longer model runs.
  - The 40-year sequences are actually four 10-year blocks and can be arranged in any order (i.e., could use any combination of the five available 10-year synthetic hydrologic sequences and sort sequences differently but all are moved in 10-year blocks). And while a 40-year hydrology input was used, a continuous simulation could easily be completed for a 50 year period.
  - What was presented is just one potential option for a 40-year hydrology.
  - **Question:** For each 10-year block that is strung together, are the initial conditions reinitialized?
    - **Response:** No; the initial conditions for the next 10-year block is based on the end conditions of the previous block. This makes the progression the same as a continuous run.



- The inputs are exactly the same as used for the previous URGWOM runs with the exception of having no Cochiti deviation for the 10-year runs that follow the first run.
- The benefits to having longer sequences include seeing potential longer-term trends and calculating probability distributions for flows for each reach using more results. In terms of Compact trends – the 40-year sequence shows a greater debt at times further in the future.
- The non-federal perspective is that a longer-term BO is more desirable than just 10 years.
- Nabil explained that there are still some corrections that need to be addressed (ex. to correct the assumed letter water deliveries for the impact of Albuquerque pumping and an assumption that letter water delivery would be zero. If letter water is not released and Albuquerque does not use their allocation of San Juan-Chama Project water every year for the surface water diversion, then they continue to accumulate water in storage but they will always be doing some pumping and have an associated payback to the river).
- Probability distributions for flows can be computed for the reaches/locations. The daily flow at Central for the entire 40 years can be used to make histograms with calculated probability.
  - It was suggested that the PVA might be able to use the flow probability distributions.
- Attendees discussed the Service's desire to see climate change addressed.
  - Through the SWM work group, the Program is currently looking to fund a project to down scale the climate models for input into URGWOM.
  - It was suggested for the work group to consider using Jesse Roach's monthly timestep model. Temperature fluctuations can quickly change the predictions when the time frame is 40 years out.
  - RiverWare cannot currently do a single continuous 40-year simulation due to memory issues with using URGWOM.

#### **8. 2009 River Eyes data (Valda)**

- Valda Terauds took the RiverEyes data from the final 2009 SWCA report and broke out the discharge information by month (i.e., one sheet per month).
- 2009 was an average BO target year. Monitoring occurred between July 7<sup>th</sup> and October 31<sup>st</sup>.
- The 100 cfs target seems to be very appropriate for the Isleta reach as there was no drying.
- It will still be a while before URGWOM can complete a run using 2009 inflows to compare modeled river drying against the 2009 River Eyes data due to the availability of recent data needed to run URGWOM along with the significant amount of data needed to completely update the URGWOM database.

#### **9. Discussion about Work Group Goals, Model Purpose, and Priorities (Leann/April/Jim)**

- At the February 18<sup>th</sup> EC meeting, direction was provided regarding the PHVA and PVA processes being on separate schedules.
  - PVA modeling is really on a different time frame than the PHVA modeling at this point due to continued PVA model development. PHVA was given direction to move forward in supporting the consultation efforts since URGWOM is ready. This group will work on what is needed for the consultation and not invest too much time trying to integrate the models at this time.
    - The PVA modeling is still under development.
  - Even though the models won't be integrated yet, there is still the need for continued interaction with the PVA group in order to support their continued progress.
- The ESA consultation team discussed next steps at their meeting last week. The next steps were:
  - 1) the pre-ESA water management run, as agreed, was the main priority for the non-front loaded BA (This work has been done).
  - 2) potential 2003 BO run

- There have been discussions in other forums about a 2003 BO run as a baseline run, but the general agreement is that only the pre-ESA water management run is needed for the non-front loaded BA because an environmental baseline is a “snap shot” so it can’t be projected out.
- After the non-front loaded BA is submitted and the Service does an initial analysis, the goal is to then shift to a BO that has more information as a road map on how to proceed. There will be a step to determine what tools to use.
- In those negotiations, it is foreseen that the 2003 BO run could be meaningful as a control run (instead of a baseline) to use for comparison purposes when projecting out. Thus at some point, a 2003 BO run for comparative purposes will be needed.
- 3) Identification of various tools to build water management in a flexible manner.
  - Included in this piece was how can the PHVA work group best support negotiations and piece together water management strategies (data supporting the action agency negotiations).
- As expressed earlier, the non-federal participants do not think a 10-year BO is extensive enough.
  - Groups are still working with a 10-year period because there has been no feedback from Service to the contrary. While the Service is looking at a 10- year analysis period, the long-term perspective is that the BO doesn’t have to end at the end of the 10 years but could be extended as long as conditions are appropriate and haven’t changed. But they do not have the ability to project for longer in terms of the biology.
  - There is the concern that we are setting up the situation where real commitments can’t be made.
  - Concern was expressed that buy-in from all could not be attained to even model certain possibilities; there are a lot of things that do not have consensus support to pursue.
  - It was also expressed that it seems odd for the PHVA group to do model work for private negotiations - regardless of who.
    - The work group was not allowed by all entities to put in all the tools of interest for testing to even discern the possible effects of those tools.
- The work group discussed the adaptive management framework and the “if/then” perspective.
  - The use of decision trees first would help eliminate the potentially huge number of model runs.
  - It was suggested to use the monthly climate model independently of the other models.
- Regarding the specific PHVA tasks to do hydrologic analyses in support of the consultation process as needed for the Program, it is the one thing we were able to do and it has been completed. Until it is known what the Program will want to do next in the consultation process, the work group is at a lull point.
  - The work group discussed the next potential step being the 2003 BO run to use for comparative purposes.
  - Attendees also discussed potential changes to the model setup – such as - are deviations in or out for the 2003 BO comparison run? Would Reclamation leased San Juan-Chama Project water and Low Flow Conveyance Channel pumping be added back in?

- These questions will be presented to the ESA consultation team but it could be some time before they determine what needs to be done and until then, the PHVA group is on hold.

**Action:** Jim Wilber will ask the ESA consultation team for direction in regards to the needs for a 2003 BO model run. Potential model setup information that needs to be determined includes whether deviations should be included or not and whether any other flow tools should be included besides Reclamation leases of San Juan-Chama Project water and Low Flow Conveyance Channel pumping?

**Action:** In a closed session with no contractors present, the work group discussed developing a scope of work for additional URGWOM runs.

**Action:** Valda Terauds and Kathy Dickinson will talk with Jericho Lewis to discuss acquisition options for the 2010 PHVA SOW.

**Action:** Valda Terauds and Kathy Dickinson will draft one or more SOWs for discussion at the next PHVA meeting (May 18<sup>th</sup> at 1:30)

**Action:** The ESA Consultation Team will discuss their future needs and provide input into the SOWs.

**Action:** Marc Sidlow will let Valda Terauds know how much money is left for PHVA URGWOM modeling through the interagency agreement that Reclamation has with the Corps.

#### **10. Next Meeting Date**

- May 18<sup>th</sup> 1:30pm - 3:30pm at Reclamation
  - Tentative agenda: (1) Review Outline of PHVA Summary Document (to be used for ESA consultation purposes); (2) Status of 2003 BiOp model run for comparative purposes (have we decided what tools will be included and when to do this run?); (3) Discuss how URGWOM can be used to support adaptive management (Rolf); (4) Status of Prior and Paramount (P&P) government-to-government consultations and potential changes for URGWOM (Randy); (5) Review and Revise Draft PHVA 2010 SOWs (Valda) (contractors will be excused for this agenda item)

#### **Public Comment**

- There was no public comment.

<b>PHVA/Hydro Work Group 2 MARCH 2010 Meeting Attendees</b>					
<b>NAME</b>	<b>POSITION</b>	<b>AFFILIATION</b>	<b>PHONE NUMBER</b>	<b>EMAIL ADDRESS</b>	<b>Primary, Alternate, Other</b>
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
Steve Kissock	PHVA/Hydro Member	COE	342-3291	Stephen.r.kissock@usace.army.mil	O
April Fitzner	PHVA/Hydro Chair	COE	342-3443	April.m.fitzner@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
Nabil Shafike	Tech Team	ISC	383-4053	nabil.shafike@state.nm.us	O
Jim Wilber	PHVA/Hydro member	Reclamation	462-3548	jwilber@usbr.gov	A
Valda Terauds	PHVA/Hydro member	Reclamation	462-3584	vterauds@usbr.gov	O
Rolf Schmidt-Petersen	PHVA/Hydro Member	ISC	764-3880	rolf.schmidt@state.nm.us	P
Paul Tashjian	PHVA/Hydro Member	FWS	248-7958	paul_tashjian@fws.gov	O
Jeanne Dye	PHVA/Hydro Member	Reclamation	462-3564	jdye@usbr.gov	O
Kathy Dickinson	PMT Liaison	Reclamation	462-3555	kdickinson@usbr.gov	O
Marta Wood	Admin Support	Tetra Tech	(c) 259-6098	marta.wood@tetrattech.com	O