

**Middle Rio Grande Endangered Species Act Collaborative Program
PHVA/Hydrology Ad Hoc Work Group Meeting
May 18th, 2010 1:30 pm to 3:30 pm
Reclamation**

MEETING SUMMARY

Recommendations

- The PHVA/Hydrology work group, with input from the ESA Consultation Team, recommended the 2003 BiOp model run be completed with the unlimited supply component included such that the target flows are always met. The 2003 BiOp Unlimited Supply model run will not be initiated until (1) the URGWOM Tech Team completes pending model upgrades and (2) the proposed duration of the new BA/BO is determined (i.e., 10 years, 30 years, 50 years, etc.).

Action Items

- Jim Wilber will follow up with Leann Towne and April Fitzner on the request to consider scheduling a regularly monthly PHVA meeting day/time in order to accommodate participant's busy schedules.
- Nabil Shafike will visit the MRGCD office to review the archived hard copies of their Board of Director's Summary Notes for information and comments on Article VIII releases in the 1940s and 1950s.
- Craig Boroughs will email the flowchart depicting model policy for Albuquerque diversions to Paul Tashjian.
- Tetra Tech will send an email to PHVA work group members letting them know where the RiverEyes summary information (report and data files) is posted on the Program's website.
- Craig Boroughs will add a table defining the subreaches to the PHVA Key Points Summary Document.
- Craig Boroughs will add a reference to the URGWOM website to the PHVA Key Points Summary Document.
- PHVA work group members have until COB on June 11th to provide comments or revisions on the PHVA Key Points Summary Document to Craig Boroughs.
- Craig Boroughs will adjust the resolution in the example Spatial Depiction of River Drying and include different colors for different levels of drying based on drying durations and with reference to a subreach inflow versus outflow.
- Jim Wilber will inform the PVA work group about the intent to schedule a joint PVA/PHVA meeting in early August; the joint meeting will include the condensed PHVA refresher.
- Craig Boroughs will add estimates for areas of inundation to the template output spreadsheets used to present model run results where flow versus area of inundation rating tables are referenced. These tables were developed based on model runs completed with the FLO2D hydraulic model.
- Work group members have until COB on Tuesday, May 25th to provide comments to Valda Terauds on the PHVA 2010 SOWs.

Meeting Summary

- Jim Wilber brought the meeting to order and introductions were made. The agenda was reviewed and approved with no changes.
- The work group approved the finalization of the October 21st, December 15th, January 26th, and March 2nd meeting notes.
- All March 2nd action items were completed.

- Craig Boroughs briefly presented on the PHVA Key Points Summary Document that was distributed to work group members via email on May 6th. This document is intended to address the most frequently asked questions by the PVA work group by providing a good summary of the information being provided by the PHVA work group to the PVA work group and how the information was determined with background information on URGWOM and how the model is set up and calibrated. Topics covered in the summary include but are not limited to background information on operations of the system including general model assumptions, aspects of standard policy, and PHVA flow tools. There are several more detailed sections that cover Cochiti deviations, target flows, adjustments to targets (i.e. the safety factor), releases of supplemental water, model calibration and a review of model residuals, etc. PHVA work group members have until COB on June 11th to provide comments or revisions on the PHVA Key Points Summary Document to Craig Boroughs.
- Craig Boroughs then projected a sample spatial depiction of river drying using the results from the 50% pre-ESA Management model run. The occurrence of river drying for the entire Middle Rio Grande was presented for each month from the run. Results were only presented for each month to reduce the number of images. To identify the occurrence of river drying mile by mile would require a more extensive review of the approach for post-processing the model output. Attendees discussed the intended use of the spatial depiction (analytical versus presentation) and whether or not the benefits would justify the resources required to attain a greater level of resolution in the current template spreadsheet and to produce the results for all the runs and all the sequences.
- It was explained that the URGWOM Tech Team has been making small enhancements to the model, but the few changes and pending changes are more to add flexibilities for model use and will not significantly affect the results. The work group agreed that the Tech Team should complete the needed model updates and then re-run the pre-ESA Management scenario using the resulting new version of the model. That updated version will then be the version used throughout the remaining modeling process (i.e., all runs will be completed with the exact same model). The work group decided that the model updates need to be completed within the next 2 months.
- Attendees discussed the need for another, more focused PHVA refresher. There are several key individuals that would benefit from a refresher and the opportunity to provide comment/questions. Identified individuals included Dave Campbell, who will be the new co-chair for the PVA group; Garret Ross, who will be the new supervisor in Reclamation's water ops group; Lori Robertson in her new role with FWS; and Phil Miller and Dan Goodman, who are developing the PVA models. It was suggested that the refresher could take place as part of a joint PVA/PHVA meeting but the several members of the Tech Team are unable to attend the June 29th and 30th PVA meeting. A joint work group meeting will likely be scheduled for August. Even more focused refreshers for key people may be offered before then if/as needed.
- Representatives from the ESA Consultation Team joined the PHVA work group meeting to discuss the plan and model setup for the 2003 BiOp model runs. Completing runs for the 2003 BiOp was previously agreed upon as the next step and beneficial for supporting the ESA consultation process. This run would be a control-type run to use for comparison purposes and would be valuable in an existing or "baseline" context. The purpose of the joint Consultation Team-PHVA work group discussion was to determine what flow tools would be included and identify other aspects of the model set up for these runs. It was agreed that the 2003 BiOp model run should include the hypothetical unlimited supply component such that targets are always met but should not be initiated until (1) the Tech Team completes model upgrades within the next 2 months and (2) the proposed duration of the new BA/BO is determined (i.e., 10 years, 30 years, 50 years, etc.).

- The work group met in a closed session to discuss the PHVA 2010 SOWs. Work group members have until COB on Tuesday, May 25th to provide comments to Valda Terauds on the PHVA 2010 SOWs.

Next Meeting Date

- August 10th, 1:30pm - 3:30pm at Reclamation
 - Tentative agenda: (1) discuss topics related to completing 30 yr versus 10 yr model runs; (2) review/discussion of an updated example for a Spatial Depiction of River Drying;
 - Potential agenda topics carried over from the March 2nd meeting: (1) Discuss how URGWOM can be used to support adaptive management (Rolf); (2) Status of P&P government-to-government consultations and potential changes for URGWOM (Randy);

**Middle Rio Grande Endangered Species Act Collaborative Program
PHVA/Hydrology Ad Hoc Work Group Meeting
May 18th, 2010 1:30 pm to 3:30 pm
Reclamation**

MEETING NOTES

1. Introductions and Announcements

- Jim Wilber brought the meeting to order and introductions were made.
- Amy Louise returns to the PHVA work group as the PMT liaison replacing Kathy Dickinson.

2. Agenda Review and Updates

- The agenda was reviewed and approved with no changes.
- It was suggested that the work group consider scheduling a consistent, regular monthly meeting time in order to accommodate participant's busy schedules. It was acknowledged that while regular monthly meetings was a good idea, the PHVA/Hydrology group is an ad hoc work group and is product driven so there may not always be a need to meet monthly but only when the agenda is full. Since neither co-chair was in attendance at this meeting, a decision could not be made. It is assumed that the work group will choose to not take this suggested approach at this time. However, the suggestion will be raised to the co-chairs for consideration.

Action: Jim Wilber will follow up with Leann Towne and April Fitnzer on the request to consider scheduling a regularly monthly PHVA meeting day/time in order to accommodate participant's busy schedules.

3. Approve March 2nd Meeting Notes

- The October, November, December meeting notes were approved and finalized with no additional comments received.
- The March 2nd meeting notes were approved for finalization.

4. Action Item Review

- ✓ PHVA/Hydrology work group members will review the October 21st, December 15th, and January 26th meeting notes and submit any corrections or revisions to Tetra Tech by COB on March 12th. – *complete; no additional comments were received.*
- ✓ 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 outline input via email communications. Topics suggested during the meeting included: post processing; calibration; safety factor; drying; and spawning, recruitment overbanking components; and including a spatial diagram for more visual impact. – *complete;*
 - Not only was the summary document outline developed but the actual document was prepared with a nearly complete draft available.
- ✓ 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*) – *complete;*
 - Nabil was not able to find any documents containing information on historical releases for Article VIII.
 - It was shared that the archived District's Board of Director's Summary notes from the 1940s and 1950s contain comments and references on past Article VIII releases.

Action: Nabil Shafike will visit the MRGCD office to review the archived hard copies of their Board of Director's Summary Notes for information and comments on Article VIII releases in the 1940s and 1950s. .

- ✓ Craig Boroughs will send Paul Tashjian the Albuquerque diversion rules documentation. – *complete;*
 - A short write up was sent in an email to Paul. There is now a flowchart that has also been recently developed.

Action: Craig Boroughs will email the flowchart depicting model policy for Albuquerque diversions to Paul Tashjian.

- ✓ Jim Wilber will ask the ESA consultation team for direction with the 2003 BO run to make sure that PHVA is on the right path. For consideration: are deviations in or out for the 2003 comparison run? Would there be additional model setup changes besides adding back in supplemental releases and low flow pumping? – *complete;*
 - This topic will be discussed later during this meeting in a joint Consultation Team/PHVA work group meeting session with the intent to accomplish resolution today.
- ✓ Valda Terauds will send Tetra Tech the 2009 RiverEyes summary information. – *complete;*
- ✓ Valda Terauds and Kathy Dickinson will talk with Jericho Lewis to discuss acquisition options for the 2010 PHVA SOW. – *complete;*
- ✓ Valda Terauds and Kathy Dickinson will draft one or more SOWs for discussion at the next PHVA meeting (May 18th at 1:30) – *complete;*
 - Funds will probably be de-obligated but not until late in the fiscal year.

Action: Tetra Tech will send an email to PHVA members letting them know where the RiverEyes summary information (report and data files) is posted on the Program's website.

- ✓ The ESA Consultation Team will discuss their future needs and provide input into the SOWs. – *complete;*
 - This topic will be discussed later during this meeting in a joint Consultation Team/PHVA work group meeting session with the intent to accomplish resolution today.
- ✓ 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. – *complete;*

5. Review Outline of PHVA summary

- The Key Points Summary Document outline was developed and the actual document is in the population stage with a nearly complete draft available. The document was distributed to work group members by e-mail on May 6th.
- This document is intended to address the most frequently asked questions by the PVA work group by providing a good summary of the information being provided by the PHVA work group to the PVA work group and how the information was determined with background information on URGWOM and how the model is set up and calibrated. Since the previous version was provided, a full page has been added summarizing standard aspects of operations of the system and some general assumptions were added.
- Other topics covered in the summary include but are not limited to background information on operations of the system including general model assumptions, aspects of standard policy, and PHVA flow tools. There are several more detailed sections that cover Cochiti deviations,

target flows (written to emphasize that target flows could really be viewed as a modeling tool used to drive the releases of supplemental water), adjustments to targets (i.e. the safety factor), releases of supplemental water, model calibration and a review of model residuals. The document includes some screen captures from the model workspace as well.

- This document was originally created specifically for the PVA work group but it could be more widely distributed among all Program participants. It might also be useful as descriptive information for the BA process/documents.
- **Question:** Regarding the PHVA summary document references, are any references to the URGWOM website already included?

- **Response:** No, but a reference could be easily included.

Action: Craig Boroughs will add a reference to the URGWOM website to the PHVA Key Points Summary Document.

Action: Craig Boroughs will add a table defining the subreaches to the PHVA Key Points Summary Document.

Action: PHVA work group members have until COB on June 11th to provide comments or revisions on the PHVA Key Points Summary Document to Craig Boroughs.

6. Spatial Depiction of River Drying (Craig)

- Craig Boroughs then projected a sample spatial depiction of river drying using the results from the 50% pre-ESA Management model run. The occurrence of river drying for the entire Middle Rio Grande was presented for each month from the run. Results were only presented for each month to reduce the number of images. To identify the occurrence of river drying mile by mile would require a more extensive review of the approach for post-processing the model output. One potential simple option for providing a graphical summary of the occurrence of river drying could be to create the spatial depiction only for the annual maximum extent of drying for a given year.
- This presented example is just for one scenario and one hydrologic sequence. It would be a large effort to provide all the charts for all the runs and all the sequences. The PHVA group was asked to identify the specific needs before more time and energy are applied. The provided example included a depiction of drying for each month from a model run and to go to weekly or daily drying would significantly increase the work and the amount of information/charts.
 - Attendees briefly discussed the visual application and the difficulty in translating the presentation to a hard copy format for handouts or a report (one chart only provides a snapshot of one day or one month).
 - Charts for a single 10-year run could potentially be used in hard copy form to show the maximum *yearly* drying only.
- It was discussed that the PVA work group needs numerical data for their models. So the spatial depiction of drying is really only a presentation tool.
- Concerns were expressed that entire subreaches are being displayed as “dry” or “not dry” when in fact, there could be drying only for a portion of the subreaches.
- It was suggested for different colors to be used to indicate different levels of drying – drying for less than a week versus over a week. Maybe 3 colors: (1) yellow to indicate below some threshold level for intermittency (ex. pools); (2) red to indicate complete drying (ex. bone dry); and (3) blue to indicate wet.
- It was also suggested to present river drying at a daily resolution, but as discussed earlier, that would significantly increase the amount of post-processing and number of presented charts.
- One way to more accurately indicate expected drying would be to base the post-processing calculations on the inflow to a subreach instead of the outflow from the subreach; if inflow is zero, then the reach is definitely dry.

- Regarding the application of the spatial depiction of river drying – there is likely little benefit as an analytical application but there may be benefit as a presentation graphic. The trade off that the group needs to assess is: are the benefits significant enough to warrant the work required?
 - Might it be useful for refining the post-processing approach?
- It was agreed that Craig will make some of the suggested changes to the spatial depiction of river drying and the group will revisit the discussion based on the revisions at the next meeting.

Action: Craig Boroughs will adjust the resolution in the example Spatial Depiction of River Drying and include different colors for different levels of drying based on drying durations and with reference to a subreach inflow versus outflow.

7. URGWOM Model Version (Craig)

- It was explained that the URGWOM Tech Team has been making small enhancements to the model, but the few changes and pending changes are more to add flexibilities for model use and will not significantly affect the results. A year ago, when the last scenario runs were done, the work group agreed it was best to stick to a single, consistent model version to use throughout the process and not have to rerun every scenario after every model change. A window of opportunity is now available to update the model to the most accurate version to be used throughout the remaining process since only the pre-ESA runs would have to be rerun.
- The Tech Team needs to know the final deadline for no longer updating the model.
 - The work group wants to have everything set before the 2003 BiOp runs are to be completed. It is currently assumed that the details of the 2003 BiOp runs will be decided within the next month or so. This means that all model updates would need to be completed within the next few months.
 - **Question:** Can the Tech Team get the next set of revisions done within the next 2 months thus allowing time to redo the pre-ESA runs and have that model version used throughout the process?
 - **Response:** Yes, probably. The next tech team meeting is in 2 weeks and this will be discussed.
- **Question:** Is the PVA work group using the monthly timestep hydrologic model to obtain May/June flow volumes?
 - **Response:** Nothing has been decided yet. At the last meeting, Phil Miller presented a proposal on how to move forward with a monthly timestep. He did reference Jesse Roach's model but that model isn't calibrated yet and the results do not match up with URGWOM. It was discussed that at some point the PVA and PHVA modelers (and any other potential modelers) will need to get together since it would be a mistake to move forward without everyone's input.
 - The question remains if the monthly timestep is the correct resolution.
 - Concern was expressed with the potential use of the monthly timestep hydrologic model before it is calibrated.
 - The discussions are happening and similar concerns were voiced at the last PVA work group meeting. As far as is known, no one is moving forward prematurely at this point.

8. PHVA Condensed Refresher

- The PHVA work group held a refresher back in November, but there is additional need for a more focused refresher with an opportunity provided for comments/questions. Identified key individuals included Dave Campbell, who will be the new co-chair for the PVA group; Garret

Ross, who will be the new supervisor in Reclamation's water ops group; Lori Robertson in her new role with FWS; and Phil Miller and Dan Goodman, who are developing the PVA models.

- The next PVA work group meeting has been set for June 29th and 30th; it was suggested that the PHVA refresher could be added to the agenda as part of a joint PVA/PHVA section during this meeting. Unfortunately, key members of the Tech Team will not be able to attend the June meeting.
- It was agreed to target early August for a joint PVA/PHVA meeting with the PHVA refresher to be included on the agenda. A more one-to-one refresher for key people will be offered before then if/as needed.

Action: Jim Wilber will inform the PVA work group about the intent to schedule a joint PVA/PHVA meeting in early August; the joint meeting will include the condensed PHVA refresher.

9. 2003 BiOp Model Runs (with consultation team)

- Representatives from the ESA Consultation Team joined the PHVA work group meeting to discuss the plan and model setup for the 2003 BiOp model runs. Completing runs for the 2003 BiOp was previously agreed upon as the next step and beneficial for supporting the ESA consultation process. This run would be a control-type run to use for comparison purposes and would be valuable in an existing or "baseline" context. The purpose of the joint Consultation Team-PHVA work group discussion was to determine what flow tools would be included and identify other aspects of the model set up for these runs.
- **Question:** What amount of San Juan/Chama Project water will be assumed to be available for Reclamation leases? We are currently assuming 8,000 ac-ft for the first 5 years and 5,000 ac-ft for the last 5 years in the 10-year simulations.
 - **Response:** This run entails meeting the flow requirements under the 2003 BiOp, but supplemental water is used to meet the target flows and we know that this operation cannot successfully continue because most of the water used to meet the targets was leased and those sources are going away.
 - The actual historical sources for the supplemental water have varied every year.
 -
- **Comment:** If this run is to be a "baseline" run to use for comparison, it won't be meaningful to have the operations "crash" by not meeting the BiOp; we can't bust the BiOp or the run wouldn't be appropriate to use for comparison purposes.
- **Question:** We have historical data from operations under the BiOp, so why do model runs instead of using the actual data?
 - **Response:** The point is to use the 2003 BiOp and requirements to assess *future* conditions (ex. 2012 to 2022) and what the river might look like; to see possible results of what the future might look like for that same period if the 2003 BiOp was continued.
 - In order to do a baseline comparative run, it will be necessary to do an unlimited supply run to meet the BiOp and not let the model bust the BiOp and then provide the tally of the amount of "extra" water needed above the expected available supply of supplemental water.
 - A concern was raised that it would be okay to do an unlimited supply run only if results for upstream reservoir storage are not needed because storage conditions and some other aspects of operations would not be accurate with the hypothetical unlimited supply included, but it was then clarified that the approach would be okay since the only area of interest is resulting river conditions in the Middle Valley.

- There are requirements under the current BiOp and yet the minnow has persisted. The focus needs to be on the minnow population and a comparison for the purpose of determining if the future provides enough habitat for the minnow to persist.
 - The PVA models will be needed to indicate the minnow population responses through time. The PHVA model output will be used to determine the water needs and if there is enough water expected or not. We can't assume the success of the population is based on the flow target as the flow targets don't actually contribute much.
 - We need to, starting in 2002, model forward using URGWOM to establish the "baseline" back to a known point in the past and then use the model to project forward for comparison and then model future projections.
- With the reduction in supplemental water, it is understood that we may not be able to continue to meet the 2003 BiOp for long. That is the reason for the re-consultation.
- As long as we are only looking at flows and river drying and not reservoirs or Compact requirements, then an unlimited supply run for the 2003 BiOp would provide the needed outputs.
 - Concern was raised with comparing the results from the unlimited supply runs (without caps to the available supplemental water) to other runs that have caps in place – the comparison would not be "apples to apples."
 - The unlimited supply only helps to always make the BiOp targets.
- **Question:** How will the Albuquerque Diversion project be handled in the context of comparisons going forward?
 - **Response:** All existing projects (and the resulting impacts) would be included as they exist today.
- **Question:** How will supplemental water releases and responses to river drying be handled (ex. dealing with recession, multiple drying events, salvage, etc.) which change yearly?
 - **Response:** All of those operations should be evaluated equally since the scenarios will be compared and operations are based on what has been done most recently.
- **Question:** What do Phil Miller and Dan Goodman need in terms of model output to for their models?
 - **Response:** We are still waiting to see what they do with the pre-ESA Management run outputs that were provided before any more model results are provided.
 - From the PVA perspective, they still haven't figured out how to use or integrate the pre-ESA Management simulation outputs/results.
- **Comment:** All the components to Reclamation's supplemental water program (ex. low flow pumping, emergency drought water, relinquishments, deviations, etc.) should be on in the 2003 BiOp model run.
 - **Response:** With the unlimited supply component included, those operations may be irrelevant as the targets will be met from the unlimited supply of supplemental water at Abiquiu.
 - Actually, these flow tools should all be on.
 - Simulated contributions from these tools will be important in the end for determining how much each tool contributed toward the total needed amount of supplemental water.
- **Comment:** Pretending there will be no PVA information, the Service would take the model output and do traditional analysis: peak discharge and number of days of peak, number of acres inundated, number of miles of river drying per reach, duration of drying, etc.
 - **Response:** All of that information will be available including peak flows and number of days over certain discharge, except the inundation piece. The Corps is working on inundation with FLO2D.

- There are some rating tables relating flow to area of inundation based on results from simulations with the FLO2D hydraulic model.

Action: Craig Boroughs will add estimates for areas of inundation to the template output spreadsheets used to present model run results where flow versus area of inundation rating tables are referenced. These tables were developed based on model runs completed with the FLO2D hydraulic model.

- It was agreed that the 2003 BiOp model run will be completed with the unlimited supply component included such that the target flows are always met.
 - There are a few model adjustments that the Tech Team would like to make to the model before the 2003 BiOp run is completed. Is a 2 month time frame acceptable?
- Concern was raised that if Program is looking at completing runs for periods longer than 10 years, then separate 10-year model runs will need to be re-sequenced to be appropriate.
 - The work group agreed to not make an official request for the runs yet.
- It was agreed that the 2003 BiOp model run will be an unlimited supply run but will not be initiated until (1) the URGWOM Tech Team completes pending model upgrades within the next 2 months and (2) the proposed duration of the new BA/BO is determined (i.e., 10 years, 30 years, 50 years, etc.).

10. Review and Revise PHVA 2010 SOWs

- The work group met in a closed session to discuss the PHVA 2010 SOWs.
- Action:** Work group members have until COB on Tuesday, May 25th to provide comments to Valda Terauds on the PHVA 2010 SOWs.

11. Next Meeting Date

- August 10th, 1:30pm - 3:30pm at Reclamation
 - Tentative agenda: (1) discuss topics related to completing 30 yr versus 10 yr model runs; (2) review/discussion of an updated example for a Spatial Depiction of River Drying;
 - Potential agenda topics carried over from the March 2nd meeting: (1) Discuss how URGWOM can be used to support adaptive management (Rolf); (2) Status of P&P government-to-government consultations and potential changes for URGWOM (Randy);

Public Comment

- There was no public comment.

PHVA/Hydro Work Group 18 MAY 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
Steve Kissock	PHVA/Hydro Member	COE	342-3291	Stephen.r.kissock@usace.army.mil	O
Daniel Garcia	---	COE	342-3393	daniel.m.garcia@usace.army.mil	O

Randy Shaw	PHVA/Hydro member	BIA	563-3415	randy.shaw@bia.gov	P
Delphina Montano	Consultation Team Rep	FWS			O
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
Lori Robertson	Consultation Team Rep.	FWS	761-4710	lori_robertson@fws.gov	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
Amy Louise	PMT Liaison	ISC	383-4057	amy.louise@state.nm.us	O
Don Gallegos	PHVA/Hydro Member	COE	342-3382	donald.j.gallegos@usace.army.mil	A
David Gensler	PHVA/Hydro Member	MRGCD	247-0234	dgensler@mrgcd.com	P
Marta Wood	Admin Support	Tetra Tech	(c) 259-6098	marta.wood@tetrattech.com	O