Approved November 15, 2005

HYDROLOGY COMMITTEE CONFERENCE CALL
SAN JUAN RIVER BASIN RECOVERY IMPLEMENTATION PROGRAM
JUNE 15, 2005

Member/Alternates Present	**Representing**
Pat Page, Chairman	U.S. Bureau of Reclamation
Ray Alvarado	Colorado Water Conservation Board
Chuck Lawler	Southern Ute Indian Tribe
Steve Cullinan	U.S. Fish and Wildlife Service
Randy Kirkpatrick	Water Development
Ron Bliesner	Keller-Bliesner Engineering (Bureau of Indian Affairs)
Steve Harris	Water Development
Bernadette Tsosie	Navajo Nation Dept. of Water Resources
Brian Westfall	Keller-Bliesner Engineering (Bureau of Indian Affairs)
Pat Turney	State of New Mexico
John Simons	U.S. Bureau of Reclamation
Dave Frick	Jicarilla Apache Nation
Mike Hamman	Jicarilla Apache Nation
Aaron Chavez (Alternate)	Water Development

Program Management:	**Representing:**
David Campbell	Program Coordinator U.S. Fish and Wildlife Service, NM Ecological Services
Joann Perea-Richmann	Program Support Assistant U.S. Fish and Wildlife Service, NM Ecological Services

Other Interested Parties:	**Representing:**
Dave King	U.S. Bureau of Reclamation
Mike Buntjer	U.S. Fish and Wildlife Service, NM Ecological Services
Amy Cutler	U.S. Bureau of Reclamation
Ed Warner	U.S. Bureau of Reclamation

INTRODUCTIONS, REVIEW AND APPROVAL OF AGENDA

Agenda was reviewed adding Temperature Model, Model Run Status and Minor Depletions status and comments.

TEMPERATURE MODELING STATUS

The temperature model report has not been finalized yet, comments are currently being incorporated from the September 2003 Draft. A conference call between Amy Cutler, Mark McKinstry and Ron Bliesner took place to discuss comments and concerns made by Ron Bliesner. The BC's standpoint on this is to use thermograph for the wet, dry and average years from 1995-2000 to compare temperatures with Temperature Control Device (TCD) assumptions. Ron Bliesner stated he suggested runs be done every 3 days. Ron Bliesner mentioned they will be working with Ray Alvarado on thermographs and hydrographs with spawning time and fish once a white paper on water temperature impacts to fish is completed (scheduled for the end of June). Ron said that what we have now doesn't show the differences in thermograph and hydrograph, so it would be best to consolidate this information to see what the impacts will be. A comparison will also be done with TCD and without TCD.

Ed Warner asked if there had been any further direction from the Coordination Committee (CC) on this issue. Steve Harris addressed the HC saying he didn't believe any further discussions had been done with the CC. The HC feels that some recommendations/direction from the BC and CC are needed. Steve Harris said he didn't feel the Navajo Reservoir Operations Biological Opinion matched findings in the draft temperature Model report.

Ron Bliesner said additional funding would be needed if extra runs are done. Amy addressed the HC saying she still has about $15,000-$20,000 funding available which would be enough for 1-year or three months of runs every three days but would need to know when the committee would want to start.

It was suggested that the HC review the Draft and Supplemental packages forwarded April 8, 2005, then provide comments. Ray Alvarado asked how modeling will be used in the future (i.e., more data runs, more data collected) to be sure that this model is accurate at various flows and temperatures? Ron Bliesner said Amy could use the current model 1-D model to generate thermograph or two. But, if the HC really wants a model that is useful in the future to generate a thermograph a steady state model should be used and calibrated. This would require modification to the current contract. Ron Bliesner said right now it's a model run for every data point this has proved fortunate, and since the HC already has a model calibrated a thermographic answer could not be answered then make a decision whether the HC wants to use a tool developed to use in the future with more data and runs since the data has been collected to date.

Ray Alvardo then asked how accurate does this need to be? For example if it is a few degrees off what are the results? Ron stated the model needs to have an accuracy of one-degree Celsius or better. Ron Bliesner stated an impact of three-degrees Celsius, is the maximum difference between two hydrographs. But three-degree Celcius for three months is pretty significant. Ray Alvarado asked "if the model is off three-degrees what would be the results." Ron said if the model if off by about three-degrees it would be a waste of time. Ron Bliesner indicated that everything he's seen suggests that the model accuracy is much better than three degrees. Amy stated that both the reservoir model and river model were accurate to less than one degree Celsius. Steve Harris asked "by inserting the TCD to what extent can this change the temperature in the river?" Ron Bliesner said that this depends on the system discharge. At base flow a TCD does not have much impact. However, at peak release there can be a significant difference.

Ron Bliesner suggested going to the BC and if they decide they need a thermograph have Amy Cutler run a year. Then assess whether there's a need to go further and to develop a tool for the future.

Conclusion:

- Pat Page will asked the BC whether they want a thermograph run done without changes to the budget, then report back to the committee.
- HC agrees that the BC needs to make recommendations on what they want from a biological standpoint. Ron Bliesner said this could be addressed at the BC meeting in July.
- The committee agreed that it would be premature to discuss this further until the white paper is received from Vince Lamarra.

REVIEW AND APPROVAL OF DRAFT SUMMARIES FOR APRIL 28, 2005

The Hydrology Committee (HC) approved minutes with minor corrections on page 2 Hydrologic Conditions Discussion.

REVIEW OF ACTION ITEM LOG (ATTACHED)

Action items are either still ongoing or extended. Review of action items have been updated on the attachment. Item #104 - completed Bernadette is working with Lynn Miller. Item #124 comparative runs still need to be done, present configuration is out there just needs to be tested.

UPDATES ON BUDGET AND STATUS REPORT (DAVE KING)

- Dave King reported that they are in the process of completing the data update and trying to revise a problem which was discovered on the Animas then move on to the flow recommendation testing. (narrative sent out)
- The budget now reflects the $28,000 which was transferred over to the BC.

Pat Page indicated that work is moving forward.

Mike Hamman addressed Pat Turney saying that in the adjudication in the Chama Basin and it's come to Jicarilla's attention that the State of New Mexico used the modified Blaney-Criddle method. Mike asked if as they go forward with the adjudication in the San Juan River Basin, the State of New Mexico will be shifting to use of the modified Blaney-Criddle method in the adjudication. Pat Turney commented that they would not recommend this.

Baseline

Dave King has asked which projects should be in the baseline. Ron Bliesner indicated that both the Jicarilla and Long Hollow and some of Colorado's information are recorded in the model run and in the baseline. Red Mesa and Stevens Creek are not in the model. David Campbell indicated that they are in the Minor Depletions account.

Dave King stated a couple of technical questions have risen first on the Jicarilla since these new depletions came out based on the use of Generation 2 Model with knowledge of the operation of Navajo, the new model has no knowledge of Navajo Reservoir operations upstream of Navajo Reservoir.

1.) The question to the committee is how to set up the depletion schedule for Jicarilla particularly in the area of extending the data up from 2000 to 2003.

Suggestion from the committee is to investigate this and send comments to Dave King.

Ron Bliesner clarified this saying they ran the model, reviewed it and adjusted their demand schedule based on water supply availability and what the impact downstream would be. Dave King stated they'd have to do one of

two things 1.) freeze the demand which came out of the study or 2.) figure out how to extend three more years in the future.

Dave Frick said they came up with a depletion pattern of 6,570 cfs based on projection of reservoir inflows which is how they set diversions for that year. Dave Frick also said he thought they used the projections of the April forecast releases in the Gen2 model. Dave Frick will forward the rules for demand pattern to Dave King. Ron Bliesner said the demand patterns will need to be used in Gen2 and Gen3.

Ron Bliesner stated the way things have been handled in the past should be handled the same way unless there's reason to handle it differently. Ron stated Long Hollow should be kept as gain loss.

Dave King then asked how to extend this?

> Suggestion: John Simons indicated that Wright Water engineering used wet/dry/average hydrology years to extend annual depletions amount from 1929-1988.-. Dave King and John Simons will work together on this using the same rule.

Another question was raised by a committee member asking when these changes extend projects and the average depletion is different over a different time period as listed in the baseline, is there going to be a problem with FWS? Ron Bliesner said keep in mind baseline depletions numbers will change on all historic information with the new natural flow runs and Gen III model configuration so there is every reason to think they will change with future projects as hydrology changes. Ron Bliesner said maybe this would be a question for FWS.

> David Campbell will ask the Endangered Species branch within FWS a general question that "if a project is consulted and 10 more years of record is added and there's new depletion number, is there going to be a problem or will adjustments have to be made"?

Dave King said if Long Hollow is incorporated in the baseline it will be 2.7.0 SJ Model using Riverware 4.6.

REVIEW OF DRAFT MEMO ON SMALL DEPLETIONS

Pat Page announced that he received comments from Pat Turney and John Whipple of the State of New Mexico (NM). They pointed out that what initiated the HC to develop this recommendation on how to handle small depletions was to ensure that all projects be accounted for – not what the cutoff was for inclusion into the minor depletions account. They were concerned that by increasing the cutoff to 500 acre-feet, the minor depletions account would be filled quicker. Ron Bliesner said during the last BC meeting they thought modeling anything less than 500 acre-feet didn't make a lot of sense, because of the amount of work which goes into a model run and they can't describe the outcome on depletions that small. The BC suggested to the CC that the CC not use the discretion to model anything under 500 acre-feet. Some of the HC members feel this is an issue which has gone through many discussions and whether it would be beneficial to send the memo at all. Other members felt FWS needs to have some kind of guideline. Ron Bliesner suggested adding some language to the memo that noted the limitations of the model to explicitly model project's under 500 acre-feet. The HC agreed to incorporated NM's comments with the note on the limitations of the model when dealing with projects of less than 500 af.

> Recommendation: Pat Page will revised the memo to incorporate the changes agreed to by the HC and forward to HC to review and approve David Campbell questioned the 1st Paragraph under recommendations saying the sentence "provide this information to the Bureau of Reclamation.....should be removed because it seems there would be double tracking. The committee agreed to take this sentence out.

Pat Page asked the committee to review the memo sent out by John Whipple which he provided to the committee June 7, 2005 "Small Depletions Memo". David Campbell addressed the committee saying he is

working with Colorado (Tom Pitts) and the SW Water Conservation to review all Biological Assessments (BA) for 60 minor depletion accounts which should have been in the baseline but were double counted. Ray Alvarado asked what the process was for accepting recommendations? David explained that the recommendations made by NM were reviewed by the Service and agreed to but were never reflected in the minor depletions account. He stated that he's gone through the depletions and revised. Ron Bliesner said John Whipple recommended taking out the net depletions of 450 acre-feet for the Potato Plant. David said John indicated net depletion never occurred and although the consultation went forward it was never funded. Ron said it's still in consideration and felt this should not have been taken out.

> Recommendation: Pat Page and David Campbell asked that the HC members submit comments back to John Whipple.

David Campbell said he emailed the depletions sheets and feels more discussion is needed so he can get an idea on how to handle the minor depletions account process worked once the account was closed out, and how it was put into the model and how to deal with the issues of the Potato Plant. The second handout just reflects double counted depletions.

Ron Bliesner said the 1500 acre-feet of the original documentation was double counted. He thought there was a memo sent by Randy Seaholm on this. Ray Alvarado said he would check on this. The HC was asked to forward comments to David Campbell.

UPDATE ON REVISED FLOW RECOMMENDATIONS

Ron Bliesner said they were still waiting for resolution on information on the Animas modeling from State-Mod and Riverware. So the actual implementation has not been started until that issue is resolved. Pat stated they've received the model but with the problems that came up and not receiving the report yet, it would be best to wait and fix the problems first before proceeding.

Pat Page said Steve Harris' proposal (attached) will have to be evaluated and that funding issues may be a factor in analyzing Steve's suggested changes to the flow recommendation although the FY2006 budget does include a contingency line item as well as money to be used to make model runs as requested. The model would address the hydrological issues associated with Steve's proposal but the BC would have to be involved to determine how this might impact the fish.

FY2006 STATEMENT OF WORK (SOW)

Pat Page informed the HC that SOWs were provided to the CC for review and approval at their next meeting. They reflect the $28,000.00 which was provided to the BC and reflects the $6000.00 contingency.

HYDROLOGIC CONDITIONS DISCUSSION (JOHN SIMONS)

John Simons reported that the Navajo Reservoir releases are currently at 4430 cfs. Navajo Reservoir releases will begin ramping down June 16, 2005. Pat Page reported that when USGS went out to the discharge gage last week the new shift showed that only 4400-4500 cfs had been released during spring peak release. Pat Page stated even with this lower release all flow criteria were met. Pat Page indicated that they are developing a plan/strategy to deal with inaccurate gage readings in the future.

NAVAJO RESERVOIR OPERATIONS

Ron Bliesner asked if inflows into Navajo Reservoir have decreased enough so that a high release wouldn't have to be made this fall. John Simons said he believes that a fall release won't be necessary. He indicated that the May inflow was 100,000 acre-feet less than the forecasted inflow. It is still unknown if that volume will be moved (by the forecasters) to June and July's inflow or if that volume will just simply not show up in the reservoir. The San Juan River Basin composite Snow Water Equivalent is about 87% of average 2.7 inches verses the 3.1 inches of average. Navajo Reservoir's elevation at the beginning of this month was about 6075

feet.

Pat Page stated they are confident there's enough room in storage to handle the remaining runoff and that this time they don't feel the need to extend the high release. If however, we have a wet summer, the reservoir elevation would likely rise due to the fact that it's being operated to meet the flow recommendations but the depletion levels that are contained in the flow recommendations are not as high under present conditions. So, NIIP is using less water and there's not a huge demand downstream.

Ron Bliesner suggested re-running current depletion runs which will give the October-December target base numbers by running the model based on current depletions, this could give better guidance. John Simons said that the 2006 fy inflow estimates are set at 90% of the 30-year average. At the level of inflow, we can expect high reservoir content during the upcoming winter and into the spring snowmelt period of 2006.

Habitat Range (mid May to current)
John Simons reported on the results of the high spring peak release. All flow criteria were met in the critical habitat. The results are as follows: Eight days above 10,000 cfs at all stations, (Shiprock was 12 days above 10,000 cfs); 17 days at 8,000 cfs or greater at all gages; 38 days at 5,000 cfs or greater at all gages. Peak flows were 12,500 cfs and almost 13,000 cfs at Shiprock.

NEW PROJECTS
Steve Harris reported that Lightener Creek to Lake Durango is still in the works, the long-term average depletions will likely range from about 200 acre-feet to as high as 250 acre-feet.

Ron Bliesner reported that the Navajo Gallup model has been re-run and that the Draft BA is with BoR for review and is expecting to have it back to FWS by July 1, 2005.

ACTION ITEMS
- Joann Perea-Richmann will update April 28, 2005 minutes and post on web.
- Ron Bliesner will re-word recommendation for handling small depletions memo and forward to HC prior to approving.
- Dave King will revise memo for Depletions Comparison and send to HC.
- David Campbell will check with the Service on the changes to the hydrology and when it's updated and individual changes to depletions.
- Bernadette Tsosie will get GPS location to committee for USGS.

2005 MEETING/CONFERENCE CALL SCHEDULE
The following meeting/conference call dates were selected (note: all meetings will be in Farmington)
- August 30th – ***Conference Call***, 9 am - Noon
- November 15th – Meeting in Farmington @ Farmington Civic Center, 9 am – 3 pm (**changed to conference call**)

MEETING ADJOURNED AT 10:30 AM

HYDROLOGY COMMITTEE ACTION ITEM LOG
(Updated June 22, 2005)

	Action Item	*Meeting/ Origination Date*	*Responsible Party*	*Due Date*	*Revised Date*	*Date Completed*
4	Add model runs and other information to the permanent hydrology website: http://uc.usbr.gov	7/25/01	Erik Knight	Ongoing		
5	Model modification briefings.	7/25/01	Reclamation and Keller-Bliesner	Ongoing		
12	Any new data or methods incorporated into RiverWare or State Mod will be shared with the Hydrology Committee.	7/25/01	Keller-Bliesner and Reclamation	Ongoing		
34	Gage error analysis discussion: the Hydrology Committee still needs to determine whether big losses are due to daily desegregation. The Committee has the option to re-evaluate losses once the 3rd Generation model is complete.	11/27/01	Hydrology Committee		Postponed until StateMod analysis is completed	
58	John Whipple will provide a written statement of New Mexico's concerns re: State Mod. Based on that, Ray Alvarado will provide a written description of StateMod. New Mexico's comments have not yet been received. [10/29/02] Still on New Mexico's back burner.	5/7/02	John Whipple Ray Alvarado	6/17/02	Extended check with John Whipple	
105	USGS agreed to give a presentation annually to the Hydrology Committee regarding the effectiveness of the gage readings.	8/5/03	USGS	Ongoing Pat P. will invite to the 11-15-05 mtg	Annually	

	Action Item	*Meeting/ Origination Date*	*Responsible Party*	*Due Date*	*Revised Date*	*Date Completed*
115	New Mexico will present issues associated with forbearance.	10/14/03	John Whipple	Extended	8-30-05	
124	USBR will conduct a comparison of Riverware versions whenever a new version is available, analyze the results, and recommend to the HC whether and when to incorporate the new version.	1/21/04	Pat Page	Ongoing	Report will have out in a few days to members on the list serve.	
136	Coordinate documentation for depletion differences for Gen 2 & Gen 3	5-18-04	Ron Bliesner & Dave King	Ongoing	Report will completed 8-1-05	
139	Committee will report any new projects which will be coming up.	5-18-04	Hydrology Committee	Ongoing		
140	Follow-up on (USGS) gage at Archuleta right-of-way **AGENDA ITEM**	5-18-04	Pat Page	7-13-04	Will invite to 11-15-05 mtg	

FLOW ALTERNATIVE REQUESTED
TO BE EVALUATED AS PART OF
FLOW RECOMMENDATION ADAPTIVE MANAGEMENT
(June 11, 2005)

The SJRIP FY2005 budget includes funds to conduct model runs (using the Generation 3 Model Version) to evaluate alternatives to the existing Flow Recommendations. The Hydrology and Biology Committees are in the process of scoping the alternative flow scenarios to be evaluated. The ultimate objective should be to formulate Flow Recommendations that reflect the findings of the data collected through 2004.

This alternative is a request by Steve Harris, representing Southwestern Water Conservation District, to the Hydrology Committee. The request has been discussed with the Biology and Hydrology Committee's who where agreeable to consideration of alternative flow scenarios. This document is to provide the modeling parameters of the alternative.

Description of Flow Alternative

The minimum base flow release from Navajo would be 400 cfs or greater if necessary to maintain 500 cfs in the habitat range. As a variation, the 400 cfs Navajo release might be seasonally adjusted to reflect the difference in fish needs in the winter versus the summer.

In the years there is more water than necessary to meet the above base flow criteria, the maximum Navajo release of 5,000 cfs would be made as often as possible. The criteria are:

1. Determine the amount of "spill" water.

2. Use the same ramping criteria used in the Biology Committee alternative to ramp up to and down from 5,000 cfs.

3. If there is sufficient "spill" water to ramp up to 5000 cfs (even if just one day) then ramp down, make the 5,000 cfs release and attempt to match the Animas River peak.

4. If there is not adequate "spill" water to ramp up and down to 5,000 cfs, either store the water for a future year or if necessary increase the base flow release to evacuate the "spill" water in about a month.

There would not be a frequency requirement for any flow in the critical habitat.

This alternative appears to be similar to the Biology Committee alternative, except the base Navajo release would be 400 cfs rather than 250 cfs and there would not be a required frequency for peak flows in the habitat range.