

The meeting was held at 11:00 a.m. on Tuesday, October 12, 2004, at the State of Nevada Sawyer Building, 555 East Washington Avenue, Suite 4412, Las Vegas, Nevada.

**COMMISSIONERS IN ATTENDANCE**

Chairman	Richard W. Bunker
Vice Chairman	Jay D. Bingham
Commissioner	Andrea Anderson
Commissioner	Oscar B. Goodman
Commissioner	Roland D. Westergard
Commissioner	Myrna Williams

**COMMISSIONERS NOT IN ATTENDANCE**

Commissioner	Ace Robison
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**DEPUTY ATTORNEYS GENERAL**

Senior Deputy Attorney General	Gerald A. López
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**COMMISSION STAFF IN ATTENDANCE**

Deputy Executive Director	Gail A. Bates
Special Assistant to the Director	James D. Salo
Division Chief, Finance and Administration	Douglas N. Beatty
Division Chief, Water	James H. Davenport
Accountant II	Gail L. Benton
Natural Resource Specialist	McClain Peterson
Office Manager	Deanna Bruno
Administrative Assistant II	Janet Nuszbaum
Administrative Assistant II	Lisa Ray

**OTHERS PRESENT; REPRESENTING**

AMPAC	Jack Stonehocker
Kerr McGee Chemical LLC	John Holstrom
Kummer Kaempfer Bonner & Renshaw	Rose Oram
Lake Las Vegas	Steve Weber
Las Vegas Valley Water District	Sandy Reed Bottieo
Nevada Power Company	Dave Baumgartner
Overton Power District No.5	Delmar Leatham
Overton Power District No.5	Richard Jones

**COLORADO RIVER COMMISSION  
OF NEVADA  
MEETING OF OCTOBER 12, 2004**

**INDEX**

<b><u>Agenda Item</u></b>	<b><u>Subject</u></b>	<b><u>Page No.</u></b>
A.	Conformance to Open Meeting Law.....	1
B.	Approval of Minutes of July 13, 2004, and August 10, 2004, meetings .....	1
C.	Consideration of and possible action on award of Contract No. CRCPDP-20 for the procurement of a utility metering and billing system and for integration services .....	1-2
D.	Consideration of and possible action on ratification of enabling agreements between the Los Angeles Department of Water and Power and the Colorado River Commission of Nevada for Short-Term Firm and Short-Term Non-Firm Point- to-Point Transmission Service .....	2
E.	Consideration of and possible action on ratification of Modification No. 1 to Network Integration Transmission Service Agreement Number 04-00201 effective October 1, 2004, between Nevada Power Company, the Southern Nevada Water Authority, the Public Service Company of New Mexico and the Colorado River Commission of Nevada .....	2-3
F.	Consideration of and possible action on the approval of a Service Agreement for Network Integration Transmission Service Retail Access Transmission Service between Nevada Power Company, the Southern Nevada Water Authority, the Public Service Company of New Mexico and the Colorado River Commission of Nevada for service to certain Southern Nevada Water Authority electrical loads.....	4

**COLORADO RIVER COMMISSION  
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**INDEX (Continued)**

<b><u>Agenda Item</u></b>	<b><u>Subject</u></b>	<b><u>Page No.</u></b>
G.	Consideration of and possible action on ratification of the Commission's intervention in Public Utilities Commission of Nevada Docket No. 04-8022, Application of Nevada Power Company for approval of the third amendment to the Supply-Side Action Plan of its 2003 Electric Resource Plan.....	4-5
H.	Consideration of and possible action on an agreement with Lake Las Vegas Joint Venture regarding storm water.....	5-7
I.	Update on Water Division activities.....	7-10
J.	Comments and questions from the public.....	10
K.	Comments and questions from the Commission members.....	10-11
L.	Next meeting date selection.....	11

Chairman Bunker called the meeting to order at 11:00 a.m., followed by the reciting of the Pledge of Allegiance.

**A. Conformance to Open Meeting Law.**

Deputy Executive Director Gail Bates confirmed that the meeting was in compliance with the Open Meeting Law.

**B. Approval of minutes of the July 13, 2004, and August 10, 2004, meetings.**

**Commissioner Bingham moved for approval of the minutes of the July 13, 2004, and August 10, 2004, meetings as written. The motion was approved by a unanimous vote.**

**C. Consideration of and possible action on award of Contract No. CRCPDP-20 for the procurement of a utility metering and billing system and for integration services.**

Deputy Executive Director Gail Bates stated that agenda Items C through G relate to the work that the Colorado River Commission has been doing related to SB211. When the CRC began the switch-over process, the process of switching Pumping Plant Nos. 4 and 5 over from Nevada Power Company service to CRC service, Nevada Power Company gave the CRC some metering specifications.

Mrs. Bates further explained that after the CRC received the metering specifications from Nevada Power Company, a procurement process was initiated. Staff selected a company called Power Measurements, Inc. to supply the CRC with what are called Ion 8500 meters. These are sophisticated meters in that they can collect data and store data almost on a real time basis, that is every 6-10 seconds, and you can see how the meter reads change. The meters also allow for the aggregation of that data for billing purposes. In order to bill customers, there must be a way to combine all the various reads together and these meters facilitate that process. This contract will allow for the installation of the software to add additional meters and to provide for the aggregation function. The software also allows us to take real time price data from the market and be able to share that with the customers. The theory is that if customers know when it is the most expensive to consume energy, then hopefully they will respond to that price signal and reduce their usage. This is a sole source contract because the same manufacturer who installed the meters is also installing the software systems so the CRC will not have to be concerned about any interface issues between the meters and the software system. The price is not-to-exceed \$128,590.00.

Staff recommended the Commission award Contract CRCPDP-20 to Power Measurement, Inc. and that the Executive Director of the Commission be authorized to sign the contract on behalf of the Commission.

Commissioner Williams moved for approval, and the motion passed unanimously.

**D. Consideration of and possible action on ratification of enabling agreements between the Los Angeles Department of Water and Power and the Colorado River Commission of Nevada for Short-Term Firm and Short-Term Non-Firm Point-to-Point Transmission Service.**

Deputy Executive Director Gail Bates stated that on September 1, 2004, the CRC began providing electric service to SNWA's Pumping Plants Nos. 4 and 5 pursuant to Senate Bill 211. Under normal circumstances, the CRC delivers all of its energy into the Nevada Power Company ("Nevada Power") transmission system at Mead Substation. However, during the month of September 2004, the CRC was required by Nevada Power to deliver a portion of its energy resources to serve Pumping Plants Nos. 4 and 5 at Crystal Substation instead of Mead Substation. Crystal Substation is jointly owned by Nevada Power Company, LADWP, and Western Area Power Administration. In order to deliver a portion of the CRC's energy to Crystal Substation, the CRC anticipated the possibility that it would have to purchase short-term transmission service from LADWP from Mead to Crystal Substation.

Transmission service is typically purchased in the electric industry by entering into industry-standard enabling agreements. Then, when the transmission service is needed, it is reserved via an electronic reservation system. The CRC and LADWP executed the transmission enabling agreements during the month of August so that the CRC would be able to reserve transmission on LADWP's system effective September 1, 2004, in the event it was needed to serve Pumping Plants Nos. 4 and 5.

Staff recommended that the Commission ratify the transmission enabling agreements between LADWP and the CRC.

Commission Williams then asked if there was any fiscal impact on this.

Deputy Executive Director Bates stated that there was not any fiscal impact in signing the enabling agreement.

Commissioner Williams moved for approval and the motion was carried by a unanimous vote.

**E. Consideration of and possible action on ratification of Modification No. 1 to Network Integration Transmission Service Agreement Number 04-00201 effective October 1, 2004, between Nevada Power Company, the Southern Nevada Water Authority, the Public Service Company of New Mexico and the Colorado River Commission of Nevada.**

Deputy Executive Director Bates stated that in the last agenda item she mentioned the restriction placed on the Colorado River Commission to bring in resources at Crystal Substation. In September, Nevada Power Company re-evaluated its transmission constraints and they lifted the restriction effective October 1, 2004, which was a tremendous help to the CRC in terms of cost savings. NPC asked CRC to put a modification in place to the existing transmission agreement for Pumping Plants Nos. 4 and 5 so that the CRC could memorialize the lifting of the restriction. The CRC executed this modification to the Transmission Service Agreement in September. The SNWA Board approved it at its Board meeting last month as well. The staff recommended the Commission ratify the modification to the transmission service agreement.

**Commissioner Anderson so moved and the motion was carried by a unanimous vote.**

Chairman Bunker stated that members of the Colorado River Commission and Southern Nevada Water Authority decided to develop an integrated unit for power purchase and disbursement and that unit is domiciled down on Flamingo Road in their headquarters. Chairman Bunker added that Deputy Executive Director Gail Bates is the head of that unit, and he then asked Mrs. Bates to give the Commission an update on how that is working and what is going on as far as the integrated unit is concerned.

Mrs. Bates stated that it has been working very well and that the efficiency level is much higher when you are actually located there with the customer and can make decisions on a real-time basis. There are daily interactions and communications with SNWA personnel. The CRC staff have accomplished some significant things since relocating there, namely putting together a full set of risk management procedures that are now implemented. They have been a long time in development and it is nice to have that document actually in place and working. She also stated that CRC has added some functionality to the middle office, back office, and the front office that wasn't practical to implement before. So, there have been some significant strides in being able to integrate the two.

Chairman Bunker stated that the Commissioners have all been aware of the national discussion on intelligence and information gathering. He also added that it is important to recognize that some of the things that have been accomplished at this meeting will allow the CRC to develop the kind of intelligence that is necessary. With the information gathered from these metering systems, Chairman Bunker stated that the CRC would be more effective than in the past.

Commissioner Anderson stated that she also hears the same type of comments from the Southern Nevada Water Authority Board and that the agreements that are in place and the improvements being made are very beneficial to both entities making it a good move forward.

**F. Consideration of and possible action on the approval of a Service Agreement for Network Integration Transmission Service Retail Access Transmission Service between Nevada Power Company, the Southern Nevada Water Authority, the Public Service Company of New Mexico and the Colorado River Commission of Nevada for service to certain Southern Nevada Water Authority electrical loads.**

Deputy Executive Director Bates stated that on August 2, 2004, and August 27, 2004, letters were sent to Nevada Power notifying them that the CRC would be switching approximately a dozen of the SNWA loads from NPC service to CRC service. These loads constitute the remainder of the SNWA loads that are currently served by Nevada Power Company now. There are about a dozen accounts, and the total load is approximately 30 megawatts. Mrs. Bates added that this service agreement is intended to replace the one that is in affect for Pumping Plants Nos. 4 and 5, so it is a very similar agreement to what is already in place, except it constitutes all of the loads instead of just Pumping Plants Nos. 4 and 5. Staff recommended that the Commission approve the transmission service agreement.

**Commissioner Williams so moved and the motion was carried with a unanimous vote.**

**G. Consideration of and possible action on ratification of the Commission's intervention in Public Utilities Commission of Nevada Docket No. 04-8022, Application of Nevada Power Company for approval of the third amendment to the Supply-Side Action Plan of its 2003 Electric Resource Plan.**

Deputy Executive Director Bates stated that the CRC has a direct and substantial interest in ensuring that NPC's approved 2003-2022 Integrated Resource Plan continues to satisfy the transmission-related needs of the CRC and its customers. The outcome of the proceeding will directly affect the administration of CRC's statutory trust responsibilities. These direct and substantial interests of CRC cannot be adequately protected by any other party. Accordingly, the CRC filed an intervention in Docket No. 04-8022 by the deadline of September 22, 2004. CRC seeks through its intervention to monitor the proceedings and, if necessary, cross-examine witnesses, take part in oral arguments, present expert witnesses and evidence in support of CRC's position.

Staff recommended that the Commission ratify the intervention in PUCN Docket No. 04-8022.

Chairman Bunker commented that the CRC probably will be on the same side as Nevada Power in this docket, but as Mrs. Bates said there might be some other agencies and other interest groups outside of Nevada Power who might come in and want to contest some of the things that have been provided by Nevada Power to the CRC. Chairman Bunker asked Mrs. Bates if the CRC requested 100 megawatts in the recommendations for the resource plan.

Mrs. Bates replied in the affirmative.

Chairman Bunker then added that Nevada Power granted the CRC 92 megawatts, which is not far from what was requested. This will basically be for the SNWA and SB211 loads.

Mrs. Bates stated that was correct.

**Commissioner Bingham made a motion to ratify the intervention and the motion was carried by a unanimous vote.**

**H. Consideration of and possible action on an agreement with Lake Las Vegas Joint Venture regarding storm water.**

Commissioner Westergard recused himself from the discussion of and vote on this item because he was involved with and may have signed Permit No. 29814 back in 1975.

Mr. Davenport handed out some charts relating to this agenda item which are attached hereto and made a part of these minutes as Attachment A.

Since 1935, the CRC has been the statutorily designated guardian of the State of Nevada's sovereign interest in Colorado River water. In that capacity, the CRC has been responsible for protecting against encroachment upon Nevada's apportioned share of Colorado River water and preserving and increasing that supply of water in a manner consistent with the public interest. The permitted amount of use of Colorado River water is maximized by increasing the amounts of water that are returned to the Colorado River through the Las Vegas Wash. In 1975, the Nevada State Engineer issued Permit No. 29814 to CRC in order for CRC to protect flows of water within the Las Vegas Wash for use as return flow credits, thereby maximizing Nevada's consumptive use of Colorado River water. That permit protects the first 638 cubic feet per second of all present and future water flowing in the Las Vegas Wash and all its tributary sources, including storm water. The permit does not, however, guarantee delivery of water to the Wash from the waste water treatment plants.

Lake Las Vegas Joint Venture (LLV) is a Nevada Corporation and the owner of Lake at Las Vegas Resort, a 3,600 acre residential and resort community surrounding a 320 acre lake. In 1992, the State Engineer issued LLV Permit No. 58390 and Certificate of Appropriation of Water No. 14303 authorizing LLV to divert up to 2,029 acre-feet of Las Vegas Wash storm water flows in excess of existing rights in the Las Vegas Wash, including the CRC's rights under its Permit No. 29814. To support lake maintenance and irrigation, LLV also receives water that originates from the Colorado River under a contract with the City of Henderson. In order to augment its water supply, LLV applied to the State Engineer on February 2, 2004, for a permit to appropriate an additional 2,000 acre-feet of storm water.



Since LLV filed its permit application, the CRC and LLV have negotiated a mutually beneficial agreement that establishes a means by which Las Vegas Valley storm water may become integrated into overall water resource management in southern Nevada. Additional storm water made available to LLV would supplant a similar volume of current Colorado River water use by LLV, thereby making that water available for use by others in southern Nevada. The agreement would permit maximization and conjunctive use of all of the storm water in the Las Vegas Valley to the extent it can be captured and used. Under the agreement, LLV agrees to amend its new application so as to identify the CRC and LLV as joint applicants and to increase the amount of water subject to the application to include all surface flow of storm water in a calendar year. The agreement provides that the permit would be jointly exercised in a manner that would enable the CRC to maximize its ability to enhance Nevada's rights to Colorado River water, including mechanisms for LLV to use water resource alternatives to Colorado River water, while at the same time permitting LLV to maximize its ability to store and use storm water. The agreement further provides that CRC and LLV will enter into an implementation agreement that will detail each party's respective obligations under the permit and will work collectively to identify storm water storage capacity beyond that capacity which LLV has already created. Staff recommended that the Commission authorize the Chairman to execute the agreement and proceed with a joint permit application.

Commissioner Bingham asked if Lake Las Vegas was designated as a swimming lake.

Mr. Davenport stated that there is boating so he assumed that one could swim in it as well.

Commissioner Bingham then stated that this water that is a runoff out of the Wash, going into that lake. He asked whether it is clean enough when mixed in the lake to swim in it.

Mr. Davenport said that was a matter of management on LLV's part. The way they manage is only to deliver water from the Wash to the lake when they feel that the quality of water in the Wash is of sufficient value so as to put it in the lake. When a storm event first happens, it washes a lot of pollution out of the Las Vegas Valley through the Wash and into the river. LLV may not accept that water because of its quality. If we had more storage, in advance of Lake Las Vegas, where storm water could be held for a period of time and let the sediment settle out of it, perhaps the quality of that water could be better.

Commissioner Bingham then asked if the benefit to us right now would be that Lake Las Vegas is using Henderson water that can be used for housing or indoor use, and by using this water, making this agreement, we are taking some of the water that we do not get credit for, getting credit for it, and they are passing some of that lake water.

Mr. Davenport stated that was correct. The best feature of this in the short term is that the storm water that Lake Las Vegas will now have available to it will supplant a demand for Colorado River water, which will be transferred back into the municipal supply, expanding the Colorado River supply. Also, if we can ever use the storm water as an

augmentation into the Colorado River system; we may become able to turn that into a credit that could more greatly enhance the Colorado River supply.

Commissioner Bingham asked if that goes acre foot for acre foot. Whatever we give them out of the Wash, we get back out of the Colorado?

Mr. Davenport answered that if you return an acre foot, you get to take a new acre foot.

Commissioner Bingham asked if there was a limit of how much credit we got, with return flow credits.

Mr. Davenport stated that there is not a numerical lid on it. There is a numerical lid on the consumptive use number.

Commissioner Bingham stated that you could almost get to 600,000 acre feet.

Mr. Davenport added that it is practical limitation on how much water you have to work with to actually do that. There is a methodology which is limited, but it is not a numerical cap.

**Commissioner Bingham made a motion to approve the agreement with Lake Las Vegas.**

Chairman Bunker stated that this is forward thinking. He added that it opens up some interesting things. For instance, if we had an overrun and we got an agreement, we might be able to use this to pay back an overrun.

Commissioner Bingham then asked Mr. Davenport if credits can be saved from year to year and be built up.

Mr. Davenport stated that could not presently be done.

Commissioner Bingham asked if whatever you return flow, you have to use?

Mr. Davenport answered that the payback rule permits you to pay back in a later year what you over-consumed in a previous year.

**The motion was then voted upon and carried with a vote of five "ayes". Commissioner Westergard abstained from voting on this agenda item.**

<b>I. Update on water division activities.</b>
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Mr. Davenport reported on two things. The Navajo Nation filed a lawsuit against the United States Department of the Interior in March of 2003. That lawsuit alleged that the Secretary of the Interior had breached her fiduciary duty to the tribe by failing to deliver a water supply to the tribe off the Colorado River system and argued that, to the extent that

responsibility was paramount to her authority to adopt the Interstate Banking Rule and the Interim Surplus Guidelines rule, those rules had to be changed. Staff received approval to intervene from the Commission in April of that year and a Motion to Intervene was filed. Now, 17 months later, the judge has agreed to permit the interventions of the parties who are seeking to intervene. Those include the Colorado River Commission and all the Arizona and California parties that use the Colorado River system. That is pursuant to an overall agreement between the parties permitting all of the interveners to be admitted, that the case would resolve into a negotiation phase, which is likely to go on for a couple of years, in which the parties will decide how much of Arizona's water rights, either Colorado River or other, will be used to satisfy the Navajo need. Nevada and California parties may sit in on these negotiations. Mr. Davenport stated that he would represent Nevada, and was not sure who California's representation would be.

Mr. Davenport gave a presentation having to do with the Colorado River shortage. A copy of the handout is attached hereto and made a part of these minutes, see Attachment B.

Commissioner Goodman asked what he would suggest could be done, if anything, concerning the need to reduce the demand. He asked what the elected and appointed officials should do in order to address this issue.

Mr. Davenport stated that in Nevada we are doing that now. There are not systems set up to purchase a use out of occurrence in the other states. It really is an economic problem when you start talking about demand reduction. You have to evaluate the benefit of the water in use versus the benefit of the water out of use. That type of economic thinking isn't really very prevalent in the Colorado River system, so it would be good to espouse that kind of economic evaluation.

Mayor Goodman stated that all that we are doing as a water authority, that we as the electeds are doing, is that we have a very active conservation program, and even with our rapid growth, we are still below the 300,000 acre feet. It seems to be working. Mayor Goodman then asked Mr. Davenport if that was enough. He stated that he was a great growth proponent and stated that he wanted to see Las Vegas have a Manhattanization process, which will bring a lot of people into the downtown. He asked if he was being irresponsible with that kind of philosophy in light of the report, or if this was consistent with that report.

Chairman Bunker then stated that as we break out the use of water, it is not the inside use that hurts us, it is the outside use.

Mayor Goodman stated that with the Manhattanization concept, we are addressing the water issue. We are not going to have the lawns that exist in horizontal growth. It will all be vertical with perhaps little linear parts, which will not use up much water. Mayor Goodman added that he was just wondering if there was more that we are supposed to be doing at this point in time.

Mr. Davenport stated that one of the concepts which is not in the Colorado River law is a prioritization of uses, that is to say that as a public policy determination, public officials have decided that water used for use A is better than water for use B.

Commissioner Bingham asked what was the difference...crops or...

Mr. Davenport said between crops and municipal or as between industry and agriculture. It does not exist in the law. As populations grow and water remains static, society might have to make some determinations like that.

Chairman Bunker stated that it was evident up and down the river, particularly in the farming community, which he has a small part of. Very little has been done to bring our farms and things like that up to the technology that is available. He stated that he just recently put two big pivots on his ranch that run 24-hours a day, but it's a very concentrated flow. It goes right into the ground. You do not get much evaporation and all that, but when I go next door and see my neighbor flood-irrigating, the water just runs everywhere. We have cut our use by about 25% and most people are not doing that, particularly in the Imperial Valley. Down in that area, when you watch how they irrigate, in many areas they don't even have cement lined ditches yet and the seepage that happens when you farm, they just haven't taken the drought seriously because they have lots of water. But at some point they must.

Mayor Goodman asked if that was part of the discussion that takes place with the Secretary of the Interior. He asked if these were the issues being discussed, because he had not been privy to those discussions.

Chairman Bunker stated that Mr. Davenport makes the point that up to this point, that decision has not been made. How much are you really going to make them come up with the technology and use the technology currently available to drip irrigation? How soon are you going to make them line their ditches? How soon are you going to make them watch and be more careful about the water that they are using for irrigation? Because of that 3.8 million that goes to IID, isn't 95% of that or 99% of that for irrigation?

Mr. Davenport stated in the affirmative. Over 30 years ago, the Metropolitan Water District went to the Imperial Irrigation District and said, "we'll give you some money if you will improve your farming habits, which will thereby create water – we'll call that conservation – and we'll buy that water from you".

Commissioner Bingham asked if we could imagine a tax rebate to farmers, especially in the California area, for every dollar they spent on retrofitting for water conservation. You could probably save almost a million and a half acre feet of water a year that could be passed down to the three other states.

Chairman Bunker stated that in California, it hasn't reached that. With us it has. That is why we are paying cash for grass and things like that. There might reach a time when that...

Chairman Bunker stated that he was very happy that the Southern Nevada Water Authority has taken the positions that they have. He thought that was important and critical, and it shows what this community can do, and added that the people have been willing in the City Ordinances and things like that to come to the plate and make it work. He added that he thought that as a community that is where we have to be. Some of us can be optimistic, but there has got to be some realism brought into it also that says you have to start doing this. And it is easier to start now, than some draconian measures that you have to do down the road.

Chairman Bunker asked if there were any other questions.

Commissioner Anderson stated that she liked Commissioner Bingham's idea of maybe a tax rebate or something for Californians to be ... for the farmers to upgrade and be more conservative. If that is not possible, she asked if it was possible for Nevada to support that where we would pay the farmers to be conservative and buy their water from them. We are spending what would be billions of dollars to develop water rights in other parts. Maybe we can go buy some from California, improving their conservation and paying for their upgrades.

Commissioner Bingham said that has been on the table for probably 15 or 20 years.

Chairman Bunker added that was true, but explained that there were some politics that makes it really difficult. There are some major problems that we have to overcome, but in the 12 years that he has been negotiating on behalf of the state, he has seen some miraculous things happen, so he would not discount the possibility. Something like that down the road might happen. And that is one thing we all recognize is that we do have a little more of than some of these other folks – we've got money and we are going to have to use it in order to get our resource, and that is just the way it is.

**J. Comments and questions from the public.**

Chairman Bunker asked if there were comments or questions from the public. There were none.

**K. Comments and questions from the Commission members.**

Chairman Bunker then asked if there were any comments or questions from the Commission members, at which time Commissioner Bingham addressed Mayor Goodman asking him if last time he had asked for a briefing on Nevada Power, had that already been done.

Mayor Goodman stated that yes, he had been briefed.


Commissioner Bingham stated that he would like to do that as well. He then added that there was discussion about maybe having a separate meeting of the Land Management Subcommittee and asked whether a date had been set for that meeting.

Mr. Jim Salo said we envision a staff meeting with Commissioner Bingham and the Chairman, and then there would probably be a special meeting of the subcommittee to consider the solicitation package. But no specific dates have yet been identified.


**L. Next meeting date selection.**

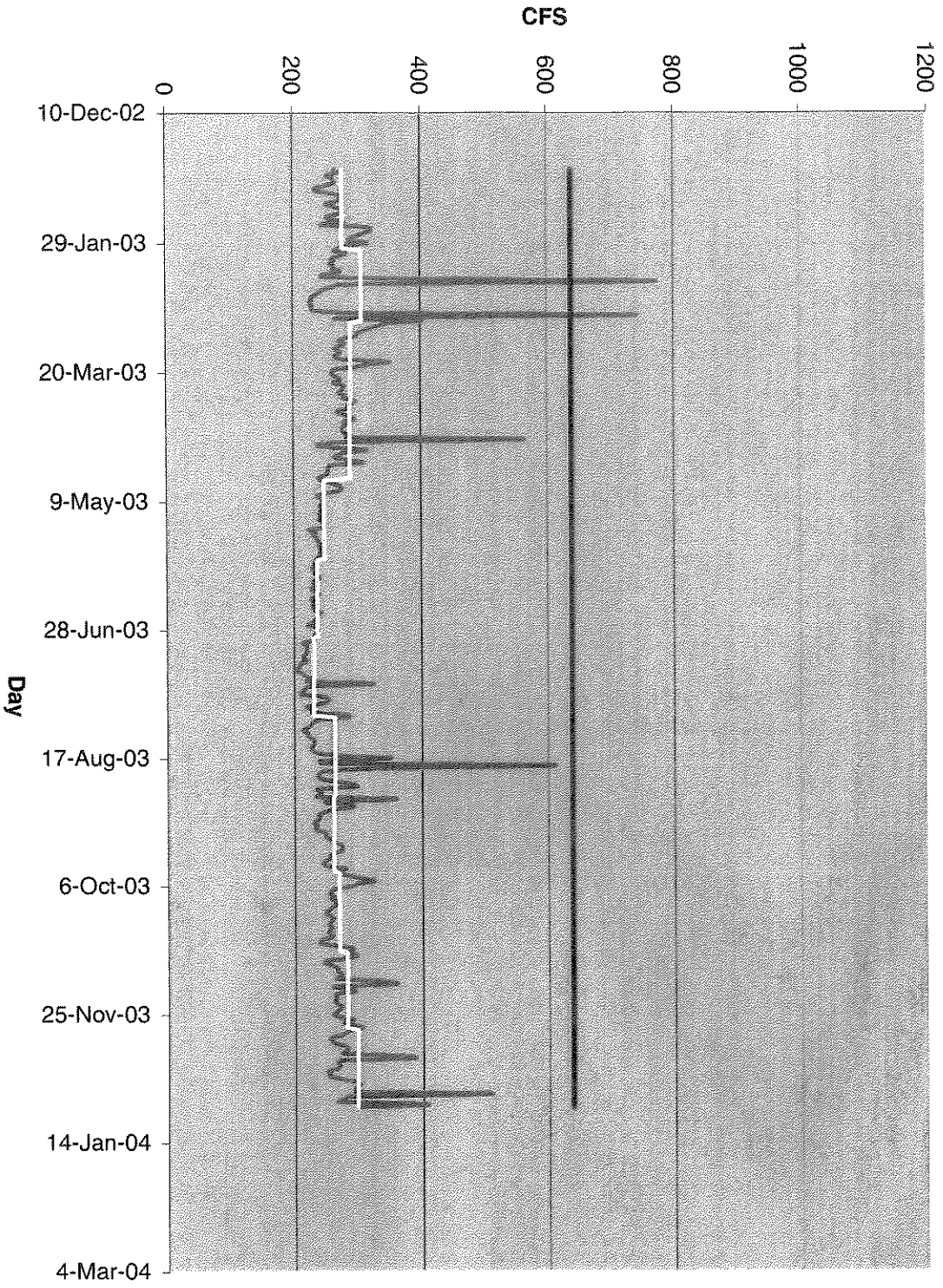
The next meeting is tentatively scheduled for Tuesday, November 9, 2004, at the Sawyer State Office Building, Suite 4412.

The meeting adjourned at 11:53 a.m.

  
George M. Caan, Executive Director

APPROVED:

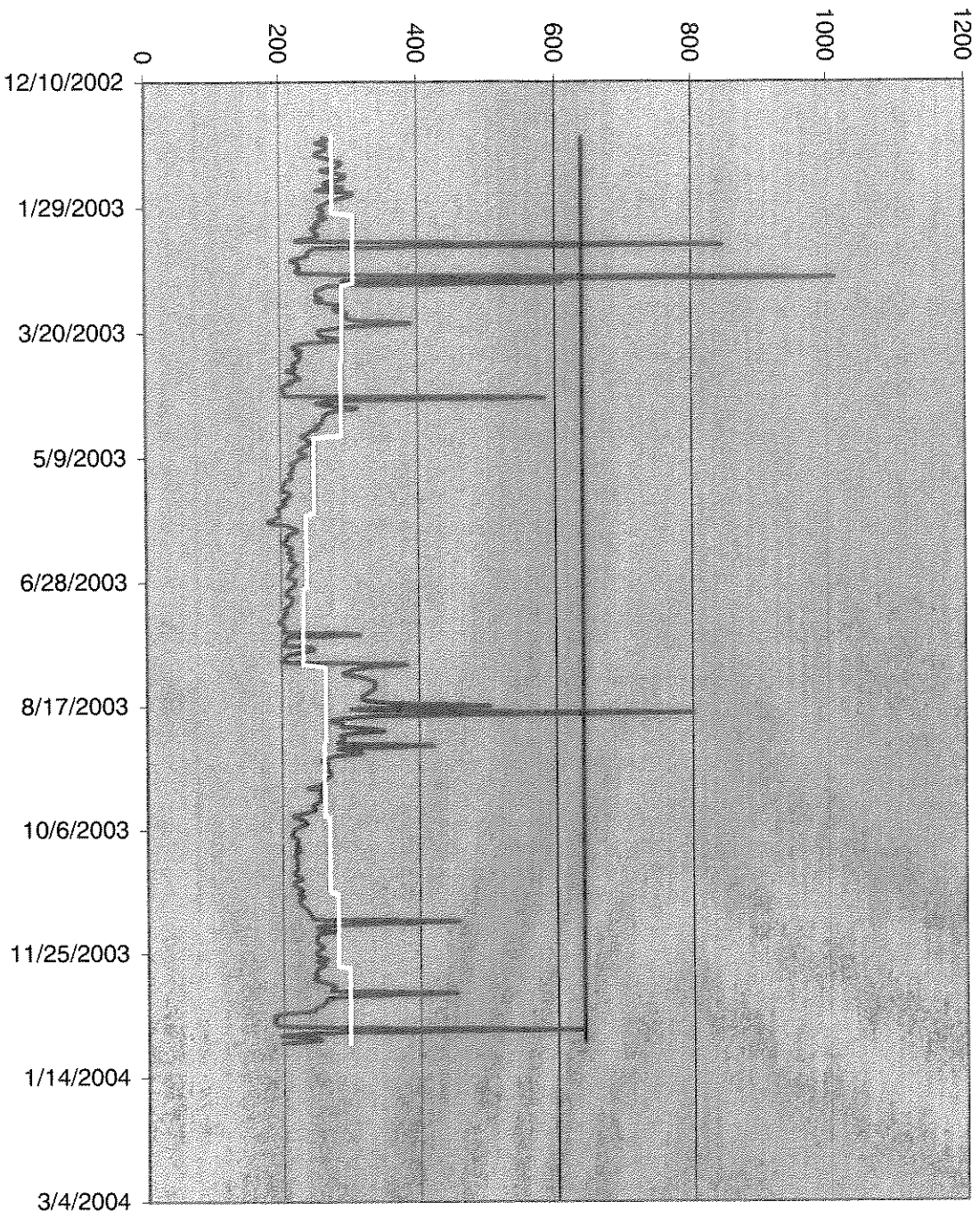
  
Richard W. Bunker, Chairman



CFS Measured Below LLV

LWash Flow  
 CRC Permit  
 Monthly Average

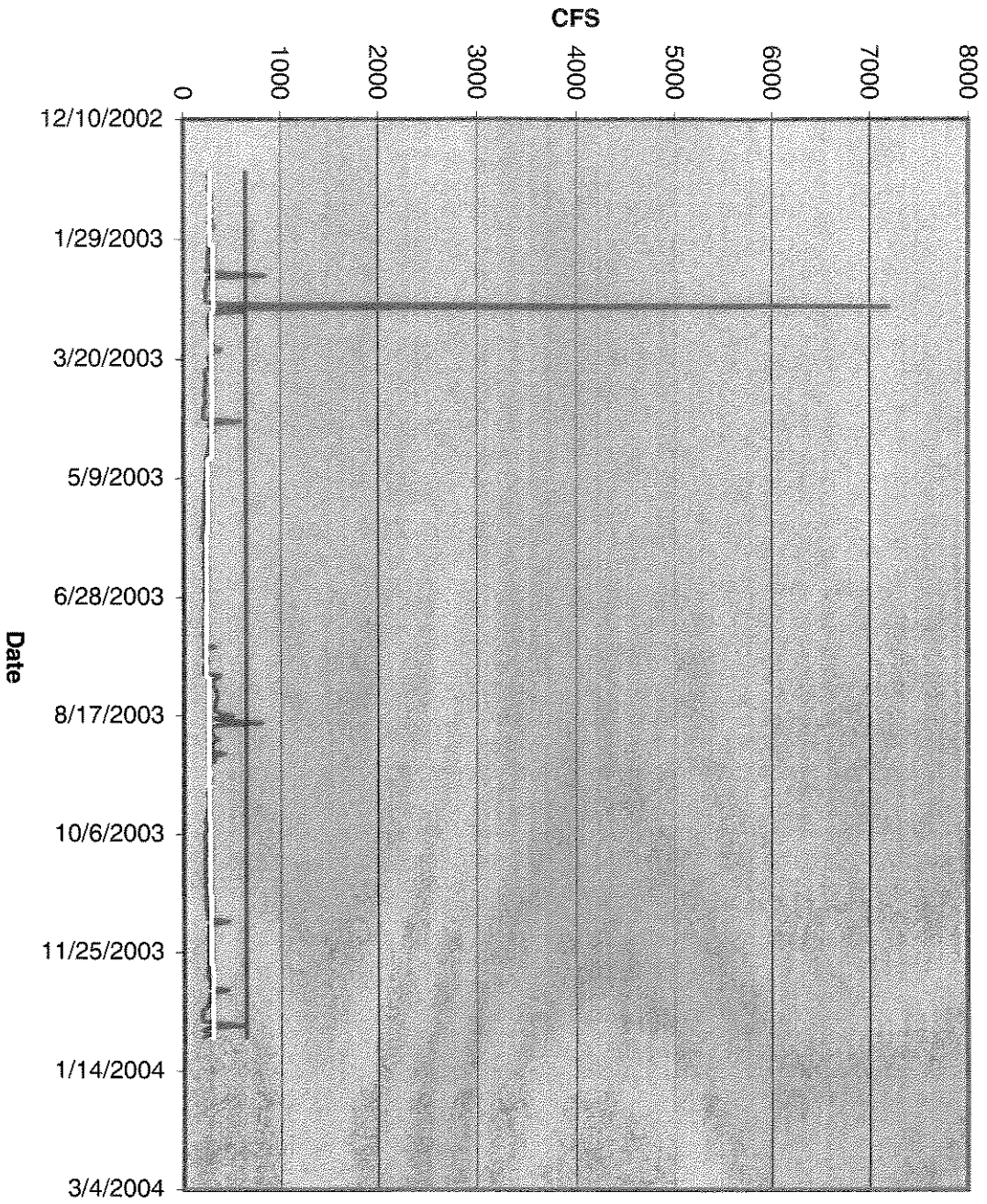
# CFS Measured From the PABCO Gauge



— LWash Flows At PABCO  
— CRON permit  
ddd



**PABCO flow W/ one 100 year flood event**



----- PABCO W/ 100 yr event  
----- CRCN Permit  
----- CRCN RFC Monthly Average

# Colorado River "Shortage"

- 1922 Compact
  - Art. III (a) "apportionment" to upper and lower basins
  - Art. III (d) prohibition against causing flow to decrease below 75,000,000 acre feet on ten year average
- Long Range Operating Criteria.
  - Article II (2): Minimum objective release = 8.23 maf

# Colorado River "Shortage"

- 1964 Decree in *Arizona v. California*
- Art. II (B)(3) If insufficient mainstream water is available . . . To satisfy annual consumptive use of 7,500,000 acre feet in [Arizona, California and Nevada]. . .
  - Satisfy present perfected rights in order of priority without regard to state lines
  - Apportion the balance consistent with BCPA

# Colorado River Long Range Operating Criteria

- Art. III (3) (c) --The Secretary shall determine from time to time when insufficient water is available to satisfy annual consumptive use requirements of 7,500,000 acre feet after consideration of all relevant factors, including, but not limited to:

## LROC (cont.)

- Mexican Treaty obligation
- Reasonable consumptive use requirements
- Net river and reservoir losses, regulatory wastes
- Actual and forecast quantities of active storage in Lake Mead
- Estimates of net inflow to Lake Mead for the current year

## LROC (cont.)

- Historic streamflows, including the most critical period of record
- Priorities set forth in Art II (A) of Decree
- Colorado River management purposes: flood control, river regulation, beneficial consumptive use, power production, water quality control, recreation, enhancement of fish and wildlife, other environmental factors.

# 1968 Colorado River Project Act,

## Section 301(b)

- Diversions to the CAP must be so limited as to assure the availability of water to holders of present perfected rights, Section 5 contract holders in California, Arizona and Nevada holding contracts and constructed diversion works predating September 30, 1968 and federal reservations.

# Colorado River Shortage Modeling

- "Worst Case" concept:
  - Assume 2004 Lake Mead elevation
  - Add 1953-1973 historical hydrologic sequence for hypothetical years 2005-2025



# Lower Colorado River Basin

- Inflow: = 9.0 maf
  - 8.23 minimum objective release from Lake Powell + "side flows"
- Outflow: = -9.3 maf
  - Apportionments to Lower Basin and Mexico
- Evaporation Losses = -0.7 maf
- Balance = -1.0 maf

# Projected Likelihood of Shortage

- Varies based on objectives:
  - Protect power heads and water diversion facilities.
- Baseline ("Worst") case: 2009-2010
- 25-30 Percentile case: 2014-2016
- 50 Percentile case      Later

# 20 Year Planning Horizon

## Lower Basin

- Protect 1050 ft      16.4 maf/186 maf = 9%
- Protect 1000 ft      11.7 maf/186 maf = 6%

# 20 Year Planning Horizon

## Upper and Lower Basins

- Presume Upper and Lower Basin Use at 14.3 maf
- Protect Lake Mead 1050 plus Glen Canyon Power Production    21.5 maf/286 maf = 8 %
- Protect Lake Mead 1000 plus Glen Canyon Power Production    16.9 maf/286 maf = 6 %

# Open Questions

- What objectives should be established?
- Protect hydropower production?
- What guiding principles are the states prepared to agree upon to manage shortages going forward from year to year.
- When does Arizona have to take shortages?
- What lake level in Lake Mead should be protected?

## Open Questions (cont.)

- What determinants (“triggers”) could be used to establish when reduced upper basin deliveries are appropriate?
- What compensation, if any, is appropriate for artificial reductions in demand?
- What strategies for conjunctive use of Lakes Powell and Mead be conducted without compromise of the Colorado River Compact?

## Open Questions (cont.)

- How can shortage impacts be reduced by anticipation of shortage through incrementalized demand reduction?
- What is an appropriate period of application of guiding principles regarding shortage? Should they be permitted to sunset?

## Open Questions (cont.)

- How can California be involved with shortage sharing if defined consequences were first established?
- What means must be taken to ensure Mexican involvement and equivalence in demand reduction to avoid shortages?