MEMORANDUM

TO: Susan Cottingham; Jay Weiner; Sonja Hoeglund; CSKT Negotiating Team; CSKT Minute Files
FROM: Joan Specking, RWRCC
RE: CSKT Minute Summary from May 27, 20009 Negotiating Session, Polson, Montana, 9 a.m.
DATE : June 5, 2009

Chair: Duane Mecham

Agendas **(Attachment 1**) were available.

1. Opening Prayer (Opening Prayers are not recorded)
An opening prayer and song was presented by the Tribes.

2. Introductions
Chris Tweeten introduced two new commissioners: Senator John Brueggeman and he noted Representative Jeffrey Welborn, although not present, is also a new member. John Brueggeman said he's spent 12 years representing the area and that is was a pleasure to be there. Introductions were made around the negotiating table and a sign-in sheet was passed around the meeting. **(Attachment 2**)

3. Opening Statements
Chris said the state team looked forward to hearing technical presentations and he thinks they are moving ahead in a very deliberate way but as promptly as they can trying to get the technical foundation laid for discussions. Council Vice-Chair Moran welcomed the new members of the Commission and everyone present and said they have work to do to keep moving forward and that it is dear to the hearts of the community that they get this settled in a proper manner. Clayton welcomed the new members of the Commission and others and said they looked forward to great presentations that morning. Duane announced that the deputy secretary of DOI, David Hayes, was confirmed and will be briefed on this settlement in the near future. Larry Echohawk will be the new assistant secretary for Indian affairs and has a lot of experience in different levels of government. He will be over BIA and the Office of Special Trustee issues for Tribes and tribal members. The BOR has Mike Connor as a new commissioner and has worked on Indian water right settlement legislation. He said the Interior Department has several teams for Indian negotiation throughout the West and there are probably just a handful being actively negotiated at this time including an Arizona settlement and the CSKT negotiations. He said there will be several presentations: the METRIC presentation and then after a short break a wetlands presentation.

4. University of Idaho METRIC Presentation
Bill Greiman introduced Dr. Richard Allen from University of Idaho Departments of Civil Engineering and Biological and Agricultural Engineering and the Director of Water Resources Research, the Kimberly Research and Extension Center, and presenting METRIC which is the High Resolution Satellite Quantification of Evapotranspiration (ET) on the Flathead Indian Reservation. **(Attachment 3).**

Dr. Allen said it was a pleasure to be there. He introduced his associate and said they had been working on this METRIC project for about a year with the Compact Commission. They starting developing this in Idaho about 10 years ago and other states have seen what they are doing and taken an interest in it. About a year ago they gave a training course to DNRC in Helena which Bill Greiman and Sonja Hoeglund attended. He said it was challenging to find a single year with sufficient images every month and they ended up having to create a composite of images from three different years: 2006, 2007 and 2008. He introduced Jeppe Kjaersgaard, graduate of the University of Copenhagen, who has been working with him at the University of Idaho for a number of years now. Regarding the ET map procedure – Jeppe explained evapotranspiration as the loss of water from soil and in vegetation. Evaporation and transpiration make up ET. For this project they are looking at a satellite scene about 100 miles wide and 100 miles high made up of little squares that are about 100 feet by 100 feet. He showed and explained the images of the Mission Valley including close-ups. The satellite they are using is called LANSAT and it is polar orbiting moving north – south across the poles. The METRIC energy balance procedure they are using is a mathematical model based on the satellite imagery. The satellite itself does not see the evapotranspiration so they have to go through a process to actually see that. They calculate partly from the angle of the sun and the earth, temperatures, and more. When water evaporates it is an energy consuming process; when water evaporates from the soil and vegetation it means the surface is generally cooler than areas where there is less evaporation taking place. He showed three maps side by side illustrating this in the valley. When they use the energy balance approach with the satellite, they can see the actual ET that occurs. It could show water stress, or management processes that are not optimal; salinity, etc. He explained how they calibrate the ET calculations to improve the accuracy and showed how they use the climatic references they get from weather stations and a standard equation of crop coefficient used in calculations of ET. He showed the differences in ET that occur on different days, with different weather, and on different types of land and maps of the output they get from METRIC. (His presentation was technical and much more detailed than what is in this summary, as it is not easy to explain without seeing the visuals he used.)

Dr. Allen answered questions on the presentation. He explained that they had a difficult time finding a recent year with LANSAT data. The satellite comes over the area every 16 days. They want to follow specific changes on particular fields and he showed the images they selected with the agricultural areas free of clouds. They processed the whole image and threw away the portion with clouds. He showed some of the images on the different dates they used, to give an idea of the process with the focus on Mission Valley. They process each date and then interpolate between the satellite image dates to create a monthly evapotranspiration – they use weather data for every day of that month. He said they can also come up with ET for forested areas up higher which can help with additional data. They can look at the difference between south and north facing slopes. He explained the ET month by month and then seasonal ET for the summer season. They report total ET, including precipitation from April 1st through October for all the crops when some data uses only the growing season. He explained why open water evaporation is less than that from crops – for example it is only 40% of what evaporates from alfalfa. An irrigation canal would be higher evaporation because the turbulence in the canal brings warmer water up to the surface – so it evaporates about 60% as much as alfalfa. Canal banks also take in water during the days and then release it during the cooler night hours. He pointed out some of the dense timber areas along the Mission range which is close to the

maximum ET. He said Bill Greiman has outlined individual fields on a map and is calculating percentages of maximum ET on a field by field basis. So then questions can be asked such as whether or not a field is producing as much tonnage as is on a par with the amount of evaporation. He said they produced the ET maps but now someone has to do something with them to make them useful. He pointed out some of the applications they have found in Idaho. On the Idaho Dept. of Water Resources website, incorporating an Arc View system, you can look at the ET information. They have looked at surface and groundwater irrigators in the Snake Plain area where there are lawsuits between several factions. It has been valuable to the state to have the evapotranspiration maps because what can't be quantified cannot be managed. All sides are able to use this common method as there is no bias in the method.

He noted that the Harvard Kennedy school in Boston has "innovations in American government" awards and anyone who helps state government processes become more efficient can apply and they applied this year and made it to the 16 finalists as an entry for the State of Idaho. The ET maps are used for many things – to show groundwater flow models, to better manage irrigation diversions which can help with salmon management, New Mexico has issues with species and Texas with water rights, Colorado has water issues with other states; METRIC can help with looking at invading salt cedar compared to cottonwood water use, and more. Dr. Allen explained that the Idaho adjudication has been ongoing and is almost completed – in that they looked at a maximum upper limit to a water user based on alfalfa growth and that has helped a lot. Idaho has compared the METRIC estimates for season water use with a water right and found some situations where the satellite suggests higher water use than what a permit is and sometimes it's an error in the water rights data base. About one time in 10 it could be a user with an out-of-date permit.

Susan asked if with the CSKT they were trying to get a better handle on what is being used. Jay explained that the ET is helpful in that the Tribes have spent a lot of money putting Hydross models together, and the METRIC allows them to compare with the Hydross so that they have a universal understanding about what the existing use of water is. Dr. Allen said it's a great combination with METRIC and Hydross and it allows the daily or monthly model to be better calibrated. Dr. Allen said what they get from the satellite is the actual ET, i.e., what really happened but that would not the same as what might be used in establishing a water right. This is more of a snapshot of what happened during a specific time. Jay said METRIC data can also be helpful when moving from a current usage patterns to a future scenario where they try to ensure current usage is kept whole but there is additional water made available for future Tribal development and usage such as instream flows and consumptive uses. What the ET data can help with is to show just how much water the Project actually needs and whether there are efficiencies to be gained – it really comes into play across a variety of situations. That's why they have done this contract and they want to continue to refine the data so the technical teams can plug it in to learn how they got to the current situation and also to articulate steps they need to take moving forward to a positive quantification and operations and management. That's where some of the uses such as the interface with Project transfer will come in, and the management entity for the Project may utilize these tools as well.

Nikos Pastos asked if there was a data base from the users as far as their comments and said he would like to see the user's comments and if there are issues that seem to be consistent. Is a data base to be developed of complaints and issues

from the users? Dr. Allen said he did not know that Idaho keeps a data base although there might be one on file. He said they do not know about yields from crops, etc.; but there might be information from some of the surface water groups which have been positive about the use of METRIC as it treats everyone the same. Groundwater people also like knowing what evaporation there is for people. It was used in litigation between one irrigation district and surrounding ground water districts who were younger; the state used the METRIC ET to show that the district's water use was the same as others in the area. Bill Greiman showed his map with fields, pivots and riparian and wetland areas containing information about how much water each area used over the season and for each of the images he can say on a specific day how much water was used in a specific field. They could then communicate with Project users and have the map available. They do now have available LANSAT data free, which they have downloaded and digested into the data on each field. It can be used as a management tool which helps a farmer make decisions and so that they can do more with the water they have. It also has value to show what portion of water is used by wetland areas. Modeling may not show that. This data would be critical to the work done by HKM Engineering on the Hydross model for CSKT to show whether the usage is correct. It is a good technical way of measuring evapotranspiration. Bill explained that the red number in each field on his map shows depletions. He did a composite of the Project irrigated lands area and came up with 65% ET. He said the eastern front of the Missions is a dense forest use area and has very wet soils….they now have a basis for comparison. Someone asked how ET from sprinkler irrigation compares to flood irrigation. They have sampled that in southern Idaho with pivots and wheel lines. They see about a 5% increase in ET from a center pivot which they expect in a system irrigating more frequently. They probably have more uniform ET from pivots. (They are comparing center pivots to non-center pivots.)

Duane noted Dr. Allen's statement that "you can't manage what you can't quantify" and said that is what the parties are doing there in the CSKT negotiations.

5. Other Technical/Legal Items for Discussion

Mary Price, science advisor to Legal Department for CSKT, gave a presentation on wetlands. She said having the two presentations together makes a great direct link. She said she would be talking about wetlands and high mountain lakes on the Reservation and how they relate to the Tribal water right and various issues. In a water rights context, an appropriate definition of a wetland is an ecosystem that depends on constant or recurrent shallow inundation or saturation at or near the surface of a substrate. Common features are hydric soils which are soils that develop under conditions of saturation and hydrophytic vegetation which are plants that are adapted to life in saturated soils. She showed some wetland mapping developed by the Tribe which showed distribution of wetlands on the Reservation. It used the hydric soils data base developed by the Natural Resources Conservation Service. It shows about 35,000 acres of wetlands which are wetlands that are vegetated or are marshes or riparian areas along streams. What are lacking are the wetlands in the forested areas of the Mission Mountains. The Tribes are now updating the wetlands mapping. The primary data source is 2005 infrared aerial photography. The work is funded through a Montana Land Information grant and a NRCS grant. The mapping is being done by the National Wetlands Service Center and the mapper lives in the Flathead area which helps. The work is being done along with other mapping in the state by the Montana Heritage Program and there is cooperation between the two efforts. When

finished, the mapping will become part of the National Wetlands Database. They anticipate that wetland acres will increase as more will be mapped in forest areas.

An example of wetlands associated with lakes is the east bay of Flathead Lake. Even though there is quite an abundance of wetlands at the current time, prior to the construction of Kerr Dam there were more wetlands and they were highly productive water fowl areas. When Kerr Dam was constructed the area was flooded and the wetlands are no longer in existence. Some mitigation work is being done to replace that resource. The next type of wetlands is potholes in the Ninepipe area which are of glacial origin. The dominant water source for the potholes is snowmelt and those potholes may dry up by mid summer. On top of the natural complexity is the influence of the Flathead Irrigation Project. For instance they have the Kicking Horse and Ninepipes Reservoir which flooded many potholes and there are irrigation laterals dispersed throughout the area that alter hydrology of the potholes. Many potholes have been ditched and drained and many laterals are home to invasive species of plants. Another type of wetland occurring on the Reservation is the groundwater wetland including fens, seeps and springs which are important habitat areas. All along the front of the Mission Mountains are important wetland resources. These were missed by the first national wetland inventory and they anticipated picking them up on the mapping. There are the Post Creek tributaries of wetlands originating with productive springs and emerge on the valley floor as perennial streams. The waterways have been highly altered by the irrigation system and many of them have been used to convey irrigation water. Many of them are sources for irrigation water. The fourth group of wetlands is in areas associated with streams and rivers and she showed Post, Mission and Sabine Creeks as examples where there is a high degree of interaction between the subsurface groundwater and the stream channel. The other group of water bodies they looked at for the Tribal water right claim is the high mountain lakes, excluding Flathead Lake. They have mapped 182 of these water bodies. They group them into alpine lakes which are over 4,000 ft in the mountains and were carved out by glacial action with the deepest being around 180' deep. The other group of lakes is mid-elevation lakes located mostly on the west side of the Reservation, for example Rainbow Lake and Dog Lake. They are of glacial origin and relate back to Lake Missoula. She showed the headwaters of Camus Creek with many wetlands. The lakes are typically very shallow and some of them go dry by mid summer naturally, however, many of them have irrigation withdrawals on them also. She illustrated a simple conceptual water budget for water requirements for wetlands with major inflows being surface water, ground water, precipitation and outflows being surface water and groundwater outflow and evapotranspiration. She explained what she called a simple exercise that was done to get an idea of consumptive use for a generic wetland in inches per year. It was calculated differently by HKM Engineering for each climate zone on the Flathead Reservation. Because of year around water loss for wetlands, they looked at that using a NOAA report. They then came up with an annual consumptive use of about 2 feet per year. She said METRIC would be useful in helping them to work on this. An important issue in the discussion of wetlands is the Tribal mitigation programs which she explained there were four of. The **first** is the ARCO mitigation dealing with impacts in the Clark Fork River basin from mining in Butte and Anaconda. The Tribes as a Steven's Treaty Tribe were party to a natural resources damages settlement and the outcome was that the Tribes obtained funding to restore the area or acquire the equivalent of Tribal resource injured from the release of hazardous substances from industrial mining in the Upper Clark Fork River. The planning process the Tribes went through to document how the funding was spent is

titled "The CSKT Wetlands, Riparian and Bull Trout Restoration Plan". That plan identified the Jocko watershed as the priority area. The Jocko River is a core Bull Trout recovery area identified by the Montana Bull Trout Recovery Group. The requirements spelled out in the consent decree obligate the Tribes to restore 800 acres of wetlands or riparian habitat or to restore Bull Trout populations or habitat. Her map showed lands reacquired by the Tribes primarily along the lower 22 miles of the Jocko River. The work has been going on for 10 years. The **second** mitigation is the Kerr mitigation and the purpose is to mitigate the fishery and wildlife impacts of the operation of Kerr Dam. The FERC license says the Tribe shall acquire 3069 acres of habitat for Reservation fish and wildlife. The Tribes identified 13 priority areas around the Reservation which were selected on wildlife value; existence of wetlands or potential to restore wetlands. All of the mitigation projects have oversight requirements; the oversight agency for Kerr Dam and ARCO is the U.S. Fish & Wildlife Service, and there are criteria that have to be met to show these are functioning resources. The **third** mitigation program is BPA and the Northwest Power Act is the legal framework. Its purpose is to mitigate impacts to main stem Flathead River and other tributaries from Hungry Horse Dam. The planning process is documented and the Tribes and BPA entered into MOA's regarding resident fish habitat. The lands are owned by the Tribes. The **fourth** mitigation program is mitigation for unavoidable impacts to wetlands from highway construction on the Flathead Reservation and she showed the locations on the map. The Clean Water Act and the Tribal Aquatic Plants Conservation Ordinance – both of them have the goal of compensating for replacing habitat, water quality, and caring for the esthetic and education functions of the wetlands. Acres of wetlands to be restored are defined by two mechanisms – the Army Corp of Engineers wetlands replacement ratios and the Tribal wetland replacement ratios. For each mitigation project, the ratios are calculated, credits determined and a ledger is kept and tracked by both entities so there are two simultaneous and overlapping regulatory processes but the Tribes and the Corp work closely with the Montana DOT to plan mitigation projects. One of the main criteria for locating crossings for wildlife was considering where wildlife mitigation areas existed.

She went of to say that some of the issues that need to be addressed during discussions in a quantification approach include protection of wetland functions and protection of Tribal mitigation lands and she thinks METRIC will help. Instream flows and irrigation water uses can implicate wetlands and the parties need to start bringing wetlands and riparian areas into the discussions. For example what are the impacts of changes in water management scenarios on wetlands and how will they address wetlands in talking about impacts of surface and ground water development. How do wetlands and riparian areas fit into shared shortages? The purpose of her presentation was to start expanding the discussion into other resources and lay the groundwork so the parties all have a common base of understanding and can deal with wetlands and include them in the Tribal water right.

Duane reported that the Bureau of Reclamation is still assisting in preparing modeling to help identify the Hungry Horse potential as a water resource for negotiations. They are working to refine the modeling and will do one more check in with the Tribes, the State and the BPA and Army Corp. They have mentioned how this relates to ongoing litigation downriver and Judge Redden has provided guidance to the federal agencies that there are some perceived gaps in the BiOP on his part. Comments from the Judge have created another round of discussions between new administration folks at the federal agencies to evaluate the BiOp. He noted that Judge

Redden's most recent letter is available and Duane asked if the parties could put that information on their websites. He said the federal agencies which are defendants in the lawsuit are not pointing out any inconsistencies to Judge Redden but have committed to the federal government review of the BiOP which currently is supposed to wrap up the end of June. He said they are still working to get operations agreed to for this coming summer. Given that the Judge has not issued a final ruling, the plaintiffs initially wanted to have an injunction ordering the Corp and the BOR on how to operate the dams. They reached agreement for the spring operations with the plaintiffs but have not reached full agreement on the summer operations. There is a dispute on how to operate Hungry Horse and Libby reservoirs for the summer and the federal agencies have suggested that they operate along the lines of the BiOp issued last year which would have each reservoir drawn down 10 feet. Jay said the important thing about the BiOp and one of the reasons the State of Montana and the CSKT along with other upper basin states and Tribes are in strong support of the federal defendants is that the 2008 BiOp includes provisions for the so-called Montana operations, which change the operations of Hungry Horse and Libby reservoirs in Montana to better preserve the native species and habitat around those reservoirs. The plaintiffs are currently expressing unwillingness to go along with the Montana operations.

Duane said they are hoping to have in the next public session to have Reclamation staff and other modelers to present their operations.

Jay noted that one other thing the Commission and Tribal staff are talking about is looking at all water use on the Reservation using whatever data sources they can come up with together and putting them into layers so they can have a visual depiction of where all the water on the Reservation is coming and going. It would give them a greater degree of confidence as they try to articulate for purposes of the settlement what the current use situation is. They have been working with various data sources. A major source of discrepancy they are discovering is data for water use on the Project. Looking at the BIA database, the county assessment records, and claims filing data, the information is all over the place. They are hoping sometime during the next month or five weeks to get all of the various technical folks involved in the effort together and bring some of the federal contractors in so they can try to focus more specifically on where data gaps are and how to fill them.

Duane reminded people that they had noted some time ago that they would be in the current phase of delving into technical issues and individual items to work on, such as the wetlands work. Probably for the next few meetings they will continue to have these technical updates and build on them to get into actual negotiations and resolving issues.

6. Question and Answer Period

No questions.

7. Other

Clayton asked if Duane could elaborate as to where the federal team is as there was discussion about folding them into future technical discussions. Duane said he put the federal technical and policy folks on notice in March that with the development of their GIS material, spearheaded in large part by Bill Greiman, he will be asking that all of the key technical and policy folks participate in what will probably

be an all day meeting. On the money side, with the Commission extension and the claims filing date extension, some pressure has been released on how they need to spend their federal funding. Duane is working with BIA to reallocate some of the litigation money to the settlement side. He said within a month they should have their technical folks more available than they have been.

8. Public Comment

There was no public comment.

9. Set Next Negotiating Session Date

In the technical session yesterday, Duane said they are working to get a technical session set up in June. He has a conflict with June 24th. They also discussed, given the effort to put together a technical day in June and to give Reclamation more time, holding the next negotiating session on July 29th and before that working on their technical information. Jay said due to mapping projects, Reclamation's schedule and also given the Hungry Horse operations not being set for the summer, they talked about missing the June schedule. Clayton said it was okay with the Council members present.

10. Closing Comments by the Negotiation Teams

Bud Moran thanked everyone for attending, wished them safe travels, and asked if Pat Pierre had any words. He did not and the session was closed.