

**BROOKTRAILS TOWNSHIP COMMUNITY SERVICES DISTRICT
BOARD OF DIRECTORS
Tuesday, February 9, 2010**

The Board of Directors of Brooktrails Township Community Services District met in regular session on February 9, 2010 at 7:00 p.m. at the Brooktrails Community Center.

A. PLEDGE OF ALLEGIANCE

B. ROLL CALL

Roll call showed the following directors present: Williams, Ziady, Orth, Horrick and Skezas. Also present were General Manager Chapman and District Counsel Neary.

REPORT ON CLOSED SESSION

District Counsel Neary reported that the Board met with Counsel on two matters of anticipated litigation, received information and gave direction.

NOTE: Report for closed session at end of January 26, 2010 meeting is still due.

C. ADDITIONS/ADJUSTMENTS TO THE AGENDA

D. MINUTES OF PREVIOUS MEETINGS

1. January 26, 2010. Director Orth moved to approve the minutes; Director Horrick seconded. The minutes were approved unanimously.

E. SPECIAL PRESENTATION

None.

F. PUBLIC HEARING

None.

G. PUBLIC COMMENTS

None.

H. CONSENT CALENDAR

2. Review of Accounts Payable report and authorization to issue checks. Director Orth moved to approve payment of the outstanding invoices; Director Horrick seconded; the motion was unanimously approved.

I. ACTION AGENDA

3. Water Yield Analysis Report from Wagner & Bonsignore; request for approval to file request for 24 water service connections ("waiting list") to California Dept. of Health Services. Mr. Chapman introduced Nick Bonsignore and advised two matters were on the agenda: first the Wagner & Bonsignore report, which the Board would have to move to accept, and second, approval to make a request to Department of Health Services for 24 more connections for those on our waiting list. He tentatively had Bruce Burton of DHS scheduled to address the Board at the next meeting.

Mr. Bonsignore said he was retained to take another look at the District's water supply situation. A study was done in 2003 by T.M. Herman & Associates, before the USGS stream gauge was installed, so Herman did not have that data. Three years later Wagner & Bonsignore were hired to do a peer review of that report; they agreed with some of the Herman study points but were unable to validate others. He pointed out we now have six years of data for the Willits Creek base and the study was to look at water supply and demand. They attempted to do a daily operational study with an accounting of water coming in and going out and the lake level, this covering 42 years of data.

Mr. Bonsignore reviewed Figures 1 and 2, Water Production & Sales and average monthly water production; both of these trends are on the decline since 1997; he concluded this has a lot to do with the tiered water pricing. They focused on the seven years since the moratorium; the average they used is about .24 acre-feet (af) per year per connection (214 g.p.d / unit), a total of 373 af/year. Not included in this number was the golf course raw water which uses about 17,000 gallons/day, about 1.6 af/month from May through September.

Mr. Bonsignore then discussed the technical analysis of inflow from the watershed. Based on the precipitation record at Willits, average precipitation during the past six years is about 91% of long-term average. The gauge doesn't measure all the flow coming into Lake Emily; it excludes two areas which he pointed out. Estimating inflow was done by pro-rating based on the percentage of the gauge that the specific watershed represents. There is another USGS gauge on Elder Creek, about 22 miles northwest of here, with 42 years of data and no diversions in the watershed. It's a little bit bigger than the Willits Creek watershed, 9 square miles as opposed to 5. They took the six years daily flow measurements in

Willits Creek and on the same day plotted the Elder Creek data (Fig. 4); there was a general relationship. They used that line to take the Elder Creek daily data and estimate those daily flows.

Other considerations taken into account were the water rights permits. Both lakes have their own permits operating independently; they are permitted for direct diversion and diversion for storage. During winter Brooktrails does processes by diverting and filling. At some point you start just taking water out of storage. The Emily permit is conditioned with Fish & Game bypasses; right now you have to bypass the first 15cfs of input; if less than that is coming in at the gate you bypass it all. In their model they also accounted for summer evaporation, estimating about 42" annually with the highest month being July. Another component was the seepage return flow from the return well. Analysis indicates for 2009, average was about 37gpm which is about 50 af over time. The modeling also included consideration of lake elevations versus storage.

Going through 42 years of operations, inflow, outflow, demand, lake level, the pie charts summarize the 42-year averages: on average close to 8,000 af of inflow to Lake Emily and about 1,000 af into Lake Emily. The pie charts explained what happens to that inflow: Fish & Game bypasses; spilled; water rights compliance; direct diversion; storage. The chart also reflects there is no bypass requirement at Ada Rose. His opinion was that on average you're not making a very big footprint on water coming out of this watershed; this was about 4% of the inflow. The rest goes on downstream. In Emily, you take about 10% and 90% goes by.

Figure 8 plots the 42-year average and the combined storage content of the lakes. This is the model of how the reservoirs would have performed with the application of the .24 af/connection, 372 af/year demand each year. He pointed out 1977, the one period when these lakes didn't refill under the model of a 42-year period. 1977 was a very anomalous year in terms of hydrology. Mr. Bonsignore pointed out the next lowest year after 1977 in amount of spill was 1994 (562 af) and 1991 (621 af). On average the spill is about 5,000 af/year.

Mr. Bonsignore then addressed reliability of the Elder Creek data, saying six years of local data isn't enough. There was a 50% chance that the Elder Creek gauge would not register 17,000 af in one year. There's almost a 100% chance the flows will not exceed about 30,000 af. This led them to believe the Elder Creek distribution over 42 years represented log-normal, except for the 1977 anomaly.

Mr. Bonsignore said, we conclude that in the event of a 1977 situation, no matter how many connections you might have, you will have some problems and may have to ask a regulatory agency for relief. Researching adding 25 new connections at a quarter-acre foot/year times 25, that's about 6 af. Very crudely, if you want to deliver 6 more af out of the system, then the 85 residual low-point storage might drop to 79 af. That 6 af is probably conservative because it assumes all the extra water would come out of storage; in reality some would come out of direct diversion.

Mr. Bonsignore also pointed out that they used 373 af/year total demand in their modeling; in 2009, the District used 320 af; a significant difference.

Director Orth asked if the modeling is based on current conditions (expanded reservoir); Mr. Bonsignore confirmed it was.

Regarding sedimentation, Mr. Bonsignore said that given the surveyor's map one could generate a curve that tells you at any water surface elevation what the storage capacity is. Two surveys were done by Herman, one in 2003 and one in 2006; at the time the lake hadn't been raised. They plotted Herman's data; there is about .4 af difference between the actual numbers, suggesting a sedimentation rate of .1 af/year. Herman had mentioned, based on the original capacity of Lake Emily and the survey he did in 2002, that we had lost probably lost 70 af. Mr. Bonsignore felt the District had probably lost a lot, but not that much. Herman's figures were based on design plan values.

Director Williams received clarification on .24 af being production, not consumption. Director Ziady asked which watershed was used and was told Outlet Creek watershed. In the 2006 peer review they focused on Elder Creek. Director Williams asked how many acre feet we were providing to the Department when the moratorium decision was made; he said he was trying to figure out the consequences of this information. Mr. Chapman said he did not know offhand what the acre-foot figure was that was given to DHS.

The discussion turned to history of the 2003 Herman study. Director Williams asked which chart told how much water was available in the watershed to us. It was his understanding that when we looked at the numbers [then], we only had enough for 750 [SFRs]. Mr. Bonsignore said there were some complications: source, bypass, water rights; it all works together and that's what the 42-year operations are supposed to show.

Director Ziady asked if he was saying that it was not true that we only had enough water for 750 houses in a 10-year drought. Mr. Bonsignore said he thought he was disagreeing with that; he felt the years like 1977 were more a 1-in-20 or -25-year scenario. Director Orth pointed out we also have an operational change allowing us to fill up at this time of year to. Mr. Chapman said regarding 1977 we have an emergency ordinance in place to drill our customers down to what reasonable level we set. If 1977 happens again almost everybody in the state will have problems.

Director Horrick asked if it was reasonable to assume we would enact the conservation measures before we got to levels like 86 af anyway? Mr. Bonsignore said if you get into the fall and reservoirs are down and it's not raining, decisions have to be made early on.

Don Morris said he was concerned we may not have an accurate picture of the sedimentation in Lake Emily. Mr. Bonsignore said it might be worth asking Mr. Herman how accurate was his survey. He said they can't see that there was ever an "as built" map done of the original reservoir; Herman based his baseline on the one they do have which shows it down to a certain baseline.

Rich Estabrook received clarification that Figure 4 represented six years of Elder Creek data. He then asked Mr. Bonsignore what they had done to history match this model. He said this meant you put in a year we have good, firm data, and you compare your model lake levels with observed lake levels. Mr. Bonsignore said the only thing we have is for the five years of Willits Creek data. Mr. Estabrook said that shows the difference between your simulated flow and the actual measured Willits Creek in your model. Do you have anything that shows an actual year like 2009, actual bypass flow, actual stream flow, actual water usage and comparing that to observed? Mr. Bonsignore said no, we don't have that.

Director Williams moved to accept and file the report; Director Orth seconded; the motion carried unanimously.

Rich Estabrook thanked Mr. Bonsignore for the presentation. He said two things were still missing in the report: an uncertainty analysis and a history match. He described an uncertainty analysis as having to say, not that 84 is the actual figure, but that 84 is in a range of figures; it might be at the middle or it might be at one end of that range. He said this is essential. He felt what was done was somewhat conservative; the range might be 70 or 75 to 100. But every variable should have an uncertainty calculation. He felt the Board needed to realize what the range is, and he didn't.

Secondly, the history match really bothered him. Take 2009, he said, plug in actual day-to-day creek flow, and bypass, water production, and then you have what should be a calculated day-by-day lake level throughout the year. And see how close you are. He discussed his own projections. He tried to recreate the model based on what Wagner & Bonsignore did and used their simulated Elder Creek flow and their water demand assumptions and the new bypass requirements. He modeled 2008; they came up with 84 af as the minimum; he came up with 47. He said he would like to see their spreadsheet and see where he screwed up, because his calculations were based on observed values that you can repeat.

Mr. Chapman challenged Mr. Estabrook because he felt the value was closer to the 85 than 47. Mr. Estabrook responded it was a projection of what would happen if we had another year like 2008; he plugged in the exact same numbers, he thought, that Nick used; they came up with 47 instead of 85. He was sure it was something he did, but for his peace of mind would like to look at the spreadsheet. He would ask that the Board wait for two weeks to allow for this.

Mr. Chapman said sometimes you have to look at the practical side. A year ago, model or no model, we had a lot more than 47 af in December 2008. Mr. Estabrook said in 2008 we actually had 60 af on December 12 but that was sort of irrelevant under the old release requirements. Mr. Chapman reminded the audience that we purposely tried to drain the lake for predatory fish under the CF&G contract that year.

Director Williams said he took it that Mr. Estabrook is saying, if he is was not wrong, that something about this model was going to change dramatically. Mr. Estabrook confirmed this. Director Williams asked how much difference this would make to the guy who's going to make this decision. Director Ziady said what Richard was doing was a critique of the methodology of the study; she felt it wasn't unreasonable to incorporate a history match and uncertainty analysis. It may influence Bruce Burton's decision; she wanted to know how much she could trust the study.

Director Ziady said we should know what we're going into and that people we give connections to in future have informed consent. Director Williams asked about the financial implication of Wagner & Bonsignore providing this [additional] information. Mr. Chapman said we didn't request this when we signed the contract. Mr. Estabrook said yes, he'd like to see the spreadsheet; he's not saying that model is wrong, it just makes him a little uneasy.

Mr. Bonsignore said he's out of money under the contract. Director Williams asked what it would probably cost. Mr. Bonsignore said it could be done within two weeks but could not give a quote on the spot. Bob Terry said this particular model came out low, and he felt we didn't even need to worry about it.

Director Williams said 6af being used by 25 new houses isn't significant when you're looking at 86 af, but what Mr. Estabrook is saying that we start at 47, and in that case adding 25 new houses is significant, in his opinion. Mr. Chapman said in practicality we have a dead space of 13 af beyond (Ada Rose) what we're talking about, and if you have to throw a pump out there, which could be done, we still have another 13 af on top of the 84af, under the worst case drought scenarios.

Director Williams moved that we delay delivery to Bruce Burton of this analysis for up to 30 days to allow time for reconciliation of Richard's concerns with the study's Table 8. He suggested 30 days in case the discrepancy wasn't easily disposed of, we would need more time. Director Orth seconded. President Skezas noted this would take us beyond the first March meeting. Director Williams said if it's easily resolved at no cost, you can tell us that at the next meeting; if not, provide an estimate at the next meeting, with resolution by the following meeting. The motion carried.

J. ADDITIONS TO FUTURE AGENDAS

None.

K. SPECIAL REPORTS

From Directors: Director Ziady said the Recreation, Greenbelt & Conservation Committee met and has started working on their goals and objectives.

From District Counsel: None.

From General Manager: None.

L. PUBLIC COMMENTS

None.

M. ADJOURNMENT

Director Williams moved to adjourn; President Skezas adjourned the public meeting at 8:50 p.m.

George Skezas, President

ATTEST:

MICHAEL V. CHAPMAN