REBUTTAL REPORT
OF EXPERT REPORT AND DIRECT TESTIMONY BY
CHARLES BRENDECKE FOR IGWA

In The Matter of the Petition for Delivery Call of A&B Irrigation District for the Delivery of ground Water and for the Creation of a Ground Water Management Area

August 27, 2008

INTRODUCTION

This is a rebuttal of the Direct Testimony by Charles Brendecke of Hydrosphere Resource Consultants for Idaho Ground Water Appropriators, Inc. (IGWA) dated July 16, 2008. This rebuttal report was prepared by John Koreny of HDR Engineering, Inc., Dave Shaw of ERO Resources, Inc. and Charles Brockway of Brockway Engineering, Inc at the request of A&B Irrigation District (A&B).

The fact that incidental recharge was greater when the A&B project was developed in the 1950s does not excuse the impacts caused by junior-priority ground water pumpers.

Brendecke Opinion

Dr. Brendecke provides information that shows that incidental recharge was greater in the 1950s when the A&B project was developed as compared to today (pgs 13-17). Dr. Brendecke then states that the decline in ground water levels in the ESPA is partially due to a decline in incidental recharge (pg. 18-19).

Rebuttal

We agree that incidental recharge was higher at the time the A&B project was developed as compared to current incidental recharge. There is little dispute that the reduction in incidental recharge has decreased the total recharge to the aquifer, and that this has caused ground water levels to decrease.

However, as Dr. Brendecke confirms on page 22 of his Direct Testimony, junior-priority ground water pumping is also a significant source of depletion to the aquifer, "*Ground water pumping has withdrawn some of the storage added to the aquifer by early irrigation development. This has reduced ground water levels in some areas*". Ground water pumping by junior-priority water users has reduced ground water levels on Unit B. The Curtailment Scenario shows that pumping associated with ground water rights junior to A&B's 1948 ground water right causes about 50 feet of decline at steady-state conditions (A&B Expert Report, page 6-5, Figure 6-1). The decline of ground water levels caused by junior-priority ground water pumping has reduced A&B's ability to obtain the water supply needed and authorized under it's decreed water right. The junior-priority ground water users are responsible for the impacts caused by their pumping to A&B.

The fact that the overall supply has decreased because of declining incidental recharge and drought only highlights the need for administrative action to deliver the remaining water supply according to priority. The purpose of the priority doctrine is to provide a system so the available supply is delivered according to users priority during times of shortage.

The Palisades winter water savings program is not relevant to the A&B delivery call.

Brendecke Opinion

"*How would the Palisades Water Savings Agreements affect aquifer water levels? They would affect water levels by reducing non-irrigation season recharge of the aquifer. . . Other than minor amounts of consumption for domestic and livestock uses, it is reasonable to assume that nearly all of the historical winter diversions of the North Side Canal Company (and of the other canal companies participating in the program) contributed to incidental recharge of the ESPA. . . . So reducing or limiting winter diversions under the Winter Water Savings agreements had the effect of substantially reducing wintertime incidental recharge to the ESPA*" (pg. 19-20).

Rebuttal

The winter water savings agreement stopped some winter diversions from the Snake River to the Eastern Snake Plain. Prior to the construction of Palisades Reservoir, water was diverted and run through irrigation canals for livestock watering or domestic use. After the winter water savings program, some of the foregone diversions were used to fill the Palisades Reservoir.

Dr. Brendecke is arguing that the winter water savings program reduced recharge to the aquifer. There are several problems with the logic he is presenting:

1. **Much of the water run through the irrigation canals in the winter before the winter water savings program did not recharge the aquifer.** The water run through the irrigation canals was not used for irrigation. Only the portion of water diverted and lost to canal seepage recharged the aquifer. Irrigation canals operating in the winter tend to ice up and do not lose as much water to seepage as during the summer. Therefore, much of the water diverted during the winter probably was discharged out the end of the canal as tailwater and flowed back to the river without recharging the aquifer.
2. **The water stored in Palisades Reservoir as a result of winter water savings was used for irrigation and recharges the aquifer.** The winter water savings program stopped winter diversions and allocated this water to Palisades Reservoir storage. The primary purpose of Palisades Reservoir storage water is for irrigation, although water may be spilled during wet years for flood control. Therefore, most of the water that used to be diverted in the winter that recharged the aquifer probably still recharges the aquifer.
3. **Much of Dr. Brendecke's analysis regarding the effects of the winter water savings program on aquifer recharge is based on speculation**. Little data is available to quantitatively evaluate the changes in aquifer recharge from the Palisades Reservoir winter water savings agreement. The only data that is available is in the Palisades Reservoir planning study and it only quantifies the amount of water that formerly was

diverted in the winter and was reallocated to Palisades Reservoir. No data is available in the Palisades Reservoir planning studies, to our knowledge, on the change in aquifer recharge resulting from the winter water savings program.

4. **Even if adequate data exists to quantify the effects of the winter water savings agreement on aquifer recharge, it is irrelevant to the A&B Delivery Call.** A&B was not a party to the Palisades Reservoir winter water savings agreement. The winter water savings agreement is not relevant to the A&B delivery call, since the A&B delivery call deals with remedying the depletions to the aquifer from junior-priority ground water users and associated injury to the senior's water supply.

Drought is not a reason for the long-term decline of ground water levels on the ESPA and in the vicinity of Unit B.

Brendecke Opinion

Dr. Brendecke states that drought is a reason for reducing ground water levels on the aquifer (Brendecke Direct Testimony, pg. 21).

Rebuttal

Dr. Brendecke alleges that drought is a significant factor in declining ground water levels on the ESPA. This subject is addressed in greater detail in the Rebuttal to the Petrich Direct Testimony and Expert Report. In summary, drought is not a relevant factor to the A&B delivery call for these reasons. A drought over 5 years in the early 2000s cannot explain a ground water level decline occurring over the last 30 years. Declining ground water levels in the Unit B wells were causing pump bowls and wells to be dewatered in 1994 when A&B filed the original delivery call. The ground water levels continued to be a problem for A&B through the 1990s and into the early 2000s before the recent drought. The ground water levels are likely to continue to decline in the future and will continue to be a problem for A&B after the 2000s drought is over if administrative action does not remedy the depletionary effects of an average of 1.8 MAF/yr of ground water pumping with priority dates junior to A&B's 1948 ground water right.

A&B is requesting administration to remedy the impacts from junior-priority ground water pumping. A&B is not requesting administration of incidental recharge and is not seeking a return to the pre-1950 aquifer recharge conditions.

Brendecke Opinion

Dr. Brendecke opines that, "*It is my opinion that the peak water levels in the early 1950s can never be restored, absent the return of pre-1950 conditions which would require the elimination of sprinkler irrigation in favor of flood irrigation across the ESPA and the elimination of winter storage in Palisades Reservoir*" (pg. 24).

Rebuttal

Dr. Brendecke incorrectly implies that A&B is requesting a return to the ground water levels of the 1950s. A&B has not requested administration of incidental recharge and is not seeking a return to the ground water levels of the 1950s. A&B has only requested administration to remedy the impacts from junior-priority ground water pumping (see March 16, 2007 A&B Motion to Proceed, No. 11(f), pgs. 8 to 9). The Direct Testimony of A&B Experts Brockway and Koreny evaluate the impacts of junior-priority ground water pumping on ESPA ground water levels and acknowledges that junior-priority ground water pumpers are not responsible for the other factors (i.e., reduced incidental recharge) contributing to ground water level decline (Brockway Direct Testimony, Nos. 32-34; Koreny Direct Testimony, Nos. 33 to 37). Curtailment is a feasible option to remove the impacts from junior-ground water pumping on A&B if junior-priority users cannot remedy A&B's impacts through other mitigation alternatives.

Curtailment of junior-priority ground water users will increase ground water levels in the vicinity of Unit B and will restore the Unit B water supply.

Brendecke Opinion

"*. . . because of the heterogeneous nature of the aquifer the effects of curtailing junior rights in some locations will have greater or lesser effects than curtailment of junior rights in other locations. Curtailment of some junior rights may well have little or no effect on water levels beneath A&B. While the IDWR ground water model can shed some light on broad regional effects of pumping curtailment, it really can't simulate local-scale effects, particularly in areas with complex hydrogeology such as the A&B area.*

It will also take an extended period of time to determine the effectiveness of curtailment, simply because water levels beneath A&B will not respond instantly to cessation of pumping at distant locations. The benefits of curtailment are dispersed; a considerable proportion of the foregone pumping will be reflected in storage increases in other areas of the Plain than A&B. All these factors suggest to me that widespread curtailment of junior ground water rights would not be a very effective way, from a resource management perspective, to improve water levels beneath A&B" (pgs 23-24).

Rebuttal

We agree that the ESPA is heterogeneous (i.e., the aquifer has spatially-varying properties). The ESPAM model is designed to evaluate aquifer heterogeneity and the aquifer properties in the model (transmissivity and storage) are varied at individual model cells that are each about 1 square miles in size. The model area in the vicinity of A&B covers about 600 square miles, so there are about 600 model grid cells, which is sufficient to evaluate the aquifer heterogeneity in the vicinity of A&B.

Curtailment is a feasible option to remove the impacts from junior-ground water pumping on Unit B if junior-priority users can not remedy their impacts through other mitigation alternatives. The Curtailment Scenario by IWRRI using the ESPAM ground water model shows that curtailment of ground water pumpers with a priority date junior to 1949 (near the A&B priority date of 1948) will result in an increase in ground water levels in the vicinity of A&B by about 50 feet, and about half of this increase in ground water levels will occur

within about 10 years (see A&B Expert Report, Figure 6-1, pg. 6-13). Curtailment of ground water pumping to a 1948 priority would significantly increase ground water levels in almost all of the Unit B wells including the wells in the southwest area of Unit B and would restore the Unit B water supply.