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Counsel for the United States

**IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS**

In Re SRBA	)	Subcase Nos. 63-27475
	)	
	)	Case No. 39576
	)	
	)	AFFIDAVIT OF ROBERT D.
	)	SCHMIDT
_____	)	
STATE OF MINNESOTA	)	
	) ss.	
County of Isanti	)	

I, ROBERT D. SCHMIDT, being duly sworn upon oath, state as follows:

1. I am employed as a groundwater hydrologist consultant to the Bureau of Reclamation. I have a masters degree in Geoengineering/Hydrology and was an employee of the Bureau of Reclamation's from 1998 to 2006. Prior to that, I was a hydrologic consultant from 1997-1998. From 1975 to 1995 I worked for the Bureau of Miles and the Bureau of Reclamation, where all of my work was involved with groundwater hydrology.
2. I constructed a computer model of subsurface flow in a portion of the Boise Valley that includes the constructed portion of the Purdam drain. I used this model (called the Purdam model in this affidavit) to determine the effects of irrigation activity

(canal seepage and on-farm infiltration) on aquifer head conditions and subsurface flow into the Purdam drain at the location of the Janicek point of diversion (POD).

3. The Purdam model was developed using the widely-applied analytic element modeling method and a groundwater modeling software package developed for the EPA called GFLOW. Surficial hydrologic features in the model area, including canals, drains, creeks and rivers are all represented in the model as head-specified boundary elements.

4. The boundaries of the Purdam model are aligned with surface water flow features. On the east and west sides the model boundaries are Ten Mile Creek and Mason Creek. On the north and south sides the boundaries are the Boise River and the New York canal. Due to stratigraphic layering which dips to the northwest, and northwest-southeast trending fault structures which parallel the creek boundaries, almost all of the hydrologic influences affecting Purdam drain return originate within the model area.

5. Head conditions for most canals and drains in the model area were derived from a digital elevation map (DEM) based on highly accurate LIDAR (Light Detection and Ranging) data. On-farm infiltration and precipitation in the model area is represented by spatially-distributed aquifer recharge rates derived from Boise Valley agricultural water budget data. I calibrated the Purdam model using both head and flow data. Fifty-five USGS observation wells located within the model area were used for head calibration and seepage measurements from the Ridenbaugh canal and the Kennedy lateral were used for flow calibration.

6. I first used the calibrated model to predict subsurface discharge to the Purdam drain under present irrigation conditions. The model predicted drain return upstream of the POD location to be 5.1 cfs, which is comparable to drain flow measurements made in early October 2007, by Reclamation. Uncertainty in drain return predictions is estimated to be about 20 percent of the predicted rate.

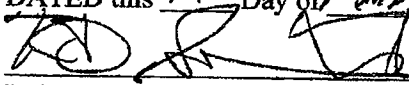
7. I next used the model to simulate Purdam drain return under "pre-development" conditions. In the "pre-development" model I eliminated all irrigation activity (canal seepage and on-farm infiltration) on Boise Project and non-project NMID lands. However the "pre-development" model assumed the continued existence of the constructed 12 foot deep Purdam drain. In addition, the "pre-development" model included infiltration due to precipitation and to irrigation activity in a portion of the Pioneer Irrigation District and on some nearby private lands. Eliminating irrigation activity on Boise Project and non-project NMID lands reduced drain flow at the POD by 4.8 cfs, from 5.1 cfs to 0.3 cfs. The water table elevation beneath the POD declined by 16.5 feet (from 2564.9 feet to 2548.4 feet).

8. I obtained hydrographs of observation wells near the POD which show a seasonal trend in depth to water. The water table rises throughout the irrigation season and declines during winter months. Between the end of one irrigation season and the start of another, the water table surface typically declines four to six feet, but the decline can be as much as nine feet.

9. The pre-development model, which predicts that the water table beneath the Purdam drain would decline by approximately 16.5 feet (or about 13.6 feet below the bottom of the Purdam drain) in the permanent absence of all irrigation activity, is entirely consistent with the seasonal water table response observed in these wells. I estimate that in the permanent absence of all irrigation activity it would take three to five years for the water table on the Sunrise Terrace to return to its pre-development level.

10. The Purdam drain model results demonstrate that canal seepage and on-farm infiltration from Boise Project and non-project NMID lands within the model area are responsible for essentially all of the subsurface return flow to the Purdam drain at the location of the POD.

Further your affiant sayeth naught.

DATED this 14th Day of March, 2008


Robert D. Schmidt
Groundwater Hydrologist

SUBSCRIBED AND SWORN to before me this 14th Day of MARCH, 2008.

Notary Public for Minnesota



Residing at: NORTH BRANCH, MN

My Commission Expires: JAN, 31, 2010

