

MEMORANDUM

To: Lori Graves, Jan Shurte, Shelley Keen
Copy: Cynthia Clark
From: Scott King
Date: June 28, 2004

Subject: Measurements for Colwell Applications & Adjudication Claims

On June 24, 2004, Cynthia Clark and I met with George Colwell, wateruser, and Harley Noe, consultant from Associated Earth Science, to measure discharge in the Johnson-Higby Ditch, a diversion from the Payette River located north of New Plymouth at 8N 4W 20 SWNENW. Measurements of the ditch were taken shortly below the headgate and also about 1.1 miles downstream. In addition, pumped discharge from the unnamed slough identified as a source in another application was also measured.

The intent of the visit was to determine conveyance capacity and assess conveyance losses of the Johnson-Higby Ditch. Although the diversion was not operating at capacity, the measurement should suffice for the supporting the total quantity of water appropriated and that identified for further appropriation. It was apparent that additional water could be turned into the canal as the headgates were only partially open and the upstream head was sufficient to cause significant additional inflow. In addition, Johnson (65-5921 & 65-22390) was not diverting any water at this time, and Colwell was unaware how Pence (65-11255) could get any water from this ditch.

The two ditch measurements were intended to assist in assessing conveyance losses in the ditch. However, discharge has been fluctuating due to changes in river stage and headgate adjustments by Mr. Colwell. The stage at the lower measurement dropped about 4 inches during 1.5 hours at the site. Mr. Colwell advised that he turned down the flow earlier in the morning as the river stage had risen. Upon our arrival, about 1-2 inches of a T-stake driven into the ditch bed about 15 feet below the headgate near the left bank was exposed. We discussed that the measurement should be made when the system was operating at high flow, near capacity. As a result, Mr. Colwell opened one of the closed gates a little until the water surface covered the T-stake by approximately 2 inches. As discharge in the system was not steady, the two ditch measurements cannot be used for assessing losses. If conveyance losses are a critical element of the appropriations, the system should be re-measured later in the year (perhaps August) when the river and ditch operate with much less fluctuation.

Measurements:

Johnson-Higby ditch 180 feet below headgate: 57.1 cfs

Johnson-Higby ditch 1.1 miles below headgate: 51.4 cfs

Unnamed Slough diversion ditch, 60 feet below discharge: 13.0 cfs



Photo 1. Johnson-Higby Ditch Headgate.

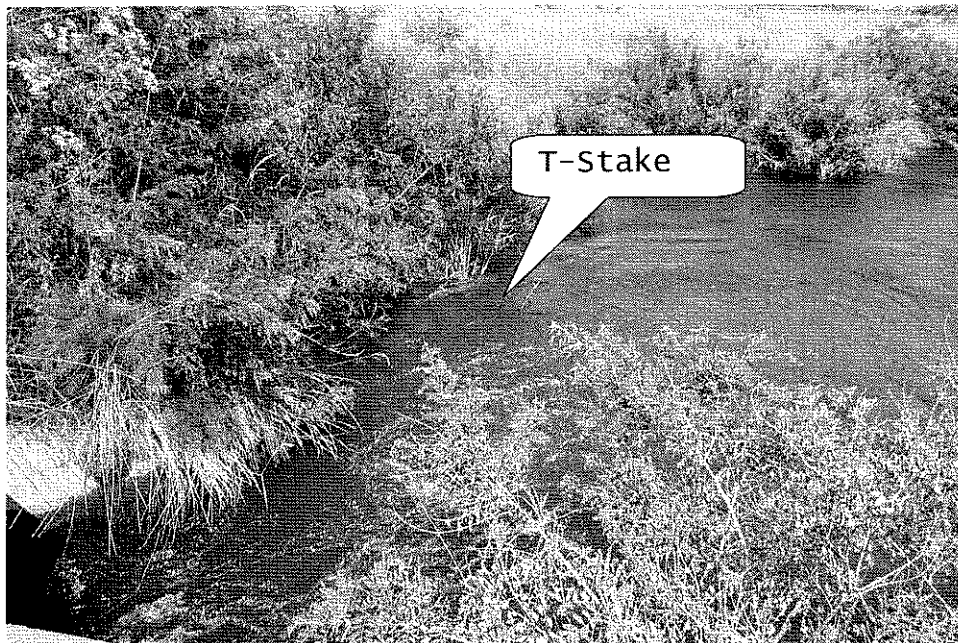


Photo 2. Below headgate.



Photo 3. Measuring transect below headgate. Flow was fairly smooth and steady.



Photo 4. Measuring discharge in Johnson-Higby Ditch about 180 feet below headgate.

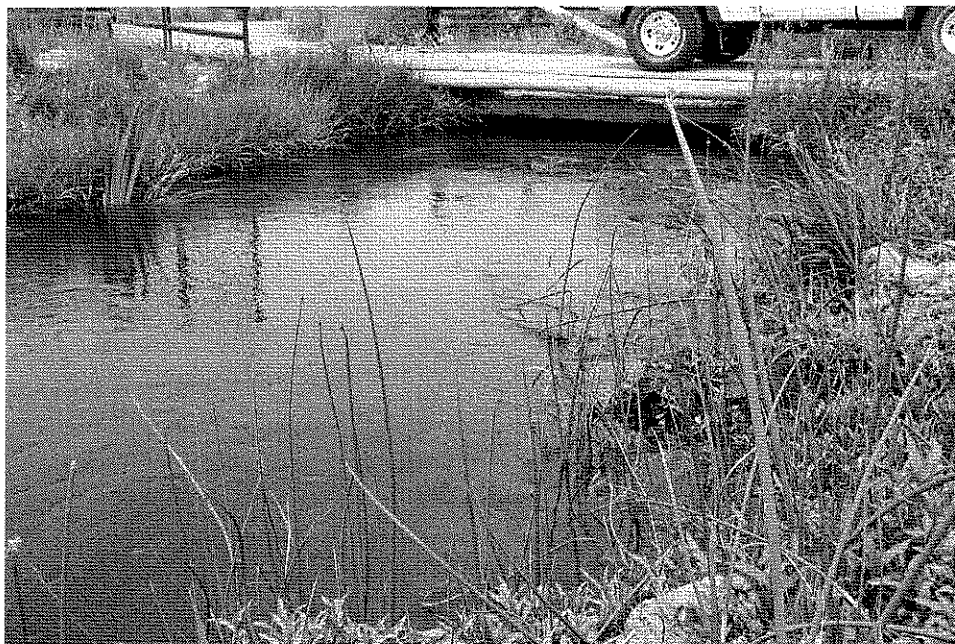


Photo 5. Small private bridge over Johnson-Higby Ditch about 1.1 miles below headgate. The water surface was nearly touching the bottom of the bridge upon our arrival at this site, and dropped about 4-5 inches over about 1.5 hour period.

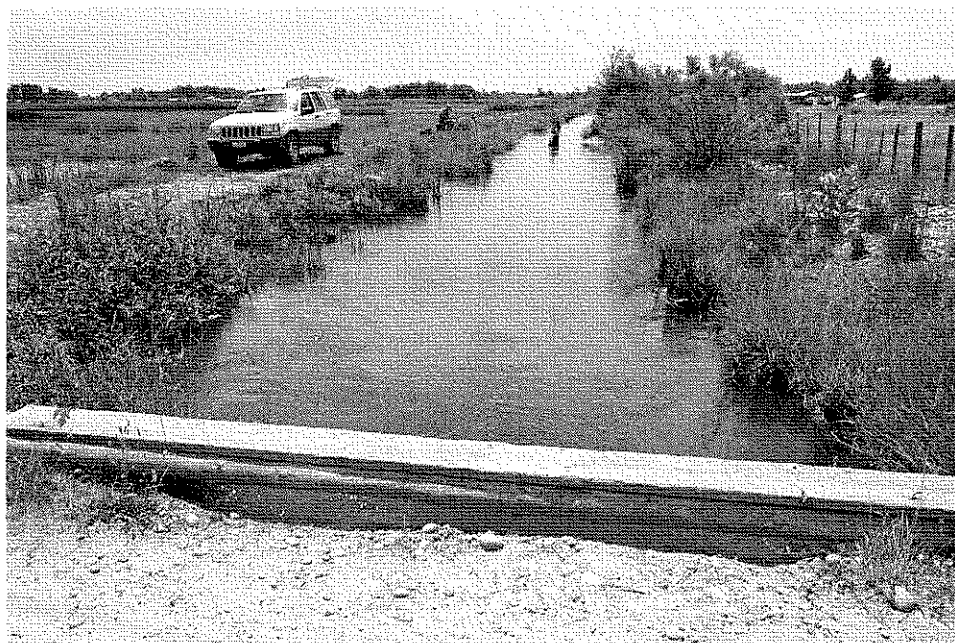


Photo 6. Johnson-Higby Ditch facing upstream toward measurement transect from small private bridge.



Photo 7. Measuring discharge in Johnson-Higby Ditch about 1.1 miles below headgate, above small private bridge.



Photo 8. Unnamed slough diversion system includes 25-hp pump into earthen ditch and/or concrete slip-form ditch.



Photo 9. Discharge from pump into earthen ditch. Flow can also be turned into the concrete slip-form ditch in the background (which was dry today).

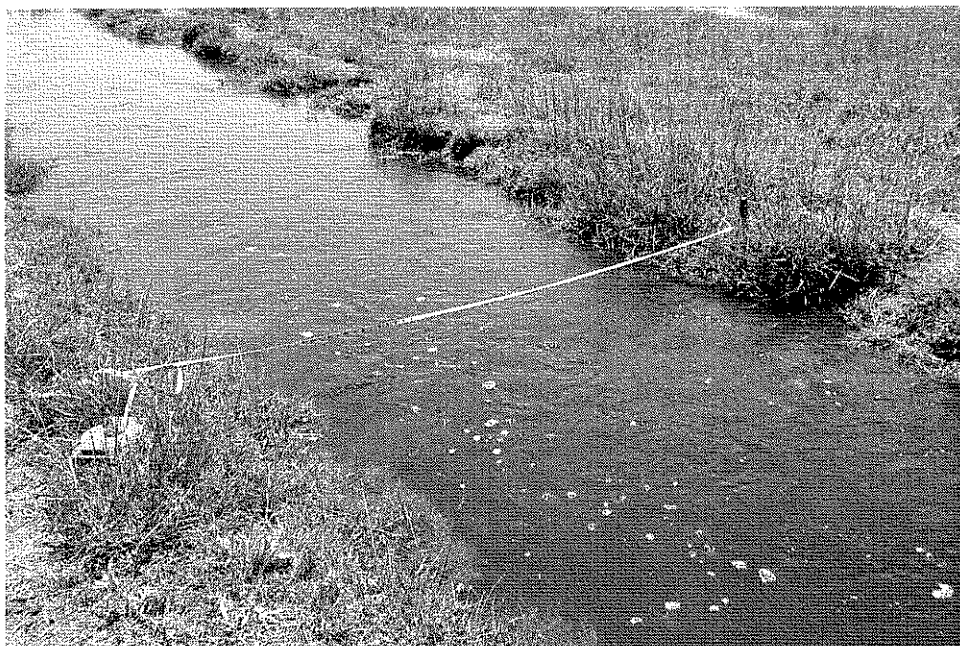


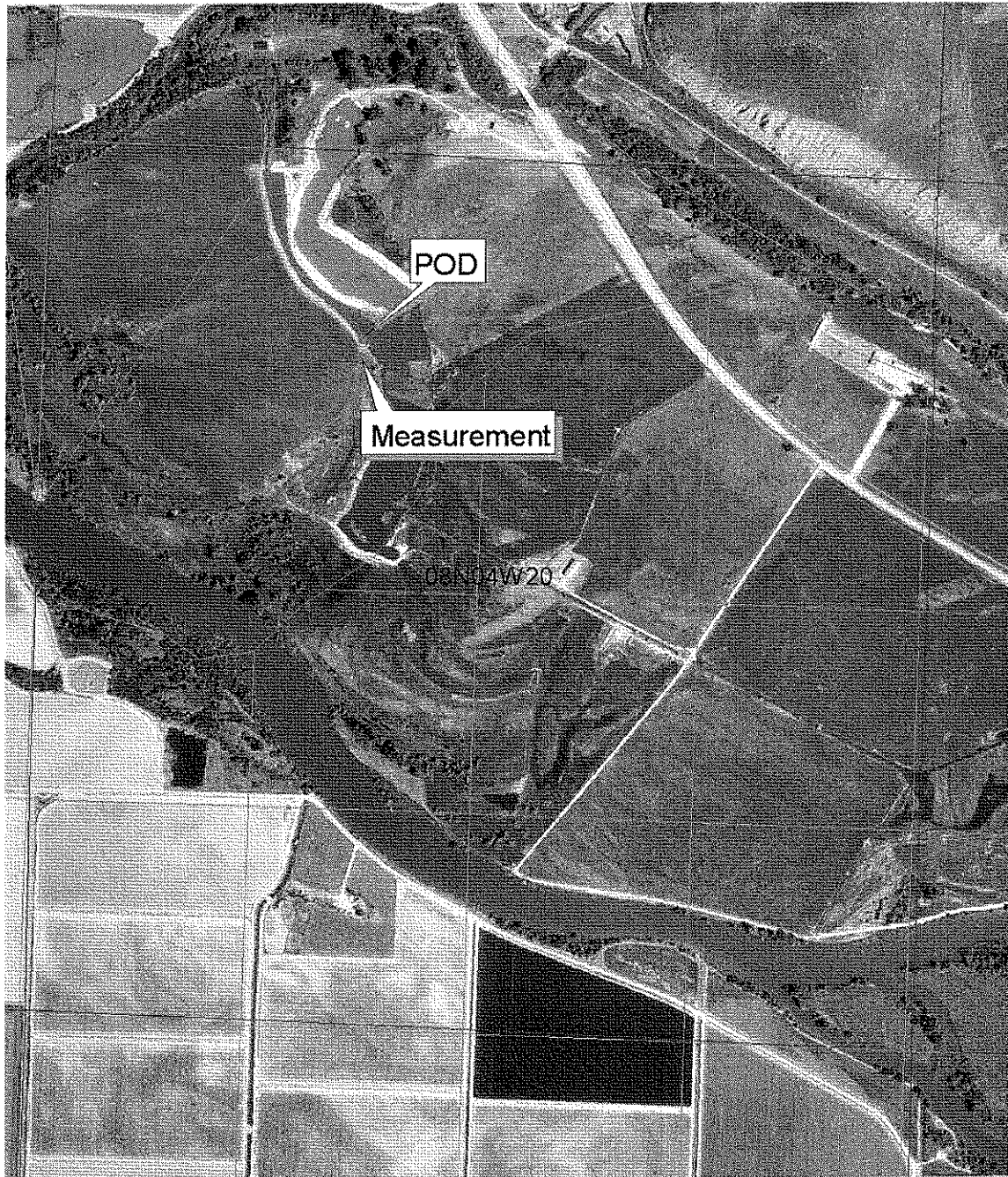
Photo 10. Slough diversion ditch transect, flow direction right to left.



1000 0 1000 2000 Feet

Johnson-Higby Ditch Measurement
6/24/2004
Idaho Department of Water Resources





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