

MEMORANDUM

Date: July 17, 2006

To: Water Right Files 37-7268, 37-7454, 37-7602 and 37-8679

From: Jeff Peppersack

Re: Review of Petition to Correct and Amend Licenses
Pumping Capacity and Combined Rate Limit for Water Rights

Dana Hofstetter filed a Petition to Correct and Amend Licenses on behalf of Hubsmiths for the water rights referenced above. There were two issues discussed in the petition. This memo is a review of the pumping capacity estimates to determine whether the Department erred in licensing based on the field exam information.

The following is a summary of development for each of the permits and notes regarding findings at the time of field exams and licensing for the permits.

37-7149

application indicated right would be supplemental to Big Wood Canal shares
exam measured 5.09 cfs for well in July 30, 1980 field exam
field exam notes indicate well had 400 hp motor GE LLJ1105975 with Aurora pump V76-70510
permits 37-7454 and 37-7602 in operation at time of exam (used same well)
licensed with combined limit of 5.09 cfs from well

37-7268

estimated 6.2 cfs for well in July, 1990 field exam, 65 psi at pump
field exam notes indicate well had 400 hp motor GE LLJ1105975 with Aurora pump V78-70510

37-7454

measured 5.09 cfs for well in July 30, 1980 field exam
field exam conducted in conjunction with 37-7149
licensed with combined limit of 5.09 cfs from well

37-7602

exam measured 5.09 cfs for well in July 30, 1980 field exam
field exam conducted in conjunction with 37-7149

37-8679

exam estimated 6.1 cfs for well in August, 1991 field exam, using 70 psi at pump
exam reviewer modified estimate to 6.28 cfs based on 65 psi at pump
field exam notes indicate well has 400 hp motor GE LLJ1105975 with Aurora pump V78-70570
exam notes also indicate Big Wood Canal shares used in conjunction with ground water
licensed with combined limit of 6.28 cfs from well
37-7149 no longer uses same well

The petition claims that the Department erred by using a pump efficiency value of 70% to estimate the flow for the system for rights 37-7268 and 37-8679. The petition references an efficiency value of 83% from the published pump curve. Although pumps can theoretically attain efficiencies greater than 80%, those efficiencies are based on ideal set-up and operating conditions. Pumping plants for installed irrigation systems under actual operating conditions often have lower pumping efficiencies than the published or design values. A pumping efficiency value of 70% as a basis for flow estimation is based on Department experience over many years with pumping plants and efficiency calculations. In addition, 65 psi used for the pressure estimate at the pump discharge is reasonable to pressurize for the type of system used during the development period under the permits.

Brockway measured the pumping capacity in 2003 and adjusted the measurements to account for system leakage, operation of an end-gun and pump performance deterioration. Brockway's analysis indicates that no changes were made to the system between the time of the 1990-91 field exams and the measurements. Although Brockway's measurements and estimations are reasonable, it is not possible to verify whether system or operating changes existed between the 1990-91 field exams and Brockway's analysis.

A possibly related matter is the reference to Big Wood Canal Company water for use to supplement the well water. How does the use or non-use of the surface water affect the pumping system? There may be other unknowns that could affect the flow capacity that was developed during the authorized period under the permits.

In conclusion, it may be that the Department could have made different estimates at the time of the field exams and licensing of the permits, but the estimates that were made were based on the examiners' judgment and reasonable standards. The licenses have been issued for more than 10 years and corrections should not be made on the basis that the findings could have been different. The use of 70% pumping efficiency to estimate flow should not be characterized as an error in the licensing process.