

MEMORANDUM

Date: December 07, 2007
To: Water Right File 95-9133
From: medl
Re: license review

While reviewing this file for licensing, I found the following worth noting:
Greg Taylor from IDWR northern region created the POD and POU shapes and he had generated a draft license.

I was not able to locate all of the source data for the theoretical calculation used by the field examiner to estimate the flow rate for this sprinkler system. So I contacted the Brian White, the current system manager for the Bureau of Land Management in Coeur d Alene. He faxed me copies of the well pump-test data and the pump data from their owners manual. I also called the drilling company, McCarty Drilling and Pump and asked for additional information about their installation.

The well supplying water for this right is in close proximity and is probably hydrologically connected to the Spokane River. Brent McCarty of McCarty Drilling and Pump drilled the well in 8/23/2002 and conducted a 12-hour pump test in 8/24/2002. There was no change in the surface water level of the well during the entire test period. With no limit to the well capacity, the pump capacity is the limiting factor for flow to this irrigation system.

In a phone conversation with Brent McCarty on 12/7/2007, he stated that he had installed a 5 horsepower pump with variable frequency drive for this well. He stated that considering friction losses, the pump was capable of 50 gpm at 60 psi but not much more than that. He also stated that when the river was low (as it was on the day of my phone call 12/7/2007), the pump would be "hanging out of the water".

An attachment to the field exam states that the irrigation system design is based on a minimum of 50 gpm at the well head. According to the documents I received from the BLM, the pump that McCarty Drilling installed was still in place and performance data provided by the manufacturer supports a pumping capacity of at least 50 gpm.

Theoretical calculation for Flow in cfs: $Q = (8.8 \times \text{eff} \times \text{Hp}) / ((\text{depth to water} + (2.31 \times \text{psi}) + \text{friction}))$

Assuming 70% pump efficiency

$Q = 8.8 \times 0.7 \times 5 / (11 + (2.31 \times 60) + \text{negligible friction}) = 0.21 \text{ cfs}$

This is more than the rate requested in the permit so the permit amount rules.

This POD is just outside the Rathdrum-Prairie Ground Water Management Area.