

MEMORANDUM

TO: Files 63-2958, 93-31988, 63-32010 and 63-33721

FROM: Daniel Nelson – Staff Hydrologist

DATE: January 25, 2016

SUBJECT: Data Logger Condition on Permit and Licenses.

The certified field examiner, Dave Shaw, has questioned the need for a data logger on the measurement devices for permit 63-33721 and water rights 63-2958, 63-32010, and 63-31988. The data logger condition was originally placed on water 63-2958 and 63-31988 rights through the approval of water right transfer 78338 and the approval of permit for 63-33721. Water right 63-32010 was only required to have a measurement device and lockable headgate. Water rights 63-2958 and 63-31988 and permit 63-33721 all list two existing wells and one proposed well, which appears to have been developed according to the field examination of permit 63-33721. Water right 63-32010 is a surface water right for Little Gulch Creek, which has also been described as waste water by Department staff and Mr. Shaw.

Mr. Shaw's argument is that the totalizers on the measurement devices for the wells were adequate for recording the amount of water diverted from the three wells. Mr. Shaw stated that he cannot see how a date stamp supplied by the data logger would be beneficial. After reviewing the files, I feel Mr. Shaw may have a reasonable argument.

Originally, the data logger requirement was only on the three ground water rights, but there was a means to include a data logger on the surface water diversion. The measurement requirement for the surface water right was waived on August 7, 2007. This prevented any way of determining the amount of surface water used in this system. The two ground water rights and the permit were approved with a condition that upon request from the Department, the right holder should install a measurement device including a data logger on the re-diversion pump. The surface water and well from 2 of the three wells is diverted into a small regulation pond and then re-diverted into a sprinkler system for the place of use.

By requiring a measurement device and data logger on the re-diversion pump, the Department could then determine the amount of surface water used by subtracting the amount diverted from the wells from the amount re-diverted from the regulation pond. By not requiring the measurement device and data logger on the re-diversion pump in the beginning, the only useful information that can be attained from the measurement devices on the wells is to provide baseline data for the system for when it is necessary to requirement measurement of the re-lift pump.

Department staff could also use Evapotranspiration (ET) data to compare with the well measurement information to determine if well water is being used with the surface water. This method would not provide very accurate data, but it would supply some method of estimating if the surface water and ground water are being used as required by the water rights. Calculating the amount surface water use can be determined by using the totalizers on the measurement devices for either the re-lift pump method or the ET method. We would need to determine the ET rate for the crops being grown, and add an efficiency factor to determine the total amount of water needed for the crops grown that year. We could then compare the well water diversions and the ET water requirement to determine if surface water was used in the system.

The only time that a data logger would be a useful form of measurement would be if the surface water, well water, and the re-lift pump are all being measured and recorded on a data logger. By measuring and using the data loggers for this measurement practice, we could determine without any question when and how often the surface water is being used. This is the only time that a data logger would be helpful in this situation.

I spoke with Cindy Yenter of our water distribution staff, and she feels it wouldn't be beneficial to have a data logger on the system if there isn't someone from the Department there to monitor the system and the results. I have to agree. The Department has had numerous problems with self monitoring systems in the past, and I feel we would be asking a great deal from the farmer in this situation.

I have spoken with administrative staff at the Department, and I have been asked to put the above information into a memo format. I feel it is reasonable to advise Mr. Shaw that we would be willing to review a formal request to waive the data logger requirement with a plan to record and maintain the records. A review of the measurement device on the new wells suggests that the measurement device is tamper proof and the totalizer is not resettable. This review also shows that the measurement device installed also has a plug in data logger attachment, so an external unit would not be needed. Therefore, I would recommend that any plan submitted by the applicant have a minimum requirement of taking monthly readings if not weekly readings during the irrigation season. Readings would also need to be taken before the pump is turned on for the season, and when it is shut down at the end of the season.

If we do waive the data logger requirement, we should not waive the measurement device requirement. The measurements that we get from the measurement device will be useful for creating a base line of water use in case it is necessary in the future to require data loggers on all of the system diversions.