



State of Idaho
DEPARTMENT OF WATER RESOURCES

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July 11, 1994

CECIL D. ANDRUS
GOVERNOR

R. KEITH HIGGINSON
DIRECTOR

Mr. Jay Hulet
HC 79 Box 2020
Murphy ID 83650

Mr. Paul Nettleton
Murphy ID 83650

RE: Murphy Mutual Canal Measuring Device Inspection

Gentlemen:

On June 27, 1994, I conducted an on-site inspection of the measuring devices and controlling works which were to be completed by you on Murphy Mutual Canal as set forth in an October 5, 1993 correspondence from David Tuthill. A copy of the correspondence is enclosed for your reference. The formation of the Murphy Mutual Canal Water Users Association has now been invoked by this department and the Sinker Creek Watermaster, per a 5/16/94 correspondence from Mr. Tuthill, but the assignments agreed upon with respect to measuring device repair and installation are still pertinent.

For clarity, I will discuss each task in the same order as presented in Mr. Tuthill's letter.

1. Mr. Nettleton has welded bars to the screw collar on the wooden gate which controls flows into Sinker Creek, which serve as handles to move the gate up and down. One end of the gate has also been shaved slightly to help alleviate binding against the sidewall. The gate is still difficult to manipulate, but operates better than in past years. The gate does not seal completely when fully lowered, allowing approximately 0.5 cfs to pass underneath the boards to the creek channel.

2. Mr. Nettleton and I measured discharges to Murphy Mutual Canal (MMC) from the Nettleton ground water relift station using a polysonic flow meter for closed pipe systems. At the fully open valve setting (#6), discharges averaged 1300 gallons per minute, or 2.89 cfs. Additional measurements were taken at incremental valve settings: at valve setting #4, 1104 gpm or 2.46 cfs; at valve setting #3, 804 gpm or 1.79 cfs; at valve setting #2, 688 gpm or 1.53 cfs; and at valve setting #1, 157 gpm or .35 cfs. There is not a device to lock the valve in position.

3. There is currently one portable weir made available by Mr. Nettleton at the bench field location. The weir is constructed of plywood with a 1' square opening and is designed to fit vertically in the construction seams in the concrete ditch. The weir operates as a rectangular contracted weir with 1'

blade, and is adequate for this application. The existing screw gate at the bench field location may be chained and locked if necessary. No other gravity diversions from MMC may be used this season unless similar weirs, approved by IDWR and/or the Lateral Manager, have been supplied.

4. The 10-foot weir at the Nettleton upper lateral was not inspected. To my knowledge, no flows have been turned into that lateral this season. The lateral may not be used unless the maintenance is completed and the weir has been inspected.

5. Mr. Hulet has not installed a new weir at the head of MMC, but has cleaned and sealed the existing 10-foot weir. The old rating table and staff readings being used by the Watermaster for this weir are no longer accurate, so a direct measurement was taken from the weir blade on the day of the inspection. The weir is now functioning properly up to flows of about 13 cfs, but is operating very close to the submergence point at that flow. Mr. Hulet stated that he is now planning on raising the existing weir blade instead of installing a new weir downstream from the head of the canal. Because of previous calibration and measurement difficulties, IDWR's preference is the new weir. However, the raising of the existing blade will be allowed so long as the weir will function properly at the full range of expected flows. If not, IDWR reserves the authority to demand that the weir be replaced at the new location. In the interim, no greater flows may be turned over the weir than may be properly measured without submergence. A corrected rating table for the MMC weir and staff gauge is enclosed.

6. Mr. Hulet has relocated the Highway 78 weir downstream and across the highway to a point in Murphy Mutual Canal just above Jim Doughty's canal pump. This measuring site is accessible from Highway 78 via Mr. Doughty's driveway. An 8-foot weir has been installed in concrete footing. A staff gauge was present on a steel post in the weir pool, but it has not been calibrated. At the time of inspection, the weir was operating properly, but was near submergence conditions. During a phone conversation with Mr. Hulet on the day after the inspection, he stated that Mr. Doughty was to raise the weir blade slightly to help avoid submergence. A rating table for this weir is also enclosed. Head readings must be taken with a portable staff gauge until the permanent staff is calibrated.

7. Discharge from Mr. Nettleton's MMC pumps has been measured previously and the systems have not changed since those measurements. The large pump is assessed at 1.8 cfs and the small pump at 0.7 cfs. The control boxes were not inspected on this date to see if they may be locked.

Also on June 27, I attempted to re-evaluate losses in Murphy Mutual Canal in order to assist the Watermaster/Lateral Manager in deliveries. On the day of the inspection, using the MMC weir blade reading of 0.55', a flow of 13.45 cfs was being turned into the canal. At the lower weir (Doughty) a flow of 5.27 cfs was initially obtained, however, Mr. Nettleton's canal pump was still running. The morning after the pump was turned off, Mr. Hulet phoned in a second reading of 0.39' of head, or 6.46 cfs. Canal losses may be estimated as follows:

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$6.46/13.45 = 0.48$ 48% of total flow received at lower end

$100\% - 48\% = 52\%$ total canal losses at current stage, or

$52\%/9.4 \text{ miles}^* = 5.5\%$ average loss per mile

* Previously, lower weir located 9.1 miles downstream from canal head.
New weir located approximately .25 miles further downstream.

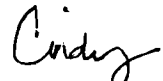
This loss is consistent with average losses per mile previously measured in Murphy Mutual Canal. Therefore, losses will be computed for the remainder of this season based on this figure. The attached table lists the minimum flows required to be turned into MMC for each Nettleton diversion.

Full re-calibration of all weirs and staff gauges will not be conducted until modifications are complete on all measuring systems. Tasks numbered 2, 4, and 5 still require some work, and all others will require re-inspection. It is anticipated that the remaining 1994 delivery season will be brief now that Mr. Hulet is receiving stored flows, so further modifications will not be required at this time. However, prior to next season, complete fulfillment of the above assignments will be expected.

It is my feeling that disorderly or crisis-based deliveries within organized Water Districts or lateral associations should be the exception rather than the rule. However, emergency deliveries appear to have become the standard on Sinker Creek. It has been my observation that most emergency calls for water on Sinker Creek are more the result of routine lack of planning rather than genuine hardship. It is the responsibility of the water user to ensure that all measuring and control devices are in place and approved before water is actually required, to avoid untimely or unreasonable requests for delivery. Then, real emergencies may be handled on a case-by-case basis without feelings of mistrust developing between the water user and the Watermaster. I would encourage both of you to take steps to ensure that future deliveries to MMC and within the Water District may begin as necessary and continue without disruption.

Please contact me with any further questions.

Sincerely,



Cindy Hodges
Sr. Water Resource Agent

Enclosures

cc: Mary Blackstock
WD 57D file