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**State of Idaho**  
**DEPARTMENT OF WATER RESOURCES**

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April 13, 1998

Randall Brewer  
Devil Creek Ranch  
Rogerson, ID 83302

Cedar Mesa Reservoir and Canal Co.  
c/o John Coleman  
PO Box 525  
Twin Falls, ID 83303-0525

Re: Measurement and Delivery of Devil Creek Water Rights

Dear Devil Creek Water Users:

The Department recently received a report and cover letter from Dr. Charles Brockway concerning regulation of Devil Creek water rights. The report summarizes a series of inflow-outflow measurements on Devil Creek upstream of the Three Creek Road which were conducted by Dr. Brockway, with some assistance from the watermaster and IDWR. The measurements were conducted at four different dates between April and October of 1996. Dr. Brockway's letter asks for direction from IDWR regarding measurement and regulation on Devil Creek.

The measurement data and analysis contained in the report is very useful information. Given the existing data, it appears stream losses on the reach above the road may be limited to times when water in this reach is diverted for irrigation. The losses may be insignificant during the latter part of the irrigation season when storage water is generally not conveyed through the Crosscut Canal.

There may be periods earlier in the irrigation season where losses are somewhat significant but storage water is also not diverted via the Crosscut. There are likely periods during the early irrigation season when storage water is diverted to the Crosscut, water is diverted for irrigation from Devil Creek both above and below the road, and losses occur in the reach above the road. Water measurement and regulation should be a particular concern during this latter period of time. It is during these particular periods when the watermaster should be active in monitoring diversions and regulating water if necessary.

In terms of what should be required for 1998, I believe it is critical to continue with measurement of certain diversions and sources of water. Dr. Brockway and I have discussed several options for measurement and regulation. Some of these options are included in his report. Based on our discussion and review of the information, I suggest that the users, water district and watermaster pursue the course of action outlined below. These actions focus on making measurements that will account for the individual flows of the Crosscut Canal and Devil Creek, along with measuring the diversions from the Crosscut below Three Creek Road. Continued monitoring of inflow and outflow of Devil Creek above Three Creek Road is also recommended at certain periods of the

irrigation season.

1) Measure and regulate diversions from Crosscut Canal below Three Creek Rd.

Weirs or other acceptable measuring devices must be installed on the Devil Creek Ranch diversions from the Crosscut Canal below Three Creek Road prior to diversion of any water for irrigation in 1998. The watermaster shall not deliver water to these diversions if Devil Creek Ranch fails to install adequate measuring devices.

When adequate measuring devices are installed, the watermaster shall measure and record the diversions from the Crosscut below the road. The total amount of water to be diverted from these diversions shall not exceed 6.72 cfs (the combined sum of water rights 47-0044A and 47-00196). Any diversion in excess of this amount shall be curtailed by the watermaster.

2) Measurement of Crosscut Canal and Devil Creek

Since water from Devil Creek and Crosscut Canal (diversion of water to canal from Deadwood Creek) is commingled below Three Creek Road, it is very important to develop a method whereby both sources of water can be measured separately. For example, if the Crosscut Canal is conveying 15 cfs, and Devil Creek is flowing only 3 cfs, then the Devil Creek Ranch diversions below the road must be limited to 3 cfs.

One fairly simple method that can be used to measure Crosscut and Devil Creek flows separately is as follows:

- a. Measure the combined flow of the Crosscut and Devil Creek using the first diversion or check dam structure just below Three Creek Road. Specifically, use the stoplogs or wood 2x4's in the structure as weirs. Devil Creek Ranch, Cedar Mesa and the watermaster should work together to assure that a sharp edged weir blade is placed on the top boards. Measure the depth of water over the weir blades and convert to a flow rate using a standard weir formula for the length of the weir notches (note: if a steel stoplog post exists in the middle of the structure, then treat as two separate weir measurements). IDWR can work with users and watermaster on method for measurement at this structure. We also invite the assistance of Dr. Brockway. IDWR may visit the site during the irrigation season to current meter below the check dam and calibrate the weirs.
- b. Measure flow of Crosscut using the weir in the Crosscut Canal just above the confluence with Devil Creek;
- c. Measure the Devil Creek Ranch diversion just behind the check dam structure described in item b above.

d. Use the following formula to determine the natural flow of Devil Creek:

$$\text{Devil Creek Flow} = (a) - (b) - \text{©}$$

where (a) = Check Dam Weir

(b) = Crosscut Weir

© = Devil Ck. Ranch diversion behind check dam

The above method would be the easiest and most readily available method of measurement. An alternative to this approach would be to install a permanent weir on Devil Creek above the confluence with the Crosscut Canal. A suitable permanent device located here however will require some initial construction and installation costs and may also require annual maintenance. A third alternative might be to have the watermaster current meter Devil Creek above the confluence with the Crosscut. This would have to be done on a regular basis while water is in the Crosscut and would be time consuming for the watermaster.

In order to implement the above recommended method, Cedar Mesa must adequately maintain the weir that is located in the Crosscut Canal just above the confluence with Devil Creek. Additionally, Devil Creek Ranch must install an adequate weir or other measuring device in the diversion ditch that takes out from behind the check dam structure.

### 3) Continue Monitoring of Devil Creek Inflow-Outflow Above Three Creek Road

IDWR believes it would be useful to continue some monitoring of the Devil Creek inflow and outflow above the road for at least another year. This monitoring would be particularly beneficial during times when water is diverted above the road for irrigation and storage water is also being conveyed in the Crosscut. During these periods, the weirs should be reinstalled where they were in 1996. The watermaster should repeat the measurements that were made by Dr. Brockway and IDWR during 1996. This will require current metering of at least the middle branch of Devil Creek. Current metering of the outflow would yield a more precise measurement of Devil Creek than the method prescribed on page 2 of this letter. The current metering here may have the additional benefit of checking or calibrating the measurement method described on page 2.

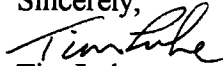
Regulation of Devil Creek diversions above the road may be needed if the losses in this reach are significant. The monitoring is important in order to get more data on reach losses during the competitive season of use. I do not believe the monitoring may be as critical when the Crosscut is not conveying or diverting water. I am somewhat reluctant to regulate diversions above the road unless a similar program is implemented on other creeks in the district. It is my opinion that Cedar Mesa has not argued as strongly for regulation on the other streams in the district. All of the users in the district have been very concerned about the installation and maintenance costs associated with measuring devices and head gates, as well as additional costs that may be needed for watermaster control.

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A question that was raised in the Brockway report is whether the amount of irrigated acres above the Three Creek Road is higher or lower than the number of irrigated acres authorized by water rights. The decreed rights are not specific in terms of number of irrigated acres and location. Brockway reports that there are about 112 irrigated acres above the road. Devil Creek Ranch claimed about 200 acres of irrigation above the road, and 518 acres total on its' Devil Creek rights in the Snake River Basin Adjudication (SRBA).

The department would like both Devil Creek Ranch and Cedar Mesa to review the above recommended course of action for 1998 and submit any comments or concerns to IDWR by April 9. After this date, IDWR will issue a more formal direction to the watermaster concerning measurement and regulation of water on Devil Creek. Please contact me directly at 327-7864 if you have questions regarding this matter.

Sincerely,



Tim Luke

cc: Melvin Crowley, Watermaster  
Dr. C.E. Brockway  
Southern Region

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