State of Idaho
DEPARTMENT OF WATER RESOURCES
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SOUTHERN REGION

DIRK KEMPTHORNE
Governor

KARL J. DREHER
Director

May 27, 2003

Cindy Blakely, Watermaster District 47-O
933 S 2030 W
Murtaugh, ID 83344

RE: Diversions on Rock Creek WD 47-O

Dear Cindy:

Please find enclosed a map of the diversions Cindy Yenter has prepared for you at your request of the GPS'd points of diversion along with a reference sheet with the Site Tag Numbers for the diversions. Please also find enclosed the Site Tags for 5 of the diversions which I understand you will post at the respective sites. (I understand the other Site Tags have already been posted at the sites)

I have also enclosed a copy of Cindy Yenter's memorandum of the inventory of the diversions for your reference. This office is in the process of writing letters to the users informing them of the need to improve or install measuring devices and lockable headgates at their diversions. You will be sent copies of those letters when available.

If you have questions, please feel free to contact this office.

Sincerely,

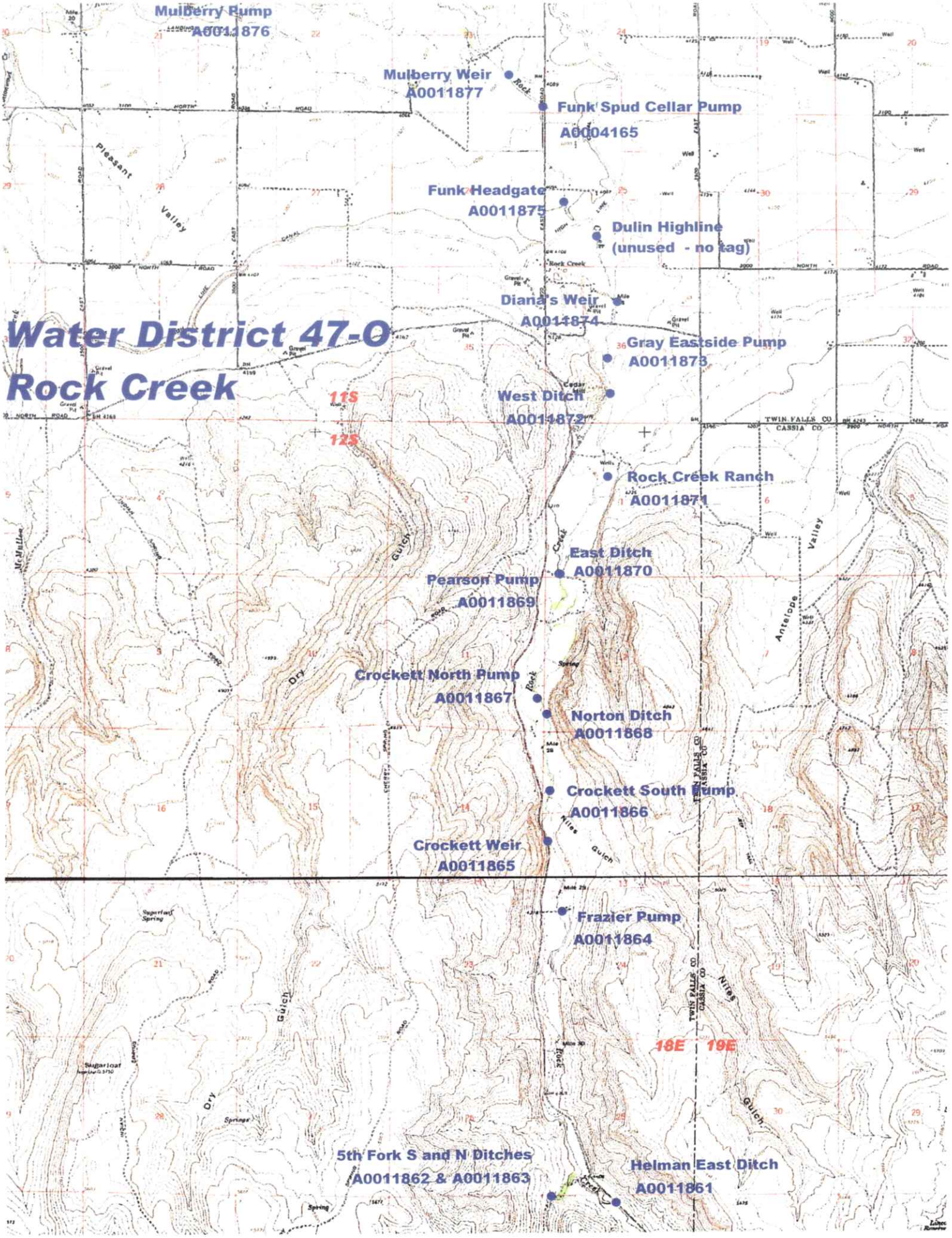
Allen Merritt, PE
Southern Region Manager

CC: Cindy Yenter, Jim Stanton

Rock Creek Diversion List with Site ID Number

Site ID	Owner	Diversion Name
A0011861	Chuck Helman	Helman East Ditch (unused)
A0011862	Chuck Helman	5th Fork South Ditch
A0011863	Chuck Helman	5th Fork North Ditch
A0011864	Harold Frazier	Frazier Pump
A0011865	David Crockett	Crockett Weir
A0011866	David Crockett	Crockett South Pump
A0011867	David Crockett	Crockett North Pump
A0011868	Chuck Helman	Norton Ditch
A0011869	Mike Pearson	Pearson Pump
A0011870	Numerous	East Ditch
A0011871	Luis Bettencourt	Rock Creek Ranch
A0011872	Numerous	West Ditch
A0011873	Lucy Gray	Eastside Pump
A0011874	Lucy Gray	Diana's Weir
- no tag -	Brent Funk	Dulin Highline Diversion (unused)
A0011875	Brent Funk	Funk Headgate
A0004165	David Funk	Spud Cellar Pump
A0011876	Ken Mulberry	Mulberry Pump
A0011877	Ken Mulberry	Mulberry Weir

ROCK
CREEK
Watermaster
Copies & Tags


Mulberry Pump
A0011876
Mulberry Weir
A0011877
Funk Spud Cellar Pump
A0004165
Funk Headgate
A0011875
Dulin Highline
(unused - no tag)
Diana's Weir
A0011874
Gray Eastside Pump
A0011873
West Ditch
A0011872
Rock Creek Ranch
A0011871
East Ditch
A0011870
Pearson Pump
A0011869
Crockett North Pump
A0011867
Norton Ditch
A0011868
Crockett South Pump
A0011866
Crockett Weir
A0011865
Frazier Pump
A0011864
5th Fork S and N Ditches
A0011862 & A0011863
Helman East Ditch
A0011861
Water District 47-O
Rock Creek
11S
12S
18E
19E
Pleasant Valley Road
Rock Creek
Dry Gulch
Antelope Valley
Miles Gulch
TWIN FALLS CO
CASSIA CO

MEMORANDUM

May 23, 2003

TO: Allen Merritt

FROM: Cindy Yenter (CY)

RE: Rock Creek Diversion Inventory

On April 20 and May 1, I conducted an inventory of Rock Creek diversions. I was accompanied by Jim Stanton from IDWR, exiting Watermaster Chuck Helman, newly elected Watermaster Cindy Blakeley, and water user Ken Mulberry. This inventory was intended as a follow up to my 1998 inventory and also to help address specific questions which have been raised by water users regarding sufficiency of measurement methods.

GPS coordinates and photos were collected at each diversion and site tags were affixed where possible. Where there was no suitable place for fastening a site tag, a tag was assigned and those tags have been reserved to give to the Watermaster. She will drive a fence post or rebar stake at those locations for the site tag.

Since my last visit, most of the open channel measuring devices have been repaired or upgraded. A few still need attention. There has been no work towards upgrading substandard headgates. The Helman and Crockett diversions (4 total) are still using slide gates, which are functional but which can be troublesome to adjust, and they are not lockable. Mr. Mulberry questioned the placement of measurement devices at several sites, after observing that the devices were installed somewhat downstream from the headgate. He feels they should be closer to the headgates. I explained that in most of those cases the upper reach of the ditch was not the best place for the device.

There has been no progress or resolution regarding measurement of pumped diversions. There are seven (7) major pump stations on Rock Creek and 9 or so small ones at Frazier Ranchettes. All the large pump stations have lockable main power switches and/or adjustable valves which could be secured. Unfortunately, measurement methods for these diversions are ambiguous and not entirely verifiable, which will cause problems when there are calls made or measurement data are challenged.

Water District 47-O continues to use the sprinkler head-count method to estimate most pumped diversions. For the smaller Ranchette diversions, this could be adequate if the District were to purchase a pressure gage with a nozzle pitot attachment, and use a nozzle discharge rating. On the larger systems, the sprinkler counting method is a guess at best and should be discontinued. Even with a pressure gage, it is quite labor intensive for the Watermaster to measure nozzle discharge pressures at enough locations to accurately estimate a diversion rate. Use of the pcc method is not indicated for these systems because of multiple operating conditions and priority cuts. Use of pre-determined valve settings for regulation of pump diversions might be acceptable, but under a wide range operating conditions, a pre-determined setting might divert an equally wide range of flows. Even if a system had only one water right, a single valve setting may not deliver the same flow to all operating conditions because of a potential for variation in elevation and line sizes within a single system.

The only method which would provide a truly accountable method of measurement of pumped diversions on Rock Creek is the installation of in-line flow meters on the 7 large stations. Of these 7 pump stations, 3 have flow meters installed. One meter is non-operational (Gray), one is highly suspect (Frazier), and one may be operating accurately (Funk). The Funk meter should be re-certified and the Frazier meter might be able to be adjusted and the units verified. I recommend the installation and/or repair of in-line meters on all other pumped diversions except the Ranchette pumps.

In-line meters should be installed in a bypass loop or in such a manner that they may be easily removed for winter storage or for maintenance. All meters should meet IDWR's criteria for closed conduit meters which are listed in the attached document, *Minimum Acceptable Standards for Measurement and Reporting of Surface and Ground Water Diversions*. Installed meters should be certified against an IDWR standard meter.

Finally, Ken Mulberry raised a question regarding Water District boundaries. He feels that his lower pump (see attached diversion description) is outside of the District boundaries and should not be assessed. Evidently this pump and others below him are downstream from the point at which TFCC irrigation return flows begin to enter Rock Creek. He thought that Water District 47-O did not (or should not) extend into the recharged reaches. He asked that IDWR research this issue.

ROCK CREEK WATER DISTRICT 47-O DIVERSION INVENTORY
April 29 and May 1, 2003

1. Helman East Side Ditch A0011861
Not used; ditch is overgrown. No diversion works or measuring device.

1a. Helman aesthetic diversion
A pipe in the creek bed can supply a small aesthetic pond in Helman's front yard, with flow returns directly to the creek channel. Chuck indicates there is no water right for this use. The diversion was not in use during the visit. I recommended that Helman file a claim for this use. Watermaster was advised that even with a claim filed, this diversion must be the first to be curtailed.

2a. Helman Fifth Fork South Ditch A0011862
Diversion works is a slide gate with no lockable device. The gate is old, undersized and not in satisfactory condition. The old weir has been replaced with a 9" Parshall flume. The ditch was not open at the time so the operation of the flume could not be checked.

2b. Helman Fifth Fork North Ditch A0011863
Diversion works is a slide gate with no lockable device. The gate is old, undersized and not in satisfactory condition. The old weir has been replaced with a 9" Parshall flume which may be operating at a slight submergence but otherwise appears sufficient. Should be checked for level.

3a. Frasier Pump A0011864
15HP centrifugal pump with AquaMaster impeller flow meter. The system is used for pumping Rock Creek water and as a booster pump from an irrigation well when the surface rights are curtailed. The units on the totalizer are unclear, although Frazier indicates they are in acre-feet. Frazier keeps track of the Rock Creek and ground water diversions separately, but the 2002 total from both sources was only about 40 AF for over 40 acres of pasture. As this is unreasonably low, my conclusion is either that the meter is not working properly or the units are incorrect. My polysonic meter would not read flow in the pipeline just above the meter, and another measurement attempt should be made here on a different pipe section. If necessary, the meter must be repaired or replaced.

3b. Frazier Ranchettes (no tags)
12 subdivided lots each have 3 inches of appurtenant water rights under two different priority dates. Presently these diversions are unmeasured, and still regulated by limiting the number of sprinklers per lot to no more than 6 per set. This system seems to be working and no one appears to have a problem with it, except for the verification of priority cutoffs. At some time during the season, the Watermaster should take nozzle pressure measurements from each system and estimate a diversion rate. The Watermaster will then need to check each pump at the priority cutoff date and verify that the pump intake is dismantled.

4. Crockett Weir A0011865
Diversion works is a slide gate with no lockable device. Otherwise, this is a newer gate in good condition. The old weir has been replace with a 9" Parshall flume which appears to be operating properly. Mr. Mulberry was concerned over the device being about ¼ mile from the diversion, and suggested an overflow or spill box just behind the flume for small adjustments. While it may be helpful to the Watermaster, I don't believe it is really necessary at this site and the decision can be left up to the water user.

5a/b. Crockett South and North Pumps A0011866 and A0011867
Each is a 20HP with no measuring device. Crockett has flood rights plus several priority rights. There are valves present but no way to accurately measure priority cuts. Each pump has a dedicated power demand meter, but the pcc method will not be adequate because of multiple

operating conditions, especially as cuts are made. The Watermaster has been estimating diversions by counting sprinkler heads. Mulberry suggested regulating ponds with weirs and headgates. I feel that good propeller-type flow meters would be the best option.

6. Norton Ditch A0011868
The slide headgate, sitting just above a culvert, still needs improvement. The gate is old, undersized, and not in satisfactory condition. There has been a good reconstruction of the 3-foot Cipolletti weir, including a wing wall extension to prevent washout. The staff gage should be re-set with a level to make sure it is the same elevation as the weir crest.

7. Pearson Pump A0011869
Situated on the opposite side of the channel from the East Ditch headgate, this is a 25HP pump which pumps to both sides of the creek and is subject to at least one priority cut. A flow meter should be installed.

7a. Old Crockett headgate
Located underneath the Pearson Pump. All water rights have been transferred off this ditch and it is no longer in use.

8. East Ditch A11870
Diversion works is a vertical screw gate in good condition. The metal 4' Parshall flume still in good shape, although it should be tested for level.

9. Rock Creek Ranch A0011871
Diversion works is a vertical screw gate in good condition. The leaks around the 4' Cipolletti weir have been repaired and the weir is in good condition. However, I still recommend the installation of a staff gage on the weir box wall, upstream from the crest.

10. West Ditch A0011872
Diversion works is a vertical screw gate in fair condition. The gate does not close all the way and the culvert needs cleaned out. At the ditch split, a spillway gate and the lower ditch gate are both in satisfactory condition. In the Upper Ditch, the 6' Cipolletti weir needs significant repairs. The device was leaking badly, leaning and out of level, and was nearly submerged at the diverted flow. In the Lower Ditch (dry at the time), a 3' Cipolletti weir appears to have enough fall, but needs sealed against the bulkhead. Both homemade weirs are slightly off dimensionally in the side angle, but not enough to cause significant errors.

11. Gray's Eastside Pump A0011873
Diversion is an earthen pond with 100 HP turbine pump. An old flow meter is non-operational. The ditch to the pond is too flat for any open channel device to work well, and the pond is close enough to the creek that it appears to maintain its own static level regardless of diversion rate. Again, at this diversion a flow meter would be the best option.

12. Diana's Weir A0011874
Diversion is a vertical screw gate in good condition. The 3' Cipolletti weir is still in satisfactory shape but the weir pool needs dug out, as there is no longer adequate contraction behind the weir. The submergence problems of a few years ago have been resolved by installation of a larger culvert downstream.

13. Dulin Highline Canal diversion (unused, no tag)
This diversion dam is washed out and the diversion presently sits at an elevation several feet above the water level. Any diversions here would enter lower Gray's Ditch; consequently both the Gray and Dulin rights are diverted at Diana's weir. The ditch is dammed at the Dulin diversion to prevent spills back to the creek. An old weir situated somewhat downstream near the canal has been pulled. The diversion should be abandoned and filled in, or a permanent headgate installed to prevent unintended diversions and/or spills.

14. Funk Headgate A0011875
Diversion is a vertical screw gate in good condition. Ditch is piped under a new home construction to the entrance of the Dulin driveway where a new 9" Parshall flume has been installed. The weir may be operating under a slight submergence but otherwise appears sufficient. There is a minor leak around the back side which needs to be filled in.

15. Funk Spud Cellar Pump A0004165
Diversion is a 15HP turbine pump with an older Master shunt meter installed. According to the owner, the meter was measured and verified in about 1997 and it still appears to be operating. It should, however, be re-certified.

16. Mulberry Weir A0011877
Diversion is a vertical screw gate in good condition. This diversion has undergone some reconstruction and improvement, but the 4' rectangular weir is not yet operating consistently. I had recommended in 1998 that the weir be raised, and at one time it had been. Then with the modifications to the diversion works, Mr. Mulberry thought the weir could be lowered again. However, the submergence problems still exist and the weir must be elevated in order to operate properly at higher flows. The weir was submerged on the date of the inspection, with a staff gage reading of 0.78'. There was also leakage around the creek side (west?) of the bulkhead.

17. Mulberry Pump A0011876
Diversion is a 30HP turbine pump in a holding pond. According to Mr. Mulberry, this pond receives four sources of water - Rock Creek, wastewater, TFCC shares, and spring flows (probably after they have already reached Rock Creek). Therefore measured diversions from the pump may not be limited to Rock Creek water. Rock Creek diversions to the pond are through a pipeline, the inlet of which has been submerged in a swampy area. Measurement of Rock Creek contributions would be nearly impossible without the construction of a receiving box with an integrated measuring device. An orifice or constant-head turnout might be made to work here. Mulberry questions the inclusion of this diversion in the Water District because of its location downstream from what he believes to be the boundary of the District. Some research should be done to resolve this question before a decision is made relative to measurement.