

Shaul, Sarah

From: Luke, Tim
Sent: Monday, July 06, 2015 7:49 AM
To: Shaul, Sarah
Subject: RE: Request

Sarah,

Thanks for completing this. Please profile the document to the following water right files: 79-14233 and 79-14234. Please remove the original memo from April if it is there already.

Tim

From: Shaul, Sarah
Sent: Thursday, July 02, 2015 2:49 PM
To: Luke, Tim
Subject: RE: Request

Tim,
You'll find the amended memo with photos at: <N:\Water Measurement\Water Districts by Basin\Basin 79\Joe Creek Dispute\Killgore Mullinix MeasRec0415AmendFinal w photos.pdf>

Best Regards,
Sarah Shaul
Technical Records Specialist
sarah.shaul@idwr.idaho.gov
208-287-4958

Idaho Department of Water Resources (IDWR)
322 E. Front Street
P.O. Box 83720
Boise, ID 83720-0098
208-287-4800
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From: Luke, Tim
Sent: Wednesday, July 01, 2015 5:06 PM
To: Shaul, Sarah
Subject: Request

Sarah,

This spring I completed a field report memo with a number of pictures located as follows:
<N:\Water Measurement\Water Districts by Basin\Basin 79\Joe Creek Dispute\Killgore Mullinix MeasRec0415.docx>

I have amended that memo without photos in the following file:
<N:\Water Measurement\Water Districts by Basin\Basin 79\Joe Creek Dispute\Killgore Mullinix MeasRec0415AmendFinal noPhotos.docx>

MEMO

State of Idaho

Department of Water Resources

322 E Front Street, P.O. Box 83720, Boise, Idaho 83720-0098

Phone: (208) 287-4800 Fax: (208) 287-6700

Amendment to Memo Dated April 10, 2015

Date: July 1, 2015

To: Bryce Farris, Attorney for Killgore's Salmon River Fruit Co. ("Killgore")
Al Barker, Attorney for Daryl and Linda Mullinix ("Mullinix")

From: Tim Luke, Water Compliance Bureau

Subject: Measuring Device Recommendations for Killgore-Mullinix Pipeline Diversion from Joe Creek, near Lucille, Idaho

On October 20, 2014, Judge John R. Stegner, ordered the above referenced parties to arrange for a representative of the Idaho Department of Water Resources ("IDWR" or "Department") to meet with the parties at the diversion on Joe Creek in order for the Department to "recommend an objective water flow measurement device for use at the diversion." *Order Requiring Measuring Device and Irrigation Schedule at 2, Case No. CV-2012-41783(2d Jud. Dist. Ct. 2014).*

On April 2, 2015, I visited with Daryl Mullinix, Heather Killgore, and Kurt Killgore, at the Joe Creek diversion site. A summary of my visit and observations of the diversion and conveyance system are described below, followed by a recommendation for measuring devices.

Creek Diversion and Bubbler System:

The creek diversion consists of a steel frame diversion box set in the creek with a steel slide head gate to control flow to an approximate 8 inch steel pipe (8.60 inch outside diameter "OD"). The 8 inch steel pipe runs approximately 50 feet to a vertical 8.5 inch inside diameter ("ID") steel pipe centered in an approximate 42 inch (3.5 ft) wide by 4 ft high steel cylinder bubbler system. Water discharges from the vertical pipe to the atmosphere above the cylinder and falls on a steel mesh rack with a screen cover to filter trash and debris from the water. Water drops through the screen rack and into the cylinder then discharges from the cylinder to an 8 inch steel pipe (8.05" OD) which runs approximately 70 inches (nearly 6 ft) before making an elbow connection to an 8 inch PVC pipe. A very short section of PVC pipe is exposed before sloping below grade and being buried.

The bubbler canister is mounted to a rectangular steel catchment basin or tray with an outlet spout to direct any water spilling or splashing over the canister from the trash rack back to the creek. The Killgore's stated that the water level in the bubbler canister varies depending on flow from the creek and demand in the system. Water at times may fill the canister and spill over the

Killgore-Mullinix Recommendation

4/10/2015, Page | 1

canister into the catchment tray and return to the creek. The water level may fill the canister partially and submerge the intake of the 8 inch discharge pipe, or if demand is high and/or creek flow is minimal, the water level in the canister may be below the top of the mainline discharge pipe and only partially fills the 8 inch mainline discharge pipe exiting the bubbler.

The 8 inch PVC mainline pipe discharging from the bubbler is buried for its entire length below the bubbler, except for a short section of 8 inch PVC pipe that tees off the mainline at a location about 890 ft in distance below the bubbler. This section of pipe that tees off the mainline can discharge or return some water back to the creek. The length of pipe that tees from the mainline is buried and may be up to 10 to 12 ft in length, with the last 1 to 2 ft exposed. The exposed section of PVC pipe above the creek has a lockable butterfly valve to control flow or spill to the creek. The Killgores explained that this discharge pipe is used to reduce pressure in the mainline pipe as needed.

The elevation of the creek head gate diversion and bubbler is estimated to be about 1,860 ft, based on GPS field coordinate location and interpretation from the USGS topographic map at 1:24,000 scale.

During the visit, I noted a 2 inch polyethylene ("poly pipe") connected to the bubbler canister that conveys water from the canister down to the Robinson residence located above the mouth of Joe Creek at the Salmon River. The pipe and water conveyance is used to irrigate a yard and trees around the Robinson residence. I estimate the irrigated area to be close to one-half acre. The parcel is located in the SWNW and NWSW of Section 10, T27N, R1E. This irrigation use is not included on any water right and may be considered an unauthorized use. The Killgores mentioned that they could transfer a portion of their water right to Robinson to cover the use. I also observed a second 2 inch poly pipe about half way down the path between the bubbler and the road to the Robinson residence that was coming off the canyon slope above the creek, perhaps from a spring or other water source. This poly pipe appeared to be connected or tied into the poly pipe from the bubbler. I found no water right that might be attributed to this pipe or potential diversion.

Mainline Pipe and Mullinix Re-diversion Pipe

The 8 inch PVC buried mainline follows a contour grade out of the Joe Creek canyon and runs east in a former ditch grade that is prominent between the Mullinix irrigated field and property/fence line. Near the southwestern corner of the Mullinix field, is a buried lateral pipe coming off the mainline to divert water to the Mullinix irrigation sprinkler system. A control valve pipe, irrigation riser connection/control valve, and air relief valve were observed above grade and above the buried lateral pipe. Mr. Mullinix stated that the lateral pipe from the Joe Creek mainline is a 2 inch plastic pipe that connects to a 4 inch lateral irrigation line with risers for connecting sprinkler hand lines. Mullinix estimated that the valve control on the lateral pipe off of the mainline is about 4 ft from the mainline.

About 50 ft east of the 2 inch Mullinix lateral pipe is a 4 inch plastic lateral pipe that is connected to the mainline from Joe Creek. This lateral pipe is not used. It is shut off by a closed control valve that has no control handle or mechanism. Mullinix stated that the Killgore's removed the pipe connection and cut off the control handle/mechanism after Mullinix first installed this pipe. The Mullinix lateral pipes are located at an elevation of roughly 1,635 ft.

From the Mullinix lateral pipes, the Joe Creek mainline extends east about 1,150 ft, then goes down a grade and to the northeast along the Mullinix fence line, under the Mullinix driveway, and along the Karl Killgore fence line to Highway 95. According to Heather Killgore, the eight inch mainline reduces to six inches for approximately 80 to 100 feet before the pipeline leaves the Mullinix property. The pipe goes back to eight inches where it leaves the Mullinix property and goes down the grade towards the highway along the Mullinix fence line and the Carl Killgore fence line¹. Daryl Mullinix stated that the 8 inch line reduces to a six inch line for approximately 250 ft. going through an inverted siphon. The reduction begins 80 to 100 ft. inside his property line but runs 250 ft². The surface elevation by the entrance of the Carl Killgore property near the highway is roughly 1,570 ft. The mainline reduces to six inches again where it crosses the highway, then goes back to eight inches and extends east to the Killgore place of use which includes open irrigated hay fields and the Killgore Horseshoe Bend sub-division. The irrigated fields at the top of the hill in the Killgore horseshoe bend area is over 1,680 ft.

The Killgore's explained that the mainline connects to a second pressurized mainline that conveys water pumped from the Salmon River. The two mainlines connect somewhere behind the old fruit stands and in the field between the fruit stands and the sub-division road to the north. From this point, a mainline extends further east and up the Killgore's horseshoe bend hill to irrigate hay fields on top of the hill and around the hill. A lateral pipe or mainline also extends from the commingled Joe Creek-Salmon River mainline to the sub-division for irrigation purposes. This pipe comes off the mainline at or near the connection between the Joe Creek mainline and the Salmon River pump mainline. The Killgore's stated that there is no control or check valve on the Joe Creek mainline to prevent water from the Salmon River pump going back up the Joe Creek mainline towards the Mullinix property and Joe Creek.

Measuring Device Recommendations

The Department recommends permanent installation of two flow meters has follows:

- Install a magnetic or ultrasonic flow meter on the Joe Creek 8" mainline at a point just downstream of the Mullinix lateral pipe that comes off the Joe Creek mainline; and
- Install a magnetic or ultrasonic flow meter on the Mullinix lateral pipe coming off the Joe Creek 8 inch mainline. IDWR recommends installing the meter on the lateral pipe above the lateral pipe control valve assuming enough straight length of pipe exists between the mainline and the valve as per meter manufacturer specifications.

The location of the two meters would be on the Mullinix property but the two parties agreed during the site visit that a decreed easement exists for the mainline across the Mullinix property and that Killgores have a right to access the pipeline across the Mullinix property within the decreed easement. Installation of meters at this location will allow both parties to inspect both meters. IDWR recommends that the users install the same type of meter on both pipe lines for purpose of consistency and to minimize additional disputes.

IDWR maintains a published "*List of Approved Closed Conduit Flow Meters*" which is available at the Department's website using the following link:

¹ Personal communication with Heather Killgore, June 22, 2015.

² E-mail communication from Daryl Mullinix dated June 24, 2015.

The recommended installation location has no accessible power supply. Therefore, the users need to install meters that operate using an internal battery power supply. Given the connection between the Joe Creek mainline and the mainline from the Killgore Salmon River pump, and potential for water pumped from the Salmon River to move up the Joe Creek mainline (towards Mullinix and Joe Creek), IDWR recommends that the meter installed on the Joe Creek mainline be capable of measuring bi-directional flow (upstream and downstream flow directions). There is at least one or more magnetic or ultrasonic meters on IDWR's approved meter list that have both an internal battery power option and bi-directional flow measurement/display. Examples include the Siemens Magflow 8000 meter, and the Netafim Octave ultrasonic meter. Costs for these meters may range between \$2,500 and \$3,800 depending on pipe size and type of meter selected. Mag and ultrasonic meters are full profile flow meters, meaning that there must be full pipe flow for the meters to operate and measure flow accurately. IDWR believes the recommended meter installation locations will have full pipe flow conditions at all times except when the pipes are drained or being drained.

The Killgore's have suggested that a measuring device be installed at or near the creek head gate above the bubbler or perhaps immediately below the bubbler. The Department disagrees with this suggestion. A meter installed on the pipeline above the bubbler will measure the total flow to the bubbler, including water that may spill back to the creek at the bubbler and/or from the mainline through the pressure relief spill pipe/valve located about 900 ft downstream of the bubbler. Water that spills back to the creek is not captured by the mainline and is not available for use by the parties. A meter above the bubbler will not measure the actual amount of water diverted to the mainline and available for use by the parties. IDWR does not understand how measurement of water that may include a portion of water returning to the creek upstream of any water use from the pipeline is going to be helpful towards resolving distribution issues on the pipeline. Additionally, any meter installed on the mainline immediately below the bubbler may not measure water at all times given that the Killgore's explained that the mainline at that location is not always a full flowing pipe.

The measuring device recommendations herein are the recommendations of IDWR only. IDWR understands that the parties may propose alternative recommendations to which they agree.

Alternative Suggestion - Rotation Schedule

IDWR is aware that the District Order from October 20, 2014 also ordered the parties to "engage in good faith negotiations to prepare and submit a stipulated irrigation schedule by January 1, 2015." The Department is not aware of whether any such irrigation schedule has been negotiated between the parties, although the parties did discuss some arrangement during the field visit in which Killgore receives up to the first 1 to 1.5 cfs of water in the pipeline, and Mullinix receives the remaining available flow or "excess" water. There was mention that the parties had agreed to this arrangement and/or the Court had approved it. If such a distribution arrangement exists, then measuring devices would be necessary to implement it. However, measuring devices may not necessarily be needed if the parties can agree on an irrigation time schedule where water use is split proportionally on the basis of the authorized rates of flow or irrigated acres. Of course, this alternative would not confirm whether or not the diversions are within the limits of the water rights. This alternative concept was not discussed with the parties during the field visit.

Water Rights Points of Diversion and Place of Use Description Issues

Killgore-Mullinix Recommendation

The IDWR site visit and subsequent review of water rights resulted in the identification of problems with point of diversion and place of use descriptions for water rights owned by both Mullinix and Killgore. The description issues are as follows:

- The point of diversion described on the Joe Creek water rights 79-14233 (Killgore) and 79-14234 (Mullinix) is the NWSW, Section 23, T27N, R1E. The actual point of diversion location, based on IDWR GPS location, is the NESE Lot 6, Section 22, T27N, R1E. IDWR recommends both Mullinix and Killgore change the described points of diversion by filing water right transfer applications.
- The Mullinix Salmon River right 79-14232 lists two points of diversion in the SWNE Lot 5, and SENE Lot 6, of Section 23, T27N, R1E. These points of diversion are near the Killgore Salmon River pump station and are the same points of diversion as the Killgore's Salmon River right 79-14231. IDWR understands that the Mullinix river pump station is located either in the SENW or NESW of Section 23, T27N, R1E. IDWR recommends Mullinix change the described point of diversion by filing a water right transfer application.
- IDWR understands that Killgore has one river pump station or point of diversion location from the Salmon River, located within the SWNE Lot 5, Section 23, T27N, R1E. If this is correct, consideration should be given to removing the other point of diversion description from the water right.
- IDWR observed two hose bib taps off the Joe Creek main pipeline along the fence line on the Carl Killgore property and south of the highway. Although any water use from these taps may be minimal, the Carl Killgore property is not included as a place of use on any water rights. Consideration should be given to including this property on the Killgore water rights or simply cease diversion of water from the taps, or remove the taps.
- As noted previously in this memo, there is no water right authorization for the irrigation of up to one-half acre on the Robinson property using water from the bubbler off Joe Creek or any other nearby water source. Robinson should seek to transfer water from Killgore or Mullinix, or cease any further diversion or use of water from the bubbler and diversion off Joe Creek.



Figure 1 Head gate diversion and 8 inch steel pipe from Joe Creek



Figure 2 Pipeline from creek head gate to bubbler. Discharge pipe from bubbler in foreground.



Figure 3 Bubbler on catchment tray with discharge spout to creek. Note 2 inch poly pipe on right to Robinson parcel.



Figure 4 Vertical 8 inch pipe in bubbler canister. Discharge pipe from bubbler on right behind cinder blocks.



Figure 5 Pressure relieve discharge pipe and valve, discharges or spills water back to creek from mainline below bubbler.



Figure 6 Mullinix buried 2 inch pipe from mainline with black plastic control valve pipe, riser connection and air vac.



Figure 7 Mullinix 4 inch lateral pipe from mainline (no longer used). Valve with removed control handle on right.



Figure 8 Location of buried mainline along fence lines (Karl Killgore's fence in foreground; Mullinix fence n background). Killgore hose bib/tap is behind metal gate/fence, in tumble weeds.



Figure 9 K Killgore fence line and Highway 95 (middle of photo). Buried mainline pipe is along fence line and to right, then crosses highway. Killgore/horseshoe bend property or area is on other side of highway.



Figure 10 View of Killgore irrigated field on top of horseshoe bend hill, with a home in background.



Figure 11 View of Killgore irrigated fields (opposite view, looking back to photo/figure 10).



Figure 12 View of lower Killgore irrigated field in foreground; Mullinix irrigated field visible in far background just below old Joe Creek ditch cut or grade where mainline is now buried.

Killgore-Mullinix Recommendation

4/10/2015, Page | 11