

**BUREAU OF RECLAMATION  
TECHNICAL SERVICE CENTER  
DENVER, COLORADO**

**TRAVEL REPORT**

RES-3.50

**Code:** 86-68560

**Date:** July 12, 2006

**To:** Clifford A. Pugh  
Manager, Water Resources Research Laboratory

**From:** Robert Einhellig & Tom Gill, Hydraulic Engineers

**Subject:** Travel to Fallon, Nevada, for discussions regarding flow measurement at the Truckee-Carson Irrigation District

**1. Travel period:** July 10-13, 2006.

**2. Places or offices visited:** The Bureau of Reclamation's Fallon Field Office (FFO) and the Truckee-Carson Irrigation District (TCID) office and field sites.

**3. Purpose of trip:** To discuss proposed modifications to the TCID Flow Measurement Program with FFO staff and TCID personnel.

**4. Synopsis of trip:** On the morning of July 10<sup>th</sup> we flew from Denver to Reno, where we rented a car and then drove approximately 60 miles to Fallon, Nevada. On the afternoon of July 10<sup>th</sup> we met with Roger LeSueur and Jim Lively of the FFO to discuss their concerns and objectives regarding the modifications to the TCID Flow Measurement Program which they were proposing. The purpose of the discussion was to begin to identify and develop an understanding of issues related to the proposal prior to a scheduled meeting the following morning with TCID manager Dave Overvold. Roger and Jim suggested that we meet independently with Dave to similarly begin to understand his thoughts and concerns regarding the proposal. Roger and Jim indicated that it was important to understand that the proposal concept document which TCID had received was a draft of ideas and that any of the items in the concept were open to further discussion.

The primary goal of the proposal, as expressed by Roger, is to "improve water measurement that leads to better knowledge of water delivered to users and is conducive to future modernization." Specifically, the proposed changes to the measurement program are intended to:

- Evaluate and understand the efficiency of system components by tracking flows and losses through canal reaches and laterals.

- Quantify water deliveries.
- Feed and integrate into future system improvement/modernization efforts.

The potential benefits of the proposed concept, as identified by FFO staff, include:

- Facilitating TCID's efforts to continue to meet the Operating Criteria and Procedures (OCAP) system efficiency requirements.
- Enhancing protection of facilities (avoid overtopping/washouts).
- Reducing future labor requirements.
- Increasing productivity of staff members.
- Improving the ease of system management.
- Re-defining the oversight responsibilities of FFO in a manner that reduces potential areas of conflict while maintaining verification of the levels of performance of the TCID flow measurement efforts.

Possible items of discussion for the meeting with Dave suggested by the FFO included:

- What level/kind of resources (including in-house expertise) does TCID anticipate committing to adoption/operation of technologies integrated into measurement/control equipment?
- Would TCID be interested in establishing one or more radio/control flow monitoring demonstration sites with equipment capable of also controlling gates either remotely or with local automation with remote set-point adjustment capability? [This concept had been included in the proposed scope of work by 86-68568 at the project outset]

On the morning of July 11<sup>th</sup>, the two of us met with Dave Overvold at the TCID office. We visited for approximately an hour in the office then accompanied Dave out to visit field sites where equipment has recently been installed under the Flow Measurement Program, as well as sites where TCID might be interested in installing radio/control demonstration equipment.

The discussions with Dave involved general discussions of district operations, his reaction to the proposed water measurement concept, and site specific discussions of a variety of operations and measurement issues. With regard to the proposed water measurement concept, Dave had several concerns and questions, including:

- The District is concerned about adding another "layer" of efficiency requirements to those they are already required to meet. In its current form, the proposed concept is suggesting target efficiencies for laterals (and possible other subsections of the delivery system), in addition to TCID's obligation to meet the OCAP-mandated efficiencies. It would seem that just establishing flow measurement capability of acceptable accuracy should be an appropriate target. The OCAP requirement is a sufficient driver for improving efficiency. The increased flow measurement capability would help identify opportunities for efficiency improvements.
- TCID would like to see the Operations and Maintenance (O&M) contract renewed "as is" without modification. TCID is concerned about the potential ramifications and unintended consequences of modifying the existing contract. They are concerned that such a process

would open the door for “all stakeholders” to review and attempt to modify the Water Management component of the existing contract.

- TCID would favor more emphasis on water measurement/management system-wide and less focus on farm turnout gate measurement. This is a concept they have been applying in their approach to measurement at the head of some laterals as opposed to the individual turnout gates.
- TCID has reservations that neither Reclamation nor the Pyramid Lake Tribe will ever “let go” of the concept of measuring deliveries at each individual turnout, therefore why not continue with the current Flow Measurement Program scope and “not worry about everything else”?
- TCID would be in favor of a change in oversight role for Reclamation.
- TCID feels that since ITRC is identified in the current (O&M) contract as the source of technical expertise for the flow measurement program, ITRC should continue in that role. TCID feels that while Reclamation’s Denver Technical Service Center (TSC) can provide technical expertise, TSC staff are still part of Reclamation and do not represent an “independent” source of information.
- TCID would like to see a protocol developed for conducting spot checks to confirm measurement accuracy and compliance with other OCAP requirements.
- The District is uncertain as to the meaning or intent of some statements in the draft concept plan, and would like to have these items clarified. For example:
  - The comment regarding developing criteria for the expenditure of Water Conservation Funds. Is this new criteria and oversight?
  - Development of “target efficiencies” for laterals. Is this a new criteria the district will be evaluated on and have to meet?
  - What is meant by “LBAO will be able to verify any measurement claims at any time without notification?” Is this field measurements or office records reviews?
  - What is meant by the provisions in the proposed concept calling for the Fish and Wildlife Service and the Tribes to measure their own water? TCID believes that it is their function to make accurate measurement of deliveries and that operation and calibration of such structures should be a function of TCID. Is this a request for these entities to contribute financial support to the measurement endeavor, or is it an expression of lack of confidence in the District’s measurements?

During the course of the discussion of the flow measurement concept proposal, several other ancillary issues were raised by Dave as a source of concern to the District. These include:

- FFO and LBAO have indicated they don’t feel goals of the current program as identified in the 1997 ITRC Study can be achieved by 2012. TCID feels the ITRC goals are achievable, and would like to see ITRC’s recommendations implemented for relaxing a 500’ distance from a measurement structure to a turnout, and relaxing the limit in the number of turnouts that can be acceptably measured by a single measurement structure.
- TCID feels that the fact that the district has met or exceeded OCAP efficiency targets in each of the recent years is going under-recognized.

- A source of some uncertainty is TCID's main supply – flow out of Lahontan Reservoir. Installation of a permanent measurement structure would provide greater certainty of discharge at this point.
- TCID questions why Reclamation has installed an independent data collection network.
- TCID would like to have greater (unrestricted) access to flow data that Reclamation gathers from its sites, rather than access that is available “upon request.” This data could be useful to the district in daily management efforts.
- The District has concerns that the contract measurement program with Tom Lowery creates adversarial relationships between water users and the District.

Following the office discussions with Dave, the three of us visited several field sites within the district. Items of discussion raised during field site visits were as follows:

- TCID would be interested in a demonstration site for real-time radio-telemetered flow/level monitoring equipment that will have capabilities for controlling a check gate either through remote operations, or by local automation with ability to adjust set points from remote sites. Two sites identified were at the A-15 headworks where recent canal overflow events have occurred. TCID is contemplating installation of a Langemann gate in the check at this site which could be controlled by the demonstration equipment. The S-25 headworks is a second site where recent canal overflow has occurred. Installation of a Langemann gate in the S-C23 check at this site is also under consideration by TCID.
- A site near the head of the L1 is being considered for construction of a re-regulation reservoir. This site would enable gravity in – gravity out operation.
- S-C10 Harmon Reservoir Inlet: The ditch riders operate this check to send virtually all flow in the S-Line into Harmon Reservoir. Supply for the lower S-Line is then all in the form of release from Harmon Reservoir. Improved means of measuring Harmon Reservoir outflow to the S-Line would be helpful
- The reach of S-Line below Harmon Reservoir would be a candidate reach for a demand-oriented operational mode since there is no re-regulation capability for flow mismatches below Harmon.
- Other sights visited include: a recently-installed long-throated flume at L4-3-T3; the Harmon Spill Flume; the S-C17 check at which an ITRC flapgate is installed; and the end of the S-Line including the S-T75 FWS delivery point, the S-T76 turnout and the S26 Lateral head, where this spring the crest of a recently-installed long-throated flume was lowered by 0.2 ft.

At the conclusion of the 07/11 visit with Dave Overvold, arrangements were made for a closeout meeting the following morning at 10:00 AM. We then met on the afternoon of 07/11 with Roger LeSueur and Jim Lively and discussed the concerns Dave had raised regarding the concept proposal for modifying the Flow Measurement Program. The FFO staff indicated that they were open to modifying the proposal as appropriate to try to address Dave's concerns. Roger suggested that it would be helpful if a draft of this travel report, including the list of Dave's concerns, could be prepared prior to our departure so that he could review and discuss this information with the LBAO director. We suggested that before forwarding our summary through management, it would be a good idea to let

Dave review a draft of our notes to ensure that we did not misunderstand or misrepresent his thoughts and concerns. Roger agreed with this and we made our notes available to Dave during our subsequent meeting on 07/12. Dave made a few comments and suggestions regarding our notes which are reflected in the summary presented in this document.

**5. Conclusions:** In comparing the concepts and ideas put forward by the FFO with the concerns and ideas expressed by TCID, it appears that there is more agreement than might be initially concluded. The District's primary concern seems to be the successful and uneventful renewal of their contract for another 5 years. Any plans or proposals that threaten the contract renewal are opposed by the district. On the other hand, there appears to be a lot of common ground on the technical issues related to shifting the emphasis of the measurement program from a focus at each individual turnout gate, to a focus at intermediate system control points and lateral headworks. It appears that if the issues surrounding the contract renewal can be addressed and resolved, then there is a good chance that a mutually acceptable and beneficial approach to the technical issues surrounding the flow measurement program can be developed.

**6. Action correspondence initiated:** A draft of this report was left with both FFO and TCID for their review.

7.

cc: Roger LeSueur (LO-930)  
Jim Lively (LO-710)  
Dave Overvold, (TCID)

**SIGNATURES AND SURNAMES FOR:**

**Travel to:** Fallon, NV

**Date or Dates of Travel:** July 10-13, 2006

**Names and Codes of Travelers:** Robert Einhellig and Tom Gill, 86-68560

**Traveler:** \_\_\_\_\_  
**Robert Einhellig, 86-68560** **Date**

**Traveler:** \_\_\_\_\_  
**Tom Gill, 86-68560** **Date**

**Noted and Dated by:**

---

**Clifford A. Pugh, Manager**  
**Water Resources Research Laboratory**

---

**Date**