

RECLAMATION

Managing Water in the West

TR-2013-05

Travel to Davis Dam

To complete installation and startup operation of turbulence test system for quagga control research (Science and Technology Project 7169)

Dates of Travel: March 25 – March 28, 2013



U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Hydraulic Investigations and Laboratory Services Group
Denver, Colorado

BUREAU OF RECLAMATION
Technical Service Center
Denver, Colorado

TRAVEL REPORT

Code: 86-68460

Date: April 29, 2013

To: Manager, Hydraulic Investigations and Laboratory Services Group
From: Josh Mortensen, Hydraulic Engineer

Subject: Travel to Davis Dam to complete installation and startup operation of turbulence test system for quagga control research (Science & Technology project 7169).

1. Travel period: 25 March – 28 March 2013

2. Places or offices visited: Davis Dam

3. Purpose of trip: Complete the installation of the field turbulence test system and perform shakedown testing. The goal of this trip was to have the system ready to operate long term so that the turbulence treatment can be applied during the spring mussel breeding season and for several months into the summer.

4. Synopsis of trip: Josh Mortensen arrived in Laughlin, NV Sunday evening the 24th and began working at the Davis power plant on Monday morning the 25th. Tasks completed on Monday include installing missing nozzles in the turbulence pipe fitting, making adjustments to the high pressure hoses to match the correct number of nozzles, and installing wires and plugs for the 460V pumps (electrical work performed by Mike Holmes). Shakedown testing of all the pumps was performed which included flow calibration testing of each pump to determine flow/nozzle velocities from pressure data (Fig 1). The system was left in operation overnight.

Shakedown testing and flow calibrations were completed on Tuesday the 26th. Leonard Willet met with Josh Tuesday morning at the test site for an update on the turbulence research. Josh remained in the power plant for the remainder of the day to monitor the operation of the system. Pump pressures, pump supply line pressures and test pipe flows were closely watched to ensure consistent operation of the pressure pumps and the pump supply straining system. The entire system was also frequently checked for leaks. The system was again left on overnight.

The system was closely monitored on Wednesday the 27th. Sherri Pucherelli came to the test site Wednesday afternoon where she installed mussel collection plates in the control and treatment bio-coolers. She also took preliminary veliger samples that will be sent to Denver and investigated with the FlowCAM system. Oil was changed in the pumps Wednesday afternoon before leaving the dam. The system was once again left on overnight. Thursday morning the 28th Josh returned to the dam to check on system operation one more time before departing. Operation and data logged overnight appeared normal. The RTU and Controlotron Flow meter

units were set to log data at 30 minute intervals. The automated self-cleaning straining system was set at 1 cleaning cycle every 4 hours. Josh departed to Las Vegas to catch a flight home.

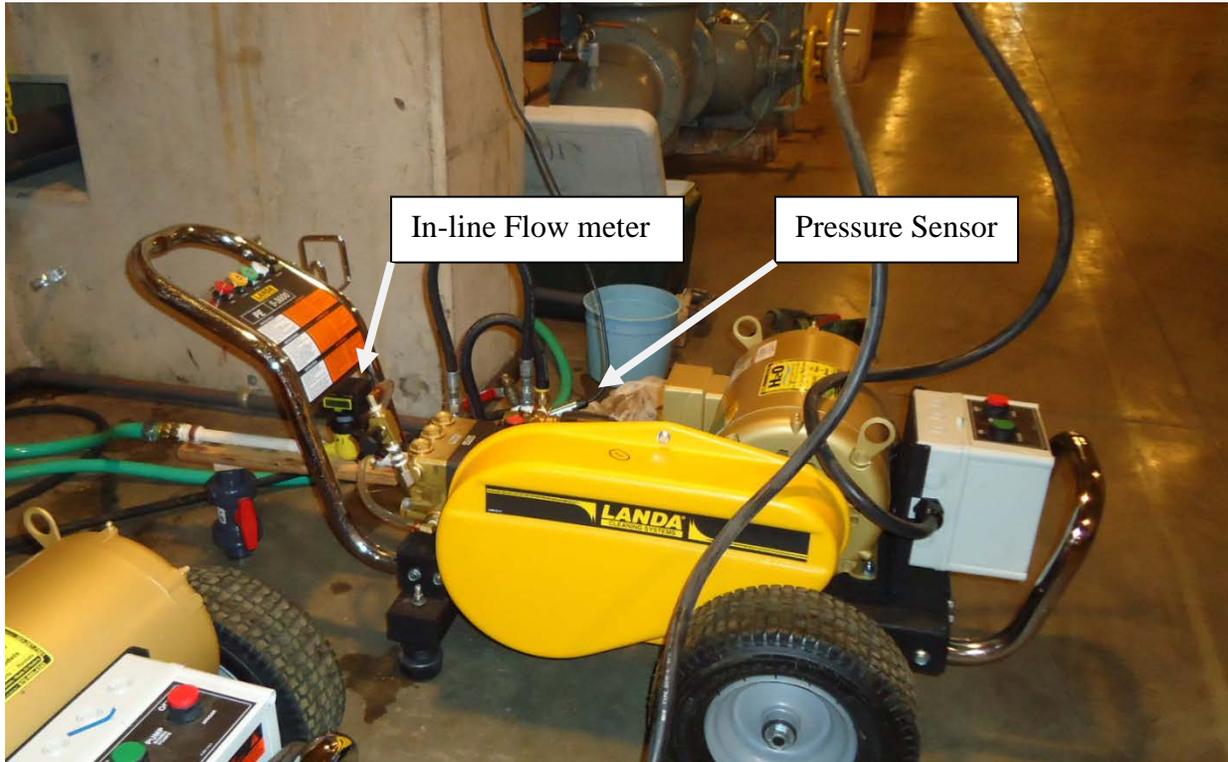


Figure 1 Flow meter and pressure sensor used for pump calibration to estimate nozzle velocities at the turbulence pipe fitting.

5. Conclusions: Startup of the test system was completed with the five pressure pumps and the automated self-cleaning strainer left in operating mode. Mussel collection plates were placed in both bio-coolers where flow was set at approximately 2 gallons per minute for each cooler. A hard copy of the system shutdown procedure and contact information was taped to the wall near the pumps in the event of any system malfunctions. Test system operation and shutdown procedures were discussed with John Sorace before Josh left the plant. John also agreed to have the basket strainer on the straining system checked and cleaned twice per week (Mondays and Thursdays). The current plan is for Josh to return on a monthly basis to check on system performance, perform maintenance to system components and download data logged over the one-month period.

6. Action correspondence initiated or required: N/A

7. Client feedback received: N/A

cc:

Leonard Willett (LCD-8200)

Joe Kubitschek (86-68460)

Vince Lammers (LCD-D11)

Miguel Rocha (86-69000)

John Sorace (LCD-D20)

Sherri Pucherelli (86-68220)

SIGNATURES AND SURNAMES FOR:

Travel to: Davis Dam, Bullhead City, AZ

Dates of Travel: March 24 – March 28, 2013

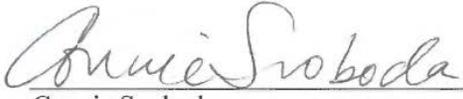
Names and Codes of Travelers: Josh Mortensen, 86-68460

Travelers:


Joshua D. Mortensen
Hydraulic Investigations and Laboratory Services Group

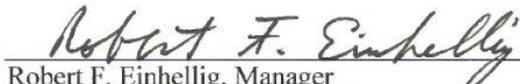
4/9/13
Date

Peer Review by:


Connie Svoboda
Hydraulic Investigations and Laboratory Services Group

4/11/2013
Date

Noted and Dated by:


Robert F. Einhellig, Manager
Hydraulic Investigations and Laboratory Services Group

4/2/2013
Date