RECLAMATION

Managing Water in the West

TR-2014-01

Travel to Davis Dam & to Lake Mead

Travel to Davis Dam to install turbulence test equipment and to Lake Mead Boat Marina to inspect fish screen research equipment in preparation for quagga mussel research activities in 2014.

Date(s) of Travel: January 20 – 24, 2014

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: 85-846000 Date: March 7, 2014

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

Subject: Travel to Davis Dam to install turbulence test equipment and to Lake Mead Boat Marina to inspect fish screen research equipment in preparation for quagga mussel research activities in 2014.

1. Travel period: 20 January – 24 January 2014

2. Places or offices visited: Davis Dam and Lake Mead Boat Marina

3. Purpose of trip: Install test equipment for additional turbulence mussel control research at Davis Dam in 2014 and perform maintenance and repair to fish screen mussel research equipment at the Lake Mead Boat Marina.

4. Synopsis of trip: Josh Mortensen and Jimmy Hastings worked at Davis Dam and Lake Mead Marina from Tuesday January 21st to Thursday January 23rd. They arrived the evening of Monday January 20th, Josh by government work truck and Jimmy by flight. They travelled home on Friday January 24th, Josh by flight and Jimmy by government work truck.

Turbulence Mussel Research (project 4183) – Pressure pumps that supply high pressure jet flow to the turbulence fitting were reinstalled in the same location as the 2013 testing on the 2nd level of the plant near the cooling system inlet on unit #2. Pressure transducers were installed on each pump as well as the pump supply line and immediately upstream and downstream of the turbulence fitting on the 4-inch test pipe. The turbulence fitting was modified with a different jet configuration in hopes to improve mussel treatment during 2014 testing. Wires from all pressure transducers and automatic strainer equipment were routed through an electrical conduit to an enclosure mounted on the wall opposite of the test pipe. The self-cleaning strainer used in 2013 testing was not reinstalled due to repairs that still need to be made. It will be installed in March 2014 prior to shakedown testing.

A few minor changes were made to the testing layout compared to 2013 testing. The 1-inch pipe that provides flow to the control bio-box was moved upstream to avoid influence from the turbulence generation (Figure 1). Also, due to power outage issues in 2013, a 1-inch motorized valve was installed inline to the treatment bio-box on the 3rd level (Figure 2). It will be automated to protect the treatment bio-box from untreated mussel veligers in the event of a power outage. An additional control bio-box was installed on unit #1 to provide more biological

control data. Also, the 8-inch valves from the unit #4 discharge line (from 2012 testing) were removed and replaced with blank flanges as requested by Davis personnel.

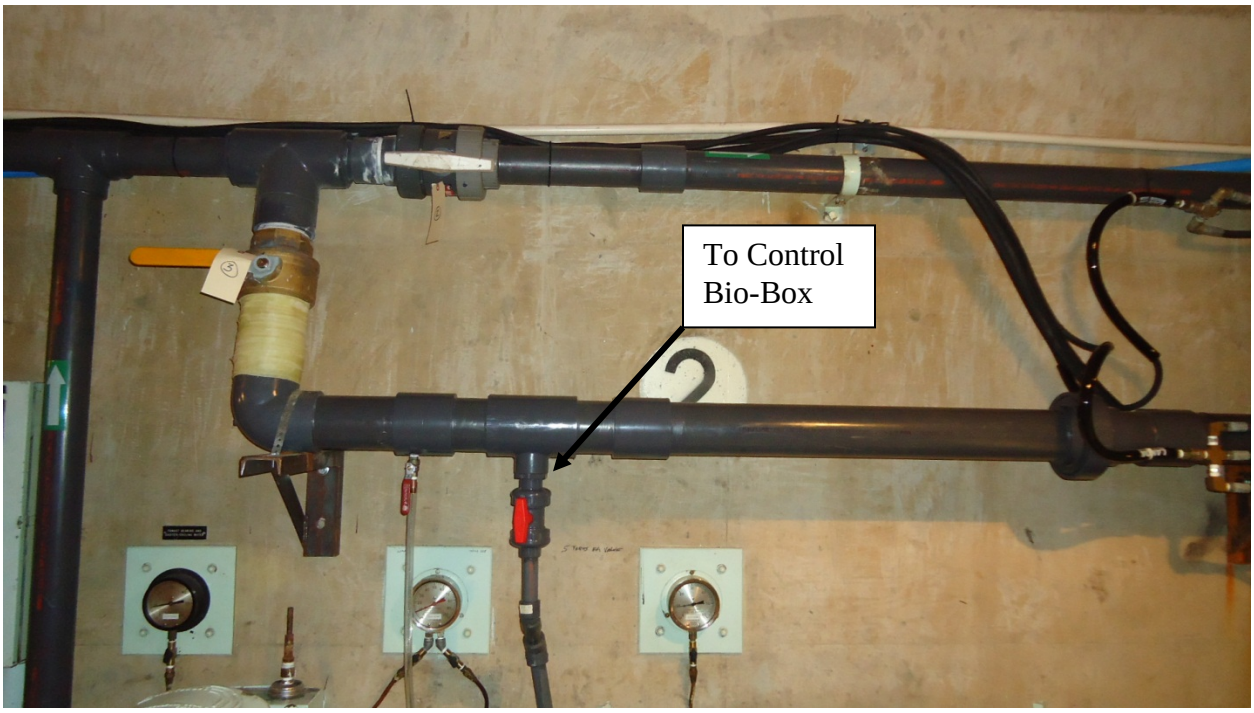

Figure 1 Modification to test pipe – moved sample flow tap to control bio-box upstream to avoid influence from turbulence generation.

Figure 2 Motorized valve installed on 1-inch supply line to the treatment bio-box on level 3. It will be automated to protect the treatment box in the event of a power outage to the turbulence generation.

Fish Screen Mussel Research (project 5740) – All screens and brush cleaning systems were operating normally on the quagga research boat docked at the Lake Mead Boat Marina. Screening equipment was inspected and serviced. The Hydrolox traveling screen was tightened and the gear sprockets that drive the screen were replaced due to wear. Mussels had colonized on the rotating hydrolox screen samples that were installed in September 2013. The mussels were removed and the sample screens cleaned before reinstallation. Two Hobo temperature sensors were deployed at about 4 ft and 10 ft below the water surface. All screens and samples were documented with photographs.

5. Conclusions:

Turbulence Research Project 4183 – Test equipment was installed in preparation for 2014 research. The test pipe was pressurized to check for leaks and valves were set for the generator thrust bearing cooling flow to bypass the test system. It is anticipated that Josh will return to Davis in mid-April to perform shakedown testing of the system and to begin data collection. He will coordinate the study startup with Leonard Willett and Davis Dam personnel.

Quagga Fish Screen Research Project 5740 – All equipment was checked and repaired as necessary, and left in operation. The test equipment will be checked and documented again in mid-March. Changes and repairs that are anticipated on the next trip include installing a new cathodic protection bolt on the ISI cylindrical screen and increasing the number of linear screen cleaning cycles from 2 to 3 times per day.

6. Action correspondence initiated or required: N/A
7. Client feedback received: N/A

cc:
Leonard Willett (LCD-8200)
Vince Lammers (LCD-D11)
Sherri Pucherelli (86-68220)
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SIGNATURES AND SURNAMES FOR:

Travel to: Lake Mead, Boulder City, NV and Davis Dam, Bullhead City, AZ

Dates of Travel: 20 January – 24 January 2014

Names and Codes of Travelers: Josh Mortensen and Jimmy Hastings, 85-846000

Traveler:

Joshua D Mortensen 2/26/14

Joshua D. Mortensen — Date
Hydraulic Investigations and Laboratory Services Group

Reviewed:

Tom Gill 2/26/14

Tom Gill — Date
Hydraulic Investigations and Laboratory Services Group

Noted and Dated by:

Robert F. Einhellig 2/28/14

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