

RECLAMATION

Managing Water in the West

TR-2011-04

Travel to Laughlin Nevada to visit Davis Dam

Dates of Travel: June 20-21, 2011



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

June 2011

BUREAU OF RECLAMATION
Technical Service Center
Denver, Colorado

TRAVEL REPORT

Code: 86-68460 Date: August 1, 2011
To: Manager, Hydraulic Investigations and Laboratory Services Group
From: Bryan J. Heiner & Joshua D. Mortensen
Subject: Travel to Laughlin Nevada to visit Davis Dam

Travel period: 20 Jun 2011 – 21 June 2011

2. Places or offices visited: Davis Dam
3. Purpose of trip: Site visit to understand the cooling water and trash rack system at Davis Dam
4. Synopsis of trip: Joshua D. Mortensen and Bryan J. Heiner traveled by air to Las Vegas NV on the morning of June 20, 2011. Once there they rented a car and drove to Laughlin, NV. One of the first stops was Katherine's Landing to investigate the growth and settlement of Quagga and Zebra mussels on the boat dock and ramp. Mussels were located and several of them were removed by hand to see how firm they adhere to surfaces. At 1:00 pm the travelers met Leonard Willett at the Davis Dam office to receive a tour of the facility. After signing in and receiving the necessary safety equipment Leonard led the group through Davis Dam. The primary reasons for visiting the structure were to see the target areas where mussel infestations are and could prevent the facility from operating efficiently. Several of the specific structures that were identified as being a problem are:

Trash Rack Structure:

The trash rack structure is in place to prevent large woody debris from entering the 5 penstocks. Figure 1 shows the 5 trash rack structures. Unfortunately measurements of the bar spacing and thickness were not taken due to safety concerns, but visually they appeared to be ¾" to 1" thick spaced every 6" to 8" inches on center. According to Leonard the structures are approximately 80 to 100 feet deep. Recent video footage taken at the facility revealed that mussel growth and colonization have completely clogged the trash rack from about 5 to 50 feet below the water surface. The clogged portion of the trash rack is forcing high velocities to occur along the bottom portion of the structure where no colonization is occurring.



Figure 1 - All five penstock inlet trash rack structures at Davis Dam

Cooling Water System:

The cooling water system takes water from the penstock and routes it through Davis Dam for cooling. The network of piping all branch from a twelve inch line that is attached to the inlet water penstock (Figure 2). After following the cooling water lines through the facility it became evident that the ideal location for treating mussel infestation would be at the inlet location due to the large number of pipe sizes and locations providing cooling to the dam.

Other Items:

In addition to seeing the trash racks and cooling water system, Leonard provided an overview of other treatment methods that are currently being researched. He was able to provide a reference textbook by Renata Claudi which compiles various treatment methods and their use today. After the facility walk through complete Josh and Bryan were able to speak with Leonard regarding doing similar site visits to CAP, Parker Dam and Hoover Dam. A tentative plan was made to do similar facility reviews at those sites by the end of July.

On June 21, 2011 Josh and Bryan returned to the Denver by means of car and plane. On the way to the airport time allowed for a quick site visit to Hoover dam which will be reviewed in more detail at the end of July.

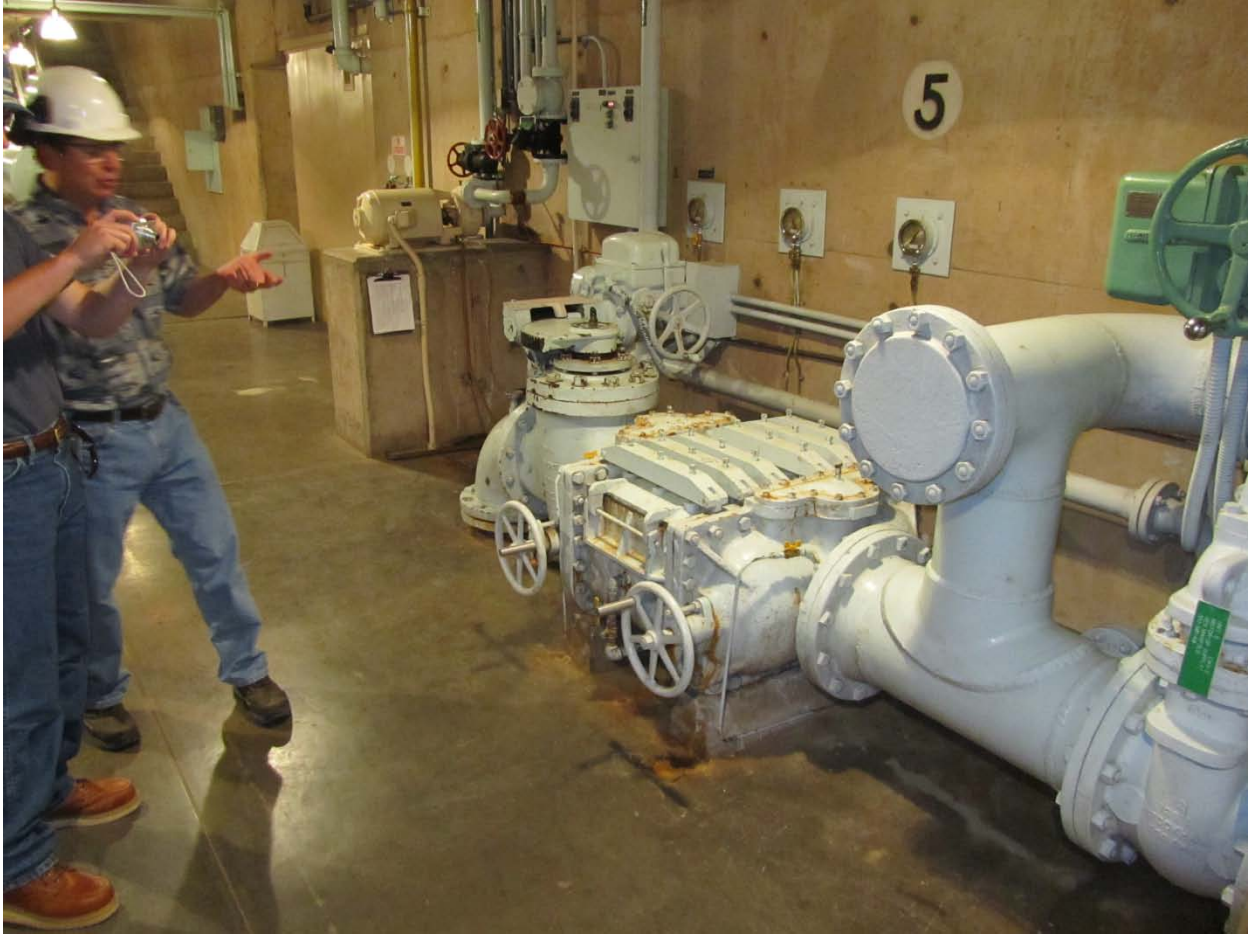


Figure 2 - Cooling water line where it attaches to the inlet penstock (under concrete)

5. Conclusions: Mussels have the potential of severely damaging the water infrastructure at and near Davis Dam in Nevada. A better understanding of mussel problems and the challenges of control and removal, particularly as it relates to Josh and Bryan's current research projects, was gained as part of this travel.

6. Action correspondence initiated or required: None

7. Client feedback received: None

cc:

Leonard Willett

Joseph Kubitschek

SIGNATURES AND SURNAMES FOR:

Travel to: Laughlin Nevada to visit Davis Dam

Dates of Travel: 20 June 2011 – 21 June 2011

Names and Codes of Travelers: Joshua D. Mortensen and Bryan J. Heiner, 86-68460

Travelers



Signature

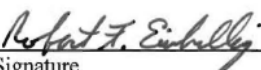
24 June 2011
Date



Signature

24 June 2011
Date

Noted and Dated by:


Signature

Manager, 86-68460
Title

6/27/11
Date