

RECLAMATION

Managing Water in the West

TR-2015-06

Travel to El Vado Dam and Chama, NM

Travel to perform bathymetry survey and sonar imaging below El Vado Dam

Date(s) of Travel: December 7 – 9, 2015



**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: 85-856000

Date: December 18, 2015

To: Manager, Hydraulic Investigations and Laboratory Services Group
From: Tracy Vermeyen, Hydraulic Engineer

Subject: Travel to perform bathymetry survey and sonar imaging below El Vado Dam

1. Travel period: December 7-9, 2015

2. Places or offices visited: El Vado Dam and Chama, NM

3. Purpose of trip: Perform bathymetry survey of the Rio Chama below El Vado Dam

4. Synopsis of trip: Dan Gibas and I drove from Denver to Chama, NM on Monday, December 7, 2015. We met Mr. Jimmy Hale from the Socorro Field Office who was our boat operator for the river bathymetry. On Tuesday morning at 7:30 a.m. we traveled to El Vado Dam where we met Mr. Victor Salazar from the Chama Field Office. We went over the field work and discussed the best way to achieve the project objectives. The outlet works was releasing 200 CFS but the aeration was excessive for sonar operation. I request the flow be reduced to a minimum and the flow was reduced to 84 CFS which was an improvement. Next, we setup the RTK-GPS base station on a temporary benchmark on a hill below the left abutment. The geographic coordinates of the GPS base was N36.592868°, W106.731087°. We prepared the 10-ft aluminum john boat for the bathymetric survey. I tested the sonar equipment and discovered a damaged cable connector. After about two hours of troubleshooting, we were able to repair the connector and begin the survey at 11:00 a.m. We spent about 1.5 hours surveying the area of interest and collected over 5000 soundings. Sonar measurements could not be collected near the outlet works plunge zone because of aerated flow. We also attempted to image the undercut canyon wall below the right abutment. However, it was difficult to keep the boat steady because of the currents created by the outlet works releases. Figure 1 shows a preliminary 1-ft depth contour map of the spillway plunge pool overlaid on an aerial photograph taken from Google Earth. This survey was performed with a Trimble RTK-GPS receiver and will be post-processed to the project datum. After the plunge pool survey was completed, we completed a cross section survey of the Rio Chama. The cross section survey covered about 2200 ft of river below the spillway and 15 river cross sections were surveyed. We completed the cross section survey at

16:00. We packed up the GPS equipment and left the project at 16:45.

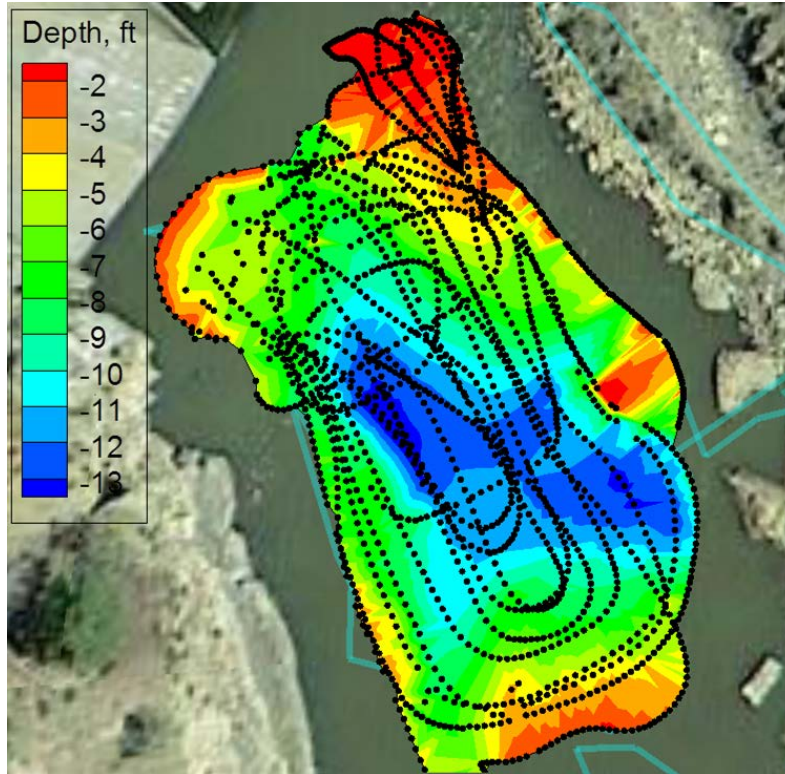


Figure 1. A preliminary 1-ft depth contour map of the El Vado spillway plunge pool. The black dots represent the sonar's path during the survey. The maximum depth was about 13 ft. Note: the survey coverage is smaller than the aerial photo because flows were much lower during the bathymetry survey.

Wednesday, December 9, 2015 – At 7:30 a.m. Dan and I left Chama, NM and drove back to Denver.

5. Conclusions: A bathymetry survey of the river and spillway plunge pool was successfully completed. Sonar images of the right abutment were collected. The sonar system did not perform as expected because of a bad cable connector. The sonar communication cable will need to be tested and repaired before it can be used again.

6. Action correspondence initiated or required: None

7. Client feedback received: N/A

cc:

John Ellingson (TSC, 86-68130)
Victor Salazar (Chama Field Office)
Jimmy Hale (Socorro Field Division)

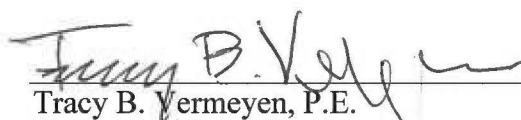
SIGNATURES AND SURNAMES FOR:

Travel to: Travel to perform bathymetry survey and sonar imaging below El Vado Dam

Dates of Travel: December 7-9, 2015

Names and Codes of Travelers: Tracy Vermeyen, 85-856000, Dan Gibas, 86-68130

Travelers:



Tracy B. Vermeyen, P.E.
Hydraulic Investigations and Laboratory Services Group

12/15/15

Date




Dan Gibas
Rotation Engineer, Hydraulic Investigations and Laboratory Services Group

12/17/15

Date

Reviewed:



Bryan Heiner, P.E.
Hydraulic Investigations and Laboratory Services Group

12/17/2015

Date

Noted and Dated by:



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

12/15/2015

Date