

Trip Report for Travel to the Upper Green Basin in NWS Riverton's HSA on August 3 and 4, 2009.

Itinerary:

On August 3, 2009: Kevin Warner and William Reed travel by Government Jeep from Salt Lake City, UT to Viva Naughton Reservoir near Kemmerer, WY. For the trip to Viva Naughton Reservoir from Kemmerer, they were accompanied by Kent Laird of PacifiCorp. Then Kevin and Bill traveled to Pinedale, WY where they spent the night.

On August 4, 2009: Kevin and Bill traveled to Big Piney, WY. At the Wyoming State Engineer's Office (WSEO), they met with Jim Fahey, Senior Service Hydrologist, NWS Riverton Office, Edward Boe, Lead Hydrographer – Commissioner, WSEO Big Piney, and David Orzel, Hydrographer – Commissioner, WSEO Pinedale. From Big Piney the group traveled to Green River near Daniel at Warren Bridge (WBRW4), Fremont Lake and Pine Creek below Fremont Lake near Pinedale, WY. From Pinedale: Kevin, Jim, and Bill traveled to New Fork near Big Piney (BPNW4) and then Big Piney, WY. From Big Piney, WY Kevin and Bill returned to Salt Lake City, UT.

Discussion:

Viva Naughton Reservoir: Kent Laird informed us that PacifiCorp uses our inflow forecasts and find them very helpful in making decisions. We talked about several things on the tour that would help CBRFC provide even better water-supply / runoff-season forecast of the inflow to Viva Naughton: 1) monthly inflow calculated for April-July of current year and previous years if available (historical data for verification); 2) access to real time or near real time data for both reservoir level and outflow (data from PacifiCorp gages); 3) storage curve for reservoir (so we can begin calculating observed inflow from change in storage and outflow); and 4) capacity curve for spillway (including elevation of spillway). Kent indicated that he would go through his channels to see if this information could be released to us. We also observed that there is a WSEO gage (just downstream of the PacifiCorp gage) that measures the same outflow and could be used as a back-up gage or provide an alternative source of information. It should be noted that we are now once again receiving periodic mails from PacifiCorp of reservoir changes that are useful but do not provide monthly values. See photos 1-9.

Wyoming State Engineer's Office: I provided a demonstration of our website. We talked about WSEO's plans to provide a website with all of the data from various offices throughout the State. We were provided the latest three year's State Hydrographer's Annual Reports for Division 4. The WSEO has four divisions; Division 4 includes the Upper Green River Watershed. Ed provided a list of 11 WSEO gages in the Green River Basin: South Cottonwood Creek, North Piney Creek, Middle Piney Creek, South Piney Creek, North Horse Creek, LaBarge Creek, Little Sandy Creek, West Fork New Fork, Pine Creek below Reservoir, Fremont Lake Reservoir Level, and Boulder Creek below Reservoir. Some of these sites have historical data available going back to 1970. With regard to the WSEO gage below Viva Naughton Reservoir, Ed informed me that it was operated by the Lyman Office (contact John Yarbrough 307-787-3729). We travel as a group to Green River near Daniel at Warren Bridge, see photos 10-16; and Fremont Lake and Pine Creek near Pinedale (discussed below).

Fremont Lake: Although Fremont Lake is Wyoming's second largest natural lake, it has a small concrete dam or control structure at the outlet. This structure has gates that can release flow into a diversion canal and/or into Pine Creek. The lake is on Pine Creek about four miles upstream of Pinedale. Pine Creek flows through Pinedale and is a tributary to New Fork. The 600 foot deep lake is mostly dead storage. This year a peak flow of approximately 1400 cfs was released from the lake into the creek causing near bankfull flow through the town. See photos 17-19. Also, a June 20, 2009 photo of the outlet from Fremont Lake by Katrina Grantz, Reclamation hydraulic engineer can be found on page two of:

http://www.usbr.gov/uc/water/crsp/wg/ft/pdfs/FontenelleAndHeadwaters_06-20-2009.pdf.

Pine Creek near Pinedale: This WSEO gage on Pine Creek below Fremont Lake was visited to discuss the possibility of using the gage for observing the releases from Fremont Lake, especially during high flows. See photo 20.

New Fork near Big Piney: This location is an official forecast point. Of special concern is the local bridge upstream of the gage. See photos 21-23.

Action Items:

- 1) Continue dialogue with Kent Laird to obtain requested information,
- 2) Keep aware of WSEO efforts to set up a webpage with all data, and
- 3) Contact John Yarbrough of WSEO Lyman office re: gage below Viva Naughton.

Contacts:

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Photo 1. Hams Fork at Viva Naughton Reservoir (VIVW4): Water is being released from outlet below Viva Naughton. Water is also being released from power generators (not shown) and from spillway (not shown).

August 3, 2009



Photo 2. Hams Fork at Viva Naughton Reservoir (VIVW4): Looking downstream of outlet, building to right is location of power generators.

August 3, 2009



Photo 3. Hams Fork at Viva Naughton Reservoir (VIVW4): Looking from near outlet to top of earthen dam. The water elevation of the reservoir is measured near the intake at top of dam.

August 3, 2009



Photo 4. Hams Fork at Viva Naughton Reservoir (VIVW4): Looking downstream of outlet.

August 3, 2009



Photo 5. Hams Fork at Viva Naughton Reservoir (VIVW4): Spillway, a small flow of water is released down spillway to keep the spillway clean.

August 3, 2009



Photo 6. Hams Fork at Viva Naughton Reservoir (VIVW4): Looking at Reservoir from bridge over spillway.
August 3, 2009



Photo 7. Hams Fork below Viva Naughton Reservoir near Frontier: PacifiCorp gage that measures outflow, flow was 120 cfs. Tip of cantilevered wire weight for State of WY gage can be seen at left of photo. PacifiCorp considers 2,200 cfs as flood flow.

August 3, 2009



Photo 8. Hams Fork below Viva Naughton Reservoir near Frontier: This is a State of WY gage downstream of PacifiCorp gage. This gage, as well as the PacifiCorp gage, measures the release from Viva Naughton. The flow was 120 cfs. The cantilevered gage is for manually cross-checking reported stage.

August 3, 2009

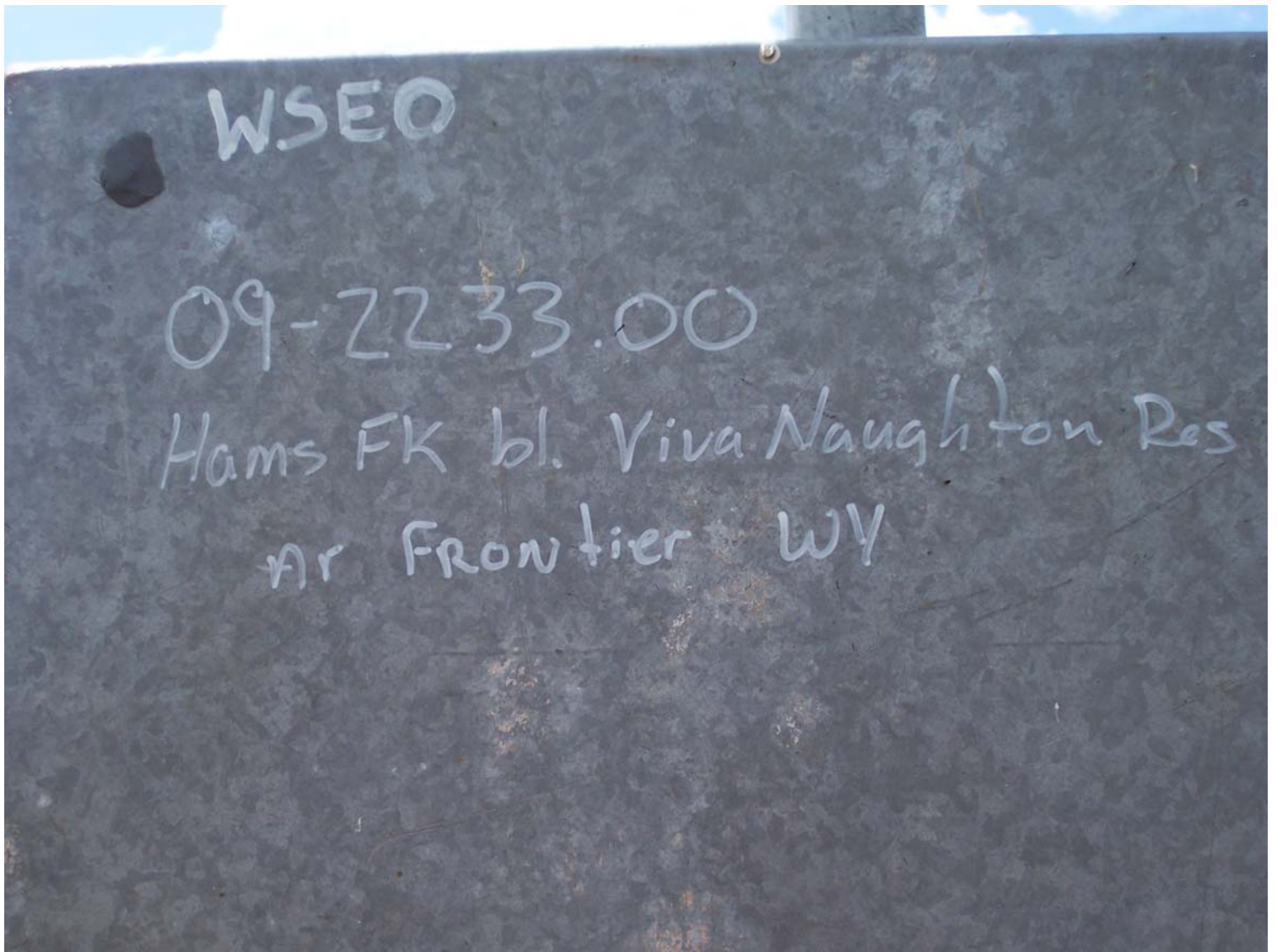


Photo 9. Hams Fork below Viva Naughton Reservoir near Frontier: Writing on State of WY gage. This gage is maintained by Lyman Office.

August 3, 2009



Photo 10. Green River near Daniel at Warren Bridge (WBRW4): Group walking down to rain and stream gages. To get to gages one must first cross ditch.

August 4, 2009



Photo 11. Green River near Daniel at Warren Bridge (WBRW4): Warren Bridge, new bridge is downstream (right edge of photo).

August 4, 2009



Photo 12. Green River near Daniel at Warren Bridge (WBRW4): NWS Riverton's Senior Service Hydrologist Jim Fahey working on NWS rain gage collocated with USGS stream gage.

August 4, 2009



Photo 13. Green River near Daniel at Warren Bridge (WBRW4): Looking inside of gage house.

August 4, 2009



Photo 14. Green River near Daniel at Warren Bridge (WBRW4): Looking downstream, stage was 2.69 feet and the flow was 633 cfs.

August 4, 2009



Photo 15. Green River near Daniel at Warren Bridge (WBRW4): Looking upstream.

August 4, 2009



Photo 16. Green River near Daniel at Warren Bridge (WBRW4): Looking upstream, stage was 2.69 feet and the flow was 633 cfs. Cantilevered gage at bottom of photo.

August 4, 2009



Photo 17. Fremont Lake, located on Pine Creek above Pinedale, WY. This lake is 600 feet deep but everything below 70 feet is dead storage.

August 4, 2009



Photo 18. Pine Creek - Fremont Lake, near dam.

August 4, 2009



Photo 19. Pine Creek - Fremont Lake Dam: Looking from right bank to left bank. This structure is not very high and essentially only the top 12 feet of lake is controlled. It was reported that this structure was within 3 inches of the top (uncontrolled release) earlier this year. The peak flow (release from dam) was estimated as 1,400 cfs during the snowmelt runoff season. 1,400 cfs caused near bankfull flows through the town of Pinedale. Upstream USGS gage (FRAW4) was not reporting between 6/17/2009 and 7/6/2009.

August 4, 2009



Photo 20. Pine Creek below Fremont Lake near Pinedale: Near State of WY gage location. There is a wire-weight on private bridge. Stage was 2.11 and flow was 202 cfs.

August 4, 2009



Photo 21. New Fork near Big Piney (BPNW4): Looking upstream towards local bridge. Stage was 3.03 feet and flow was 744 cfs. Action stage is 6.0 feet (5040 cfs); bankfull stage is 7.5 feet (7825 cfs); and flood stage is 8.5 feet (9875 cfs).

August 4, 2009



Photo 22. New Fork near Big Piney (BPNW4): Looking downstream stream. Stage was 3.03 feet and flow was 744 cfs.

August 4, 2009



Photo 23. New Fork near Big Piney (BPNW4): interior of gage house.

August 4, 2009