

Trip Report for Travel to Lower Green River Basin November 12, 2009

Itinerary: On November 12th Bill Reed, CBRFC, and Tim Bardsley, Utah NRCS, travelled by POV from Salt Lake City (SLC) to Lower Green River Basin and returned the same day. They left SLC at 5:30 am, arrived at Huntington Power Plant at 8:00 am for a meeting regarding data availability with Cody Allred, a PacifiCorp employee, and then accompanied by Cody visited sites on Power Plant property including a water supply forecast point. Tim and Bill subsequently visited other sites in the Lower Green Basin on their own, including other water supply forecast points, and returned to SLC arriving at 7:00 pm. Total mileage: 467 miles.

Discussion:

Huntington Power Plant: Discussed the availability of historical data for Huntington River below Power Plant Intakes (HNNU1). This former USGS site, aka Huntington Creek near Huntington, UT is now operated by the Power Plant and the real-time data are available from Emery Water Conservancy District (EWCD) website (<http://www.ewcd.org/>). The USGS site was station # 09317997, and data are available from USGS for 04-25-1979 to 09-30-1989. We also discussed CBRFC and Utah NRCS websites.

- Data are available for HNNU1 for the years 1989 to present,
- PacifiCorp has provided Electric Lake EOM storage and monthly releases from 1973 to present,
- PacifiCorp has provide HNNU1 monthly flow from 2004 to present, and
- PacifiCorp has agreed to provide additional data including HNNU1 flow from 1989 to 2004 around Thanksgiving of 2009.

Lower Huntington Drainage: 1) Holding Pond for Power Plant Diversions from Huntington Creek, 2) Power Plant Diversion Intakes - data are available from Emery Water Conservancy District website, 3) Huntington River below Power Plant (HNNU1) - data are available from Emery Water Conservancy District website, and 4) location of first USGS gage (station # 09318000 that was replaced by station # 09317997) - location is downstream of HNNU1 and can be visited from Power Plant's research farm. Data are available from USGS for 05-25-1909 to 10-04-1979. See photos 1 - 8.

- The new gage is the same as the water supply forecast point,
- To obtain natural flow at HNNU1, the calculated changed in storage for five reservoirs, and the diverted water at the intakes, have to be added to the regulated flow, and
- All data for the required calculations are now available in real-time.

Ferron Area: 5) Millsite Dam (MLSU1) - data is available from Emery Water Conservancy District website, 6) Ferron Creek near Ferron (FRRU1) - location of gage is above Millsite Reservoir and is a water supply forecast point, USGS # 09326500 Ferron Creek (Upper Station) near Ferron, UT, data is also available from Emery Water Conservancy District website, and 7) Forest Road 022, Upper Ferron Creek drainage including burned area, Willow Lake, and Ferron Reservoir - had to turn around at Skyline Drive, Forest Road 150, due to snow. See photos 9 - 18.

- Burned area had little effect on runoff volume this year, i.e., observed volumes for HNNU1, FRRU1, and JOVU1 were all about the same percent of respective averages, 97%.

Joe's Valley Reservoir: 8) Joe's Valley Reservoir (JOVU1) near Orangeville - water supply forecast point - data is available from Emery Water Conservancy District website, 9) Seely Creek above Joe's Valley Reservoir - data is available from Emery Water Conservancy District website, and 10) Lowry Creek (gage not visited) drove drainage to divide - data is available from Emery Water Conservancy District website. See photos 19 – 21.

- Inflow to Joe's Valley provided by BOR.
- Would be interesting to see how the two EWCD gages compare to BOR data.
- It should be noted that water from Seely Creek headwaters is diverted northeast to Ephraim Tunnel inlet (a transmountain diversion) about 10 miles southeast of Ephraim, Utah. Capacity of tunnel is 95 cfs. Site not visited.

Upper Huntington including Left Fork Reservoirs: 11) Miller Flat Reservoir - data is available from Emery Water Conservancy District website, 12) Rolfson Reservoir - data is available from Emery Water Conservancy District website, 13) Cleveland Reservoir - data is available from Emery Water Conservancy District website, 14) Electric Lake near Outlet (ELLU1) - Electric lake is water supply forecast point - data is available from Emery Water Conservancy District website, 15) Huntington Reservoir - data is available from Emery Water Conservancy District website, 16) Boulger Creek - tributary to Electric lake and data is available from Emery Water Conservancy District website, and 17) Electric Lake near inlets (Boulger Creek and Upper Huntington Creek) - data is available from Emery Water Conservancy District website for both inlets. See photos 22 - 35.

- Using the available EWCD data, the unregulated volume for April-July at HNNU1 was calculated to be 97% of average.
- The contribution of the unregulated volume for April-July of each site was:

○ Rolfson Reservoir	- 0.7 %,
○ Huntington Reservoir	3.3 %,
○ Cleveland Reservoir	2.1 %,
○ Miller Flat Reservoir	0.6 %
○ Electric Lake	13.9 %
○ Intake A	3.8 %
○ Intake B	4.2 %
○ Huntington River (regulate)	72.8 %
	Total 100.0 %

- Left Fork Reservoirs were 5.3 %, Electric Lake was 13.9 %, Intakes were 8%, and Huntington River (regulated) was 72.8% of total unregulated 2009 volume for April-July.
- Need to enter inflows for ELLU1 into database after additional data has been provided by PacifiCorp.
- Need to revisit the calculated flows for HNNU1 after additional data has been provided by PacifiCorp.
- Need to set up ids for Miller Flat, Rolfson, Cleveland, and Huntington Reservoirs.
- Need to set up ids for Intakes.

Price River Drainage: 18) Fairview Tunnel near Fairview, UT (transmountain diversion) – USGS # 09309600 – diverts water from San Rafael River and Price River drainages in the Colorado River Basin to San Pitch River in the Great Basin, 19) Mud Creek below Winter Quarters Canyon at Scofield, UT - USGS # 09310700, 20) Scofield Reservoir near Scofield (SFSU1) - water supply forecast site visited and 21) White below Tabbyune Creek near Soldier Summit (WRSU1) – USGS # 09312600 - water supply forecast site visited. See photos 37 - 39.



Photo 1: Holding Pond for Power Plant Diversions.

William Reed, November 12, 2009



Photo 2: Spillway for holding pond at bottom left, old USGS gage right of center, new gage right of USGS gage. Flow is from left to right.

William Reed, November 12, 2009



Photo 3: Huntington Creek gage. Latitude $39^{\circ}23'07''$, Longitude $111^{\circ}05'15''$. Drainage Area: 178 square miles. (N $39^{\circ}23.108'$, W $111^{\circ}05.310'$, elevation: ~ 6425 ft.)

William Reed, November 12, 2009



Photo 4: Control structure for Power Plant diversions upstream of gage. (N 39° 23.455', W 111° 05.550', elevation: ~6509 ft.) Inside of building not visited.

William Reed, November 12, 2009



Photo 5: Huntington Creek gage, looking upstream, showing cable car.

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**Photo 6: Huntington Creek gage, looking upstream, showing control for gage in foreground.
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Photo 7: Huntington Creek gage, looking downstream, showing abandoned USGS gage upstream of new gage. Latitude $39^{\circ} 23' 07''$, Longitude $111^{\circ} 05' 15''$. Drainage Area: 178 square miles.

William Reed, November 12, 2009



Photo 8: First USGS site abandoned, two structures are located at this site on opposite banks. Gage on left bank is shown. Latitude $39^{\circ}22'17''$, Longitude $111^{\circ}03'47''$. Drainage Area: 187 square miles. (N $39^{\circ}22.262$, W $111^{\circ}03.772'$, elevation ~ 6210 ft.)

William Reed, November 12, 2009



Photo 9: Millsite Reservoir, painted inclined staff gage along edge of this boat ramp.

William Reed, November 12, 2009



Photo 10: Painted inclined staff gage along edge of Millsite Reservoir boat ramp. EWCD website reported 31.58 feet.

Tim Bardsley, November 12, 2009



Photo 11: Painted inclined staff gage along edge of Millsite Reservoir boat ramp.

Tim Bardsley, November 12, 2009



**Photo 12: Painted inclined staff gage along edge of Millsite Reservoir boat ramp. EWCD website reported 31.58 feet; therefore, the reservoir level was ~21.5 feet below this point near top of boat ramp.
Tim Bardsley, November 12, 2009**



**Photo 13: USGS 09326500 Ferron Creek gage house. Latitude 39° 06'15", Longitude 111° 12'57".
Drainage area: 138 square miles. (N 39° 06.230, W 111° 13.074, elevation ~6257 ft.)
William Reed, November 12, 2009**



Photo 14: Ferron Creek, looking downstream, showing gage intake.

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**Photo 15: Ferron Creek Drainage, panoramic view with Millsite Reservoir shown in the distance.
William Reed, November 12, 2009**



Photo 16: Ferron Creek Drainage, Willow Lake.

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Photo 17: Ferron Creek Drainage, recovering burned area. (N 39° 08.130, W 111° 23.969, elevation ~9500ft.)

William Reed, November 12, 2009



**Photo 18: Ferron Reservoir. This reservoir is located on Indian Creek, a tributary to Ferron Creek.
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Photo 19: Joe's Valley Reservoir. Looking west across reservoir, from near dam, to Seely Creek drainage. (Note: This reservoir is reported as on Seeley Creek in Water Supply Report.)

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**Photo 20: Joe's Valley Reservoir. Looking east across reservoir from Forest Road 8 to dam.
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Photo 21: Seely Creek gage. Looking downstream from Forest Road 170.

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Photo 22: Miller Flat Reservoir.

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Photo 23: Rolfson Reservoir Dam.

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Photo 24: Rolfson Reservoir Dam.

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Photo 25: Rolfson Reservoir Dam outflow gage.

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Photo 26: Rolfson Reservoir, looking west from top of dam.

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Photo 27: Cleveland Reservoir.

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Photo 28: Cleveland Reservoir looking towards dam

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Photo 29: Electric Lake and dam.

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Photo 30: Huntington Reservoir.

William Reed, November 12, 2009



Photo 31: Huntington Reservoir and dam.

William Reed, November 12, 2009



**Photo 32: Boulger Creek, tributary to Electric Lake. Gage is in culvert under State Route 264.
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**Photo 33: Boulger Creek, tributary to Electric Lake. Gage is in culvert under State Route 264.
Tim Bardsley, November 12, 2009**



Photo 34: Boulger Creek looking downstream towards Electric Lake.

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Photo 35: Electric Lake near Boulger Creek and Upper Huntington Creek.
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Photo 36: USGS 09309600 Fairview Tunnel near Fairview, UT. Latitude 39°40'03", Longitude 111°18'41". Drainage area: 0.01 square miles.

Tim Bardsley, November 12, 2009



Photo 37: USGS 09310700 Mud Creek below Winter Quarters Canyon at Scofield, UT. Latitude 39°43'18", Longitude 111°09'38". Drainage area: 29.1 square miles. Sign reads: SCOFIELD. Tim Bardsley, November 12, 2009



Photo 38: Scofield Reservoir.

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Photo 39: USGS 09312600 White River below Tabbyune Creek near Soldier Summit, UT. Latitude 39°52'33", Longitude 111°02'12". Drainage area: 75.6 square miles.

Tim Bardsley, November 12, 2009