

Carol L. Perone

From: Jason Thiriot
Sent: Thursday, November 07, 2013 12:08 PM
To: Jennifer Crandell; McClain Peterson; Warren Turkett; Seth Shanahan; Colby.Pellegrino@snwa.com
Cc: Carol L. Perone; Craig Pyper; Lisa Ray; Dana Corkill
Subject: FW: Change in Fall 2013 HFE Release
Attachments: Final HFE for November 2013_11-07-2013.pdf; Nov2013 HFE Routing.pdf

[Change to HFE](#)

-Jason

From: Knowles, Glen [<mailto:gknowles@usbr.gov>]
Sent: Thursday, November 07, 2013 12:04 PM
To: Anamarie Gold; Anne J. Castle; Benjamin Tuggle; Bert Frost; Beverley Heffernan; Bryan Bowker; Charles Lewis; Charles Lewis; Charley Bulletts; Chris Hughes; Cliff Barrett (Georgia); Craig Ellsworth; David Bennion; David Lytle; David Nimkin; David P Trueman; David Uberuaga; Dennis J. Strong; Don Ostler; Downer Alan; Estevan Lopez; Evelyn Erlandsen; Frederick H. White; Garry Cantley; Gerald Myers; Hooee Gerald; Jackson-Kelly Loretta; Janet R. Balsom; Jason Thiriot; Jayne Harkins; Jerry Lee Cox; John and Carol Jordan; John Hamill; John Shields; Kerry Christensen; Kevin Dahl; Kirk Young; Kurt Dongoske; Larry P. Walkoviak; Larry Stevens; LeAnn Skrzynski; Lesley Fitzpatrick; Leslie James; Lisa Meyer; Lori Caramanian; Lynn Jeka; Marianne Crawford; Mark Anderson; Mark Martinez; Mark Van Vlack; Martha Hahn; McClain Peterson; Michael C. Runge; Michelle Brown; Paul Harms; Randy Seaholm; Riley Larry; Robert King; Robert Snow; Rodney Smith; Ronald Anderson; Sam Jansen; Sarah Rinkevich; Scott Vanderkooi; Shane Capron; Shanese Crosby; Steve Spangle; Tanya Trujillo; Ted Kowalski; Ted Rampton; Thomas Buschatzke; Todd Chaudhry; Tony H. Joe; Vineetha Kartha; William E. Davis; William Stewart; Yeatts Mike; ardenkucate; Leigh J. Kuwanwisiwma
Subject: Change in Fall 2013 HFE Release

Dear AMP Stakeholders,

We wanted to make you aware of a change in the maximum release of the Fall 2013 HFE release. Due to maintenance issues at Glen Canyon Dam, the release will now be limited to approximately 34,100 cfs. Please see the following information below and attachments provided by Kartina Grantz and Nick Williams.

Maintenance work on Unit 4 will not be complete at Glen Canyon Dam in time for the 2013 HFE. Therefore, we will have 6 units available for the HFE this year, instead of the 7 we had hoped for. This decreases the peak release by 3,100 cfs to **~34,100 cfs**. New hydrograph and routing information are attached to this email.

Here are the details/information:

New details (compared with previous hydrograph):

Units available: 6 (instead of 7)
Powerplant capacity = ~19,100 cfs (instead of 22,200 cfs)
Peak release = ~34,100 cfs (instead of 37,200 cfs, a 3,100 cfs decrease)
November volume = 670 kaf (instead of 700 kaf)
Start Upramp: 10am (instead of 9am)
Finish HFE: 1pm (instead of 3pm)
Total HFE duration is 5 days, 3 hrs

All else remains the same:

Ramp rates remain the same
Bypass volume remains the same (130 kaf)
Timing of opening bypass tubes (Nov 11, 1 pm) and the media/public event (Nov 11, 11 am) remains the same
Time on peak remains the same (96 hrs)
Timing of peak remains the same (Nov 11 8pm - Nov 15, 8pm)

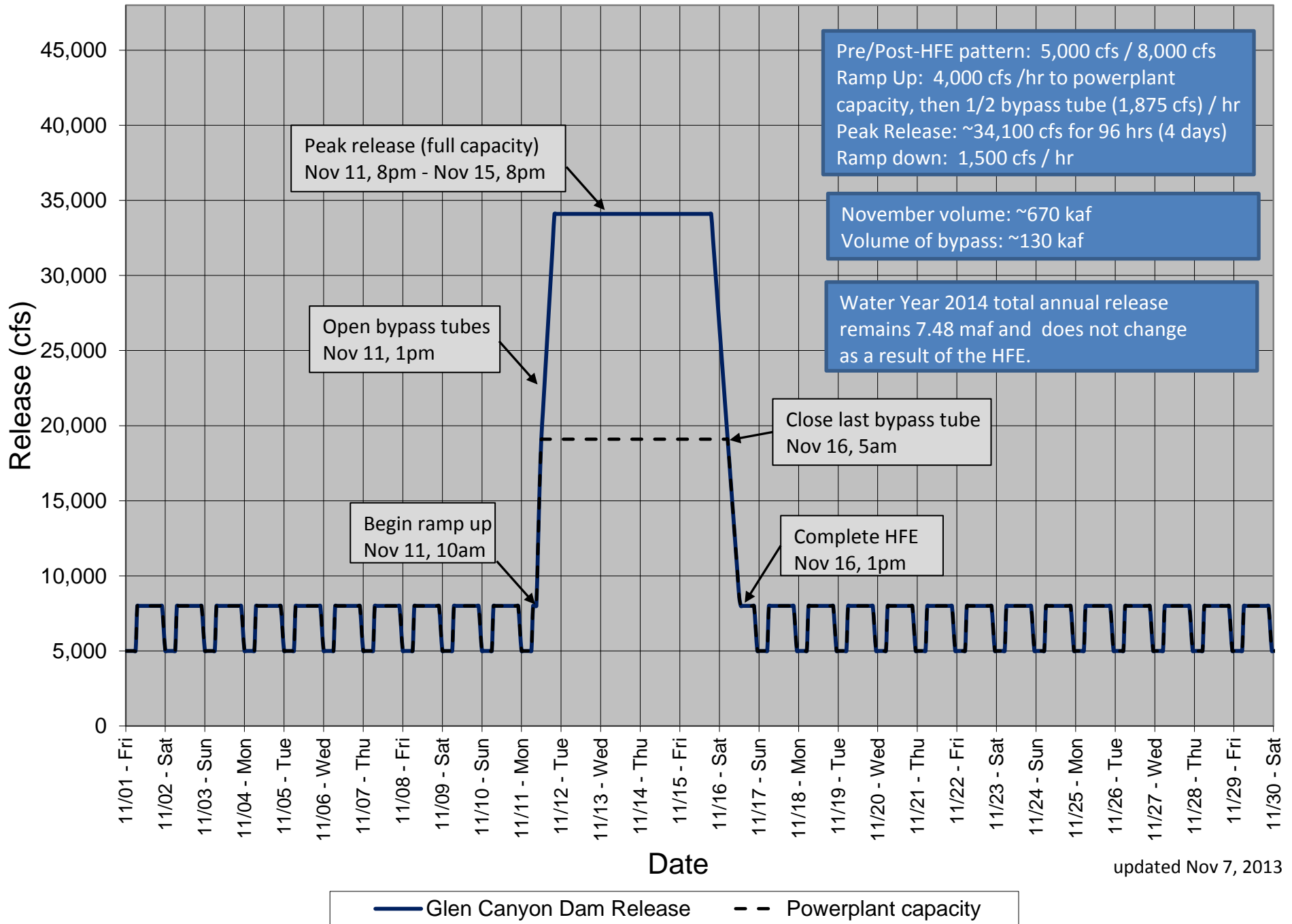
Although we are disappointed by this unforeseen turn of events, we feel that this second HFE conducted under the HFE Protocol is still a tremendous accomplishment for the Glen Canyon Dam Adaptive Management Program that will greatly benefit downstream resources. Thank you for your understanding.

Glen

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Glen W. Knowles
Chief, Adaptive Management Group
Bureau of Reclamation, Upper Colorado Region
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Glen Canyon Dam HFE Release Pattern November 2013

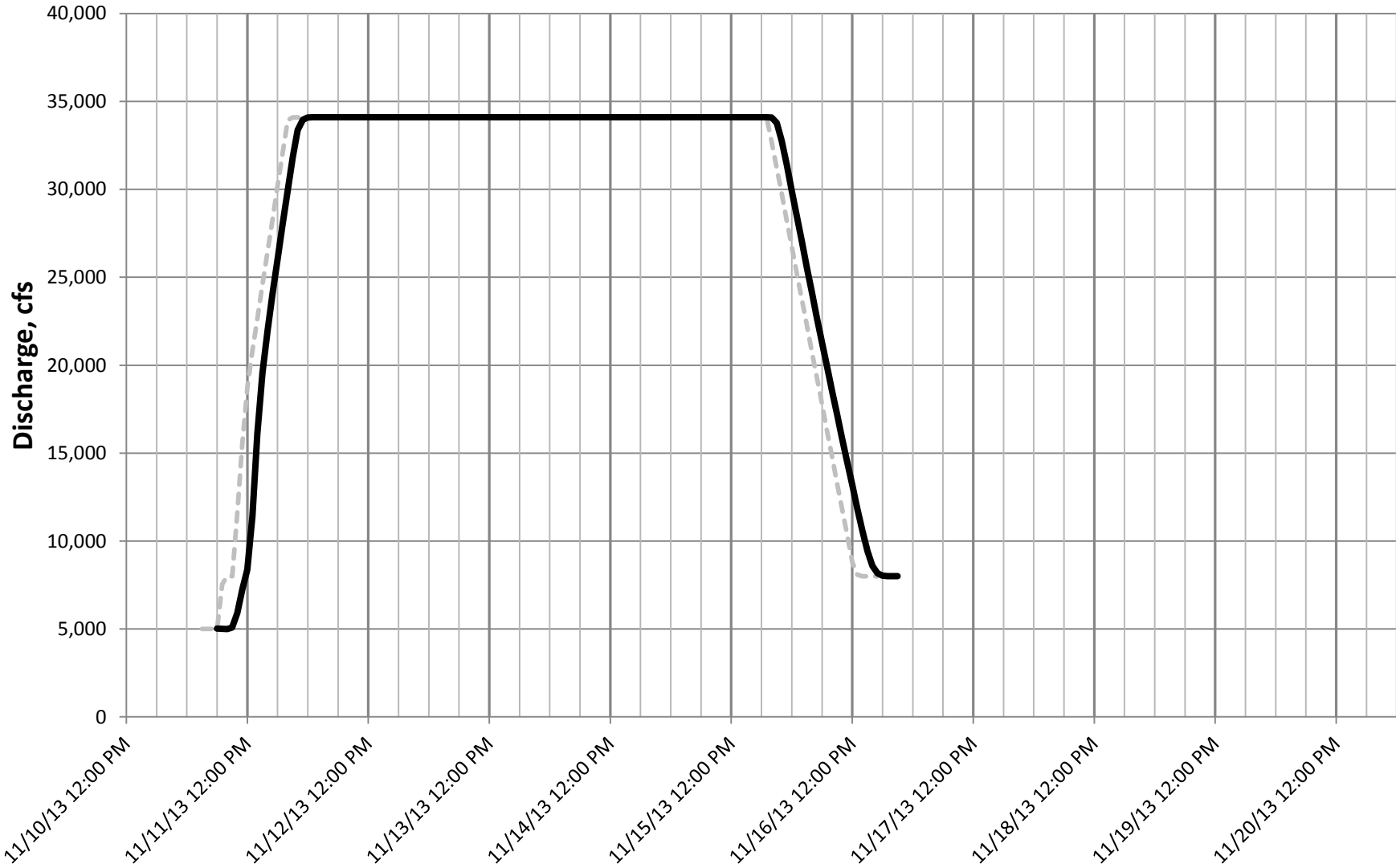


2013 November High Flow Experiment

Locations and dates of hydrograph routing

HFE Hydrograph Events	River Locations						
	Glen Canyon Dam	Lees Ferry RM0	Little Colorado River RM061	Phantom Ranch RM087	National Canyon RM166	Diamond Creek RM225	Pearce Ferry RM279
HFE - Start	11/11/13 10:00 AM	11/11/13 12:00 PM	11/12/13 1:00 AM	11/12/13 6:00 AM	11/12/13 8:00 PM	11/13/13 6:00 AM	11/13/13 4:00 PM
Peak magnitude - Begin (34,000 cfs)	11/11/13 9:00 PM	11/12/13 12:00 AM	11/12/13 10:00 AM	11/12/13 2:00 PM	11/13/13 2:00 AM	11/13/13 12:00 PM	11/13/13 9:00 PM
Peak magnitude - End (34,000 cfs)	11/15/13 8:00 PM	11/15/13 9:00 PM	11/16/13 4:00 AM	11/16/13 7:00 AM	11/16/13 5:00 PM	11/17/13 12:00 AM	11/17/13 7:00 AM
HFE - End	11/16/13 1:00 PM	11/16/13 6:00 PM	11/17/13 10:00 AM	11/17/13 4:00 PM	11/18/13 11:00 AM	11/19/13 1:00 AM	11/19/13 2:00 PM

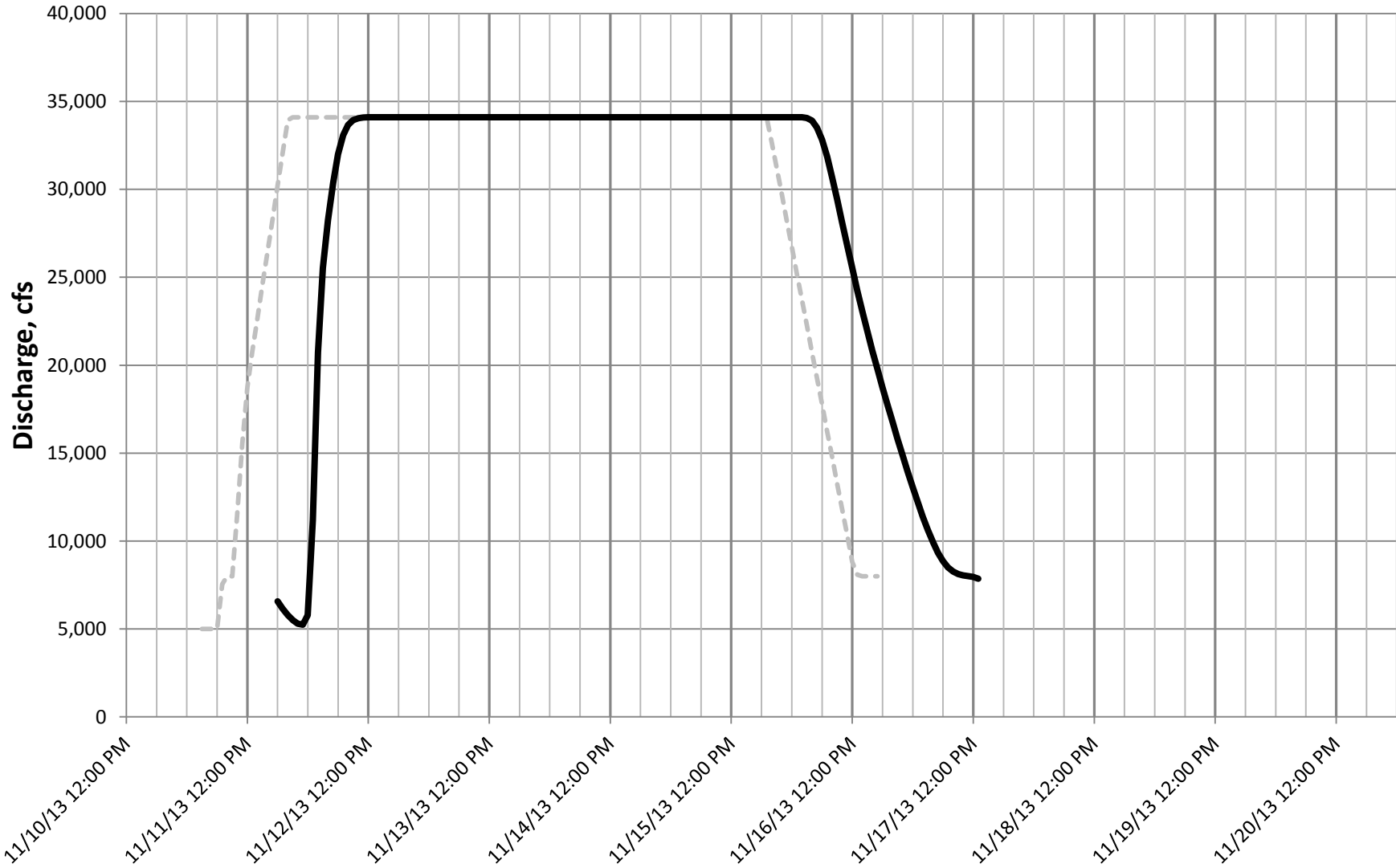
November 2013 HFE Hydrograph Lees Ferry, RM0



--- GCD — RM0 - Lees Ferry

*Vertical gridline intervals are 6 hours

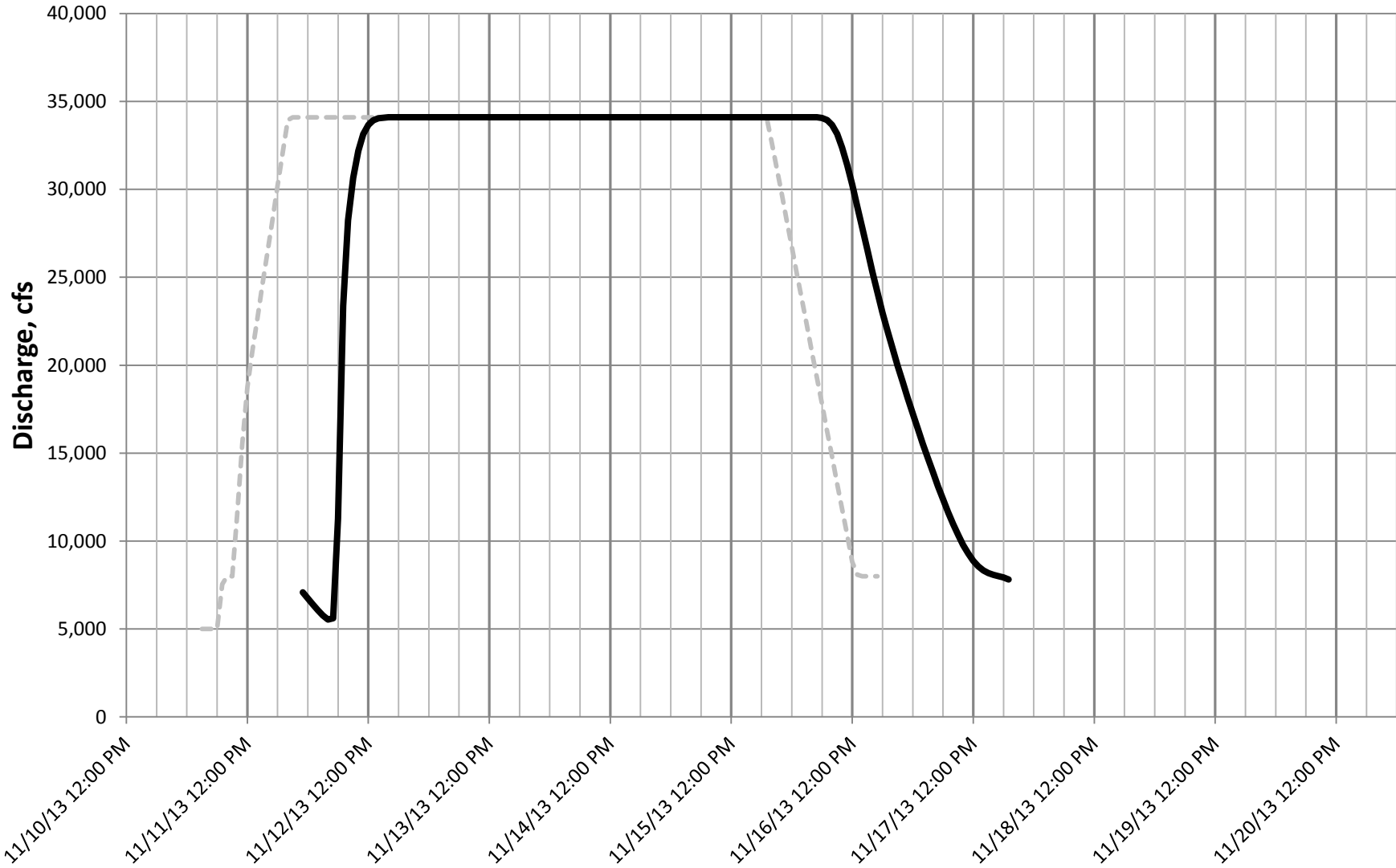
November 2013 HFE Hydrograph Little Colorado River, RM061



--- GCD — RM061 - Little Colorado

*Vertical gridline intervals are 6 hours

November 2013 HFE Hydrograph Phantom Ranch, RM087

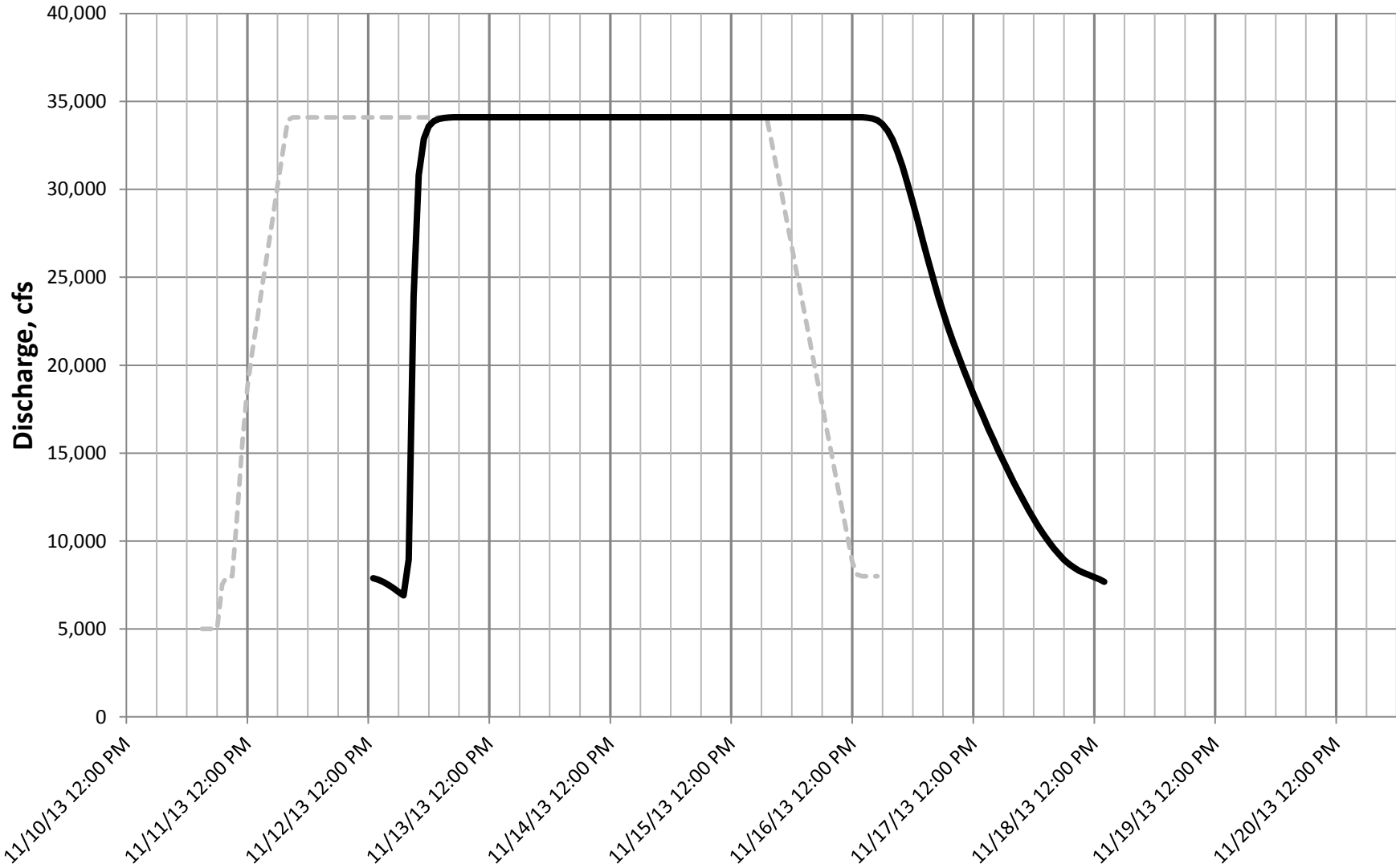


--- GCD

— RM087 - Phantom Ranch

*Vertical gridline intervals are 6 hours

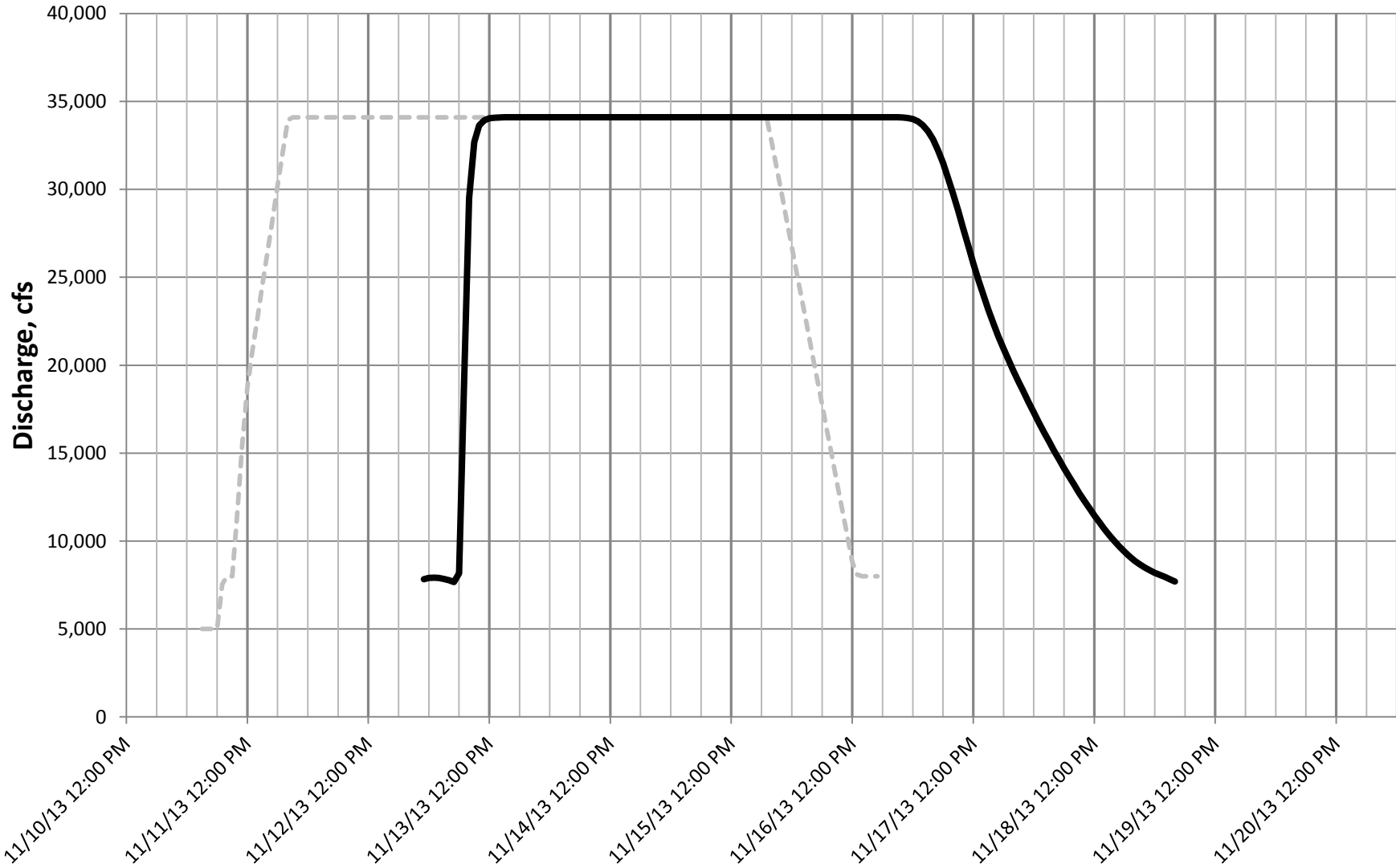
November 2013 HFE Hydrograph National Canyon, RM166



--- GCD — RM166 - National Canyon

*Vertical gridline intervals are 6 hours

November 2013 HFE Hydrograph Diamond Creek, RM225



--- GCD — RM225 - Diamond Ck

*Vertical gridline intervals are 6 hours

November 2013 HFE Routing through Grand Canyon

*All times are MST

● Critical HFE monitoring sites

HFE Start - Increase above baseflow (~8,000 ft³/s)
 Peak Begin - Flow reaches 34,000 ft³/s
 Peak End - Flow decreases below 34,000 ft³/s
 HFE End - Return to baseflow (~8,000 ft³/s)

Glen Canyon Dam
 HFE Hydrograph
 HFE Start - 11/11 10AM
 Peak Begin - 11/11 9PM
 Peak End - 11/15 8PM
 HFE End - 11/16 1PM

Lees Ferry, RM0
 HFE Hydrograph
 HFE Start - 11/11 12PM
 Peak Begin - 11/11 12AM
 Peak End - 11/15 9PM
 HFE End - 11/16 6PM

National Canyon, RM166
 HFE Hydrograph
 HFE Start - 11/12 8PM
 Peak Begin - 11/13 2AM
 Peak End - 11/16 5PM
 HFE End - 11/18 11AM

Little Colorado, RM061
 HFE Hydrograph
 HFE Start - 11/12 1AM
 Peak Begin - 11/12 10AM
 Peak End - 11/16 4AM
 HFE End - 11/17 10AM

Pearce Ferry, RM279
 HFE Hydrograph
 HFE Start - 11/13 4PM
 Peak Begin - 11/13 9PM
 Peak End - 11/17 7AM
 HFE End - 11/19 2PM

Phantom Ranch, RM087
 HFE Hydrograph
 HFE Start - 11/12 6AM
 Peak Begin - 11/12 2PM
 Peak End - 11/16 7AM
 HFE End - 11/17 4PM

Diamond Creek, RM225
 HFE Hydrograph
 HFE Start - 11/13 6AM
 Peak Begin - 11/13 12PM
 Peak End - 11/17 12AM
 HFE End - 11/19 1AM

