

MEMORANDUM FOR THE RECORD

TITLE - 20BCL05 MFR Spill Gate Misoperation
PROJECT - Big Cliff Dam
RESPONSE DATE - 31 December 2020

Description of the problem

At 14:15 on 14 November 2020, the operator at Detroit Dam attempted to move gate 2 0.1 ft at Big Cliff Dam. Approximately 15 seconds later gate 1 was also raised 0.1 ft. After logging gate movement (~1 min), the operator observed gates 1 and 2 continuing to move. The communications system (Generic Data Acquisition and Control Systems, GDACS) was unresponsive to issued stop commands, causing both gates to open 1 foot before timing out.

Downstream flows increased from 3,800-cfs to 6,650-cfs (river rise/fall of 1.3-ft as a result of raising both gates by 1 foot. Within approximately 20-min the GDACS remote control was restored, and by 15:10 the North Santiam River downstream of Big Cliff Dam returned to a flow of 3,800 cfs. Preliminarily, it appears a background error window that was unviewable from an operator account led to the loss of remote spillway gate control. Investigative activities intended to identify the root cause and corrective action are underway. High flows resulted in debris issues at the Minto Fish Facility impacting the facility water supply. There were no fish onsite.

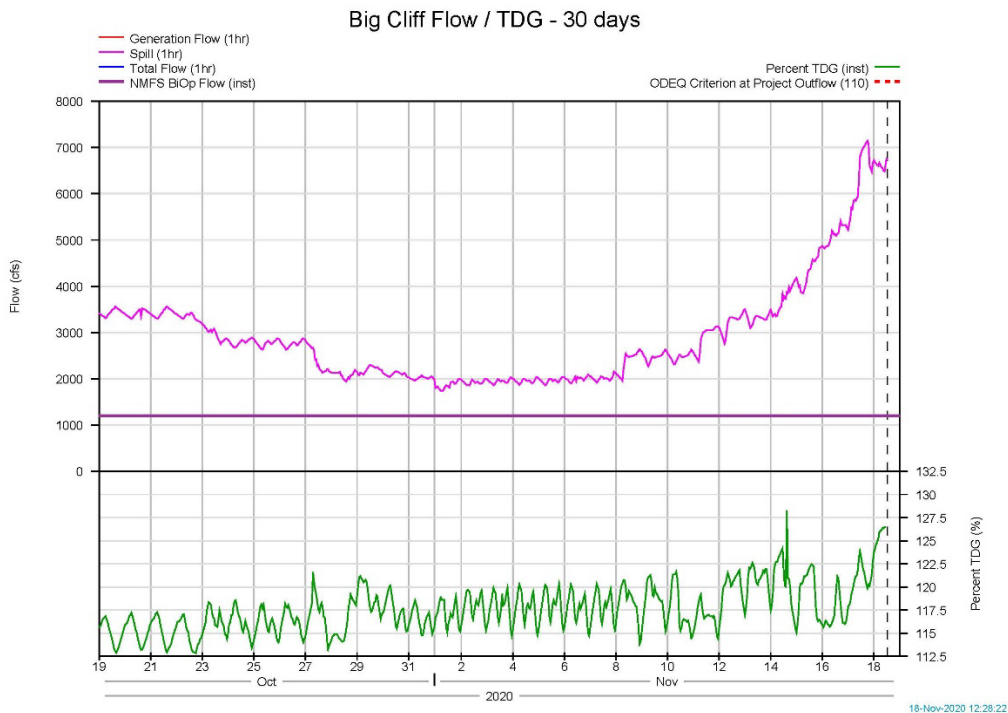


Figure 1. Flow (cfs) and Total Dissolved (%) Gas levels below Big Cliff dam.

Type of event

Malfunction of spill gates resulting in excessive discharge/stage impacting the Minto Fish Facility.

Impact on facility operation

High flows resulted in debris issues at the Minto Fish Facility impacting the facility water supply. There were no fish onsite at the Minto Fish Facility during this event.

Expected impacts on fish

Elevated TDG can have negative impacts to fish. TDG levels were elevated prior to this event. Ramp rate criteria are in place to prevent stranding of juvenile salmonids.

Comments from agencies

-----Original Message-----

From: Greg Grenbemer <Greg.A.Grenbemer@state.or.us>
Sent: Monday, November 16, 2020 7:46 AM
To: Ryan Couture (ryan.b.couture@state.or.us) <ryan.b.couture@state.or.us>; Elise X Kelley (elise.x.kelley@state.or.us) <elise.x.kelley@state.or.us>; Wertheimer, Robert H CIV USARMY CENWP (USA) <Robert.H.Wertheimer@usace.army.mil>; Walker, Christopher E CIV USARMY USACE (USA) <Christopher.E.Walker@usace.army.mil>
Cc: Tyler C Starkey <Tyler.C.Starkey@state.or.us>
Subject: [Non-DoD Source] Minto

Greetings, Sunday morning we had a first here at Minto. I came into work with alarms going off. There was a 9.6 ft differential behind the screens meaning almost no water flowing into the facility. Screen cleaner was trying to operate but it was only pushing air. Luckily we didn't have any fish on the facility except a few in the presort. I called Tyler in and we shut the facilities water system off to let it equalize. We hooked up the backup air compressor because the hard wired one was very hot and had been running for about 12 hours straight. I believe the high flows 6500 on Saturday had cleared the bank for the first time since the fire and the screen cleaner water inundated so quickly that the screen plugged and it couldn't operate without water present behind the screen. With the banks so compromised after the fire, I hope we can get some advanced notice of increased flows, thank Greg

-----Original Message-----

From: Kelly Reis <Kelly.E.Reis@state.or.us>
Sent: Thursday, December 17, 2020 11:58 AM
To: Walker, Christopher E CIV USARMY USACE (USA) <Christopher.E.Walker@usace.army.mil>
Cc: Anne Mullan (anne.mullan@noaa.gov) <anne.mullan@noaa.gov>; Elise X Kelley (elise.x.kelley@state.or.us) <elise.x.kelley@state.or.us>; Greg Grenbemer <Greg.A.Grenbemer@state.or.us>; 'Kelly Reis' (kelly.e.reis@state.or.us) <kelly.e.reis@state.or.us>; Lawrence Schwabe (Lawrence.schwabe@grandronde.org) <Lawrence.schwabe@grandronde.org>; Hudson, Michael <michael_hudson@fws.gov>; GRAMLICH Nancy <Nancy.H.GRAMLICH@state.or.us>; Wertheimer, Robert H CIV USARMY CENWP (USA) <Robert.H.Wertheimer@usace.army.mil>; Ryan Couture <Ryan.B.Couture@state.or.us>; Mackey, Tammy M CIV USARMY CENWP (USA)

<Tammy.M.Mackey@usace.army.mil>

Subject: [Non-DoD Source] RE: WFPOM: 20BCL05 MFR Spill Gate Misoperation

Chris, thanks for the opportunity to comment on the recent Big Cliff Dam spill gate misoperation.

I would like to expand upon Greg Grenbemer's comments emailed on November 16, 2020 and included in the MFR.

Based on the information provided, it appears the gate malfunction occurred in the early afternoon of Saturday, November 14, 2020. As Greg notes in his email, the following day, on Sunday morning, November 15, 2020, he arrived at Minto where alarms were going off resulting from a lack of adequate flow entering the facility. It is likely the high flows following the gate malfunction mobilized debris on the river banks for the first time following the September fires, overwhelming the screen cleaning system and limiting flows to the facility. Fortunately, very few fish were on station, or the results could have been much worse. As noted above, Greg contacted the Corps on Monday, November 16, 2020 (not the other way around) and requested advance notice for any future increased flows.

In addition to requesting advance notice for planned flow changes, procedures should be put in place to notify ODFW of such accidental flow changes as soon as the Corps is able to provide that notification. This will allow ODFW to better prepare to address any issues that may result, and may reduce the likelihood of fish losses and potential damages to the facility.

Regarding the impacts to already elevated TDG at the time of the increased flows, ODFW continues to advocate for a structural solution to address this on-going issue.

Thanks again for the opportunity to comment. Please let me know if you have any questions.

Kelly

Kelly Reis (she/her/hers)
Willamette Fish & Wildlife Policy & Program Manager
Oregon Department of Fish & Wildlife
P: 541-686-7880 | C: 541-517-2228
kelly.e.reis@state.or.us <<mailto:kelly.e.reis@state.or.us>>

Please email or call with questions or concerns.

Thank you,

Chris Walker
NWP Operations Division Fishery Section
503.808.4316
Christopher.E.Walker@usace.army.mil