

FEDERAL ENERGY REGULATORY COMMISSION

Office of Energy Projects

Division of Dam Safety and Inspections - Chicago Regional Office

230 South Dearborn Street, Suite 3130

Chicago, Illinois 60604

(312) 596-4430 Office - (312) 596-4460 Facsimile

In reply, refer to: P-2785, P-10809, P-10810

August 19, 2020

Via Electronic Mail

Mr. Lee Mueller

Boyce Hydro Power, LLC

lwmueller@boycehydrollc.com

Re: 12.10 Incident Report for May 19, 2020 Dam Flood & Breach
Secord Hydroelectric Project No. 10809
Smallwood Hydroelectric Project No. 10810
Sanford Hydroelectric Project No. 2785

Dear Mr. Mueller:

Your July 1, 2020 letter belatedly provided the 12.10 Incident Report for the May 19, 2020 floods and breach incidents for the Sanford, Secord, and Smallwood Projects. This submittal was due on June 16, 2020 as required in a May 28, 2020 letter from the Director of the Division of Dam Safety and Inspections.

The Incident Report has a narrative of events at the Boyce projects leading up to the failures of Edenville and Sanford dams and flooding damage at Secord and Smallwood dams. The incident report includes:

- a timeline of events;
- a description of operations and remediation of the Smallwood dam during and after the incident;
- the February 2014 dam break analysis for Edenville dam; and
- reservoir level and plant generation records up to the flood event.

A supplemental report is required by **September 15, 2020** addressing the comments included in the Enclosure of this letter. You may contact me at 312.596.4430 if you have any questions or concerns pertaining to this letter.

Sincerely,

John A. Zygaj, P.E.
Regional Engineer

Enclosure – FERC Comments on 12.10 Incident Report

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General

1. The incident report does not indicate that Mr. Richard D. Purkeypile listed as the Chief Dam Safety Engineer (CDSE) in the 2018 Owners Dam Safety Plan (ODSP) – Rev 6 or Mr. Shawn McGee listed as the CDSE in the June 2020 ODSP – Rev 7 was involved with the operations or assessment of project features during the May 2020 flood and dam failures. Explain why Mr. Purkeypile or Mr. McGee was not involved in the decision-making processes and flood fighting during the May 2020 flood.
2. In accordance with Chapter 6 of our Engineering Guidelines, an after-action review of the EAP activation should be conducted with any emergency management authorities involved in the May 2020 incident. As part of the review, all participants must discuss and evaluate, at minimum: the events or conditions leading up to, during, and following the incident; significant actions taken by each participant and improvements for future emergencies; all strengths and deficiencies found in the incident management process, materials, equipment, staffing levels, and leadership; and corrective actions identified and a planned course of action to implement recommendations. The results of the after-action review should be documented in an After-Action Report and submitted for our review.
3. As per section 12.10(a)(2) of the Commission's regulations, include a detailed description of the nature and extent of any upstream and downstream private property damages related with the breach of Sanford Dam and operation of Secord and Smallwood dams.
4. Provide surveyed elevations of highwater marks upstream and downstream, and at the powerhouse/spillway structure of Sanford, Smallwood and Secord Projects.
5. Provide tailwater levels-time plots for Sanford, Smallwood, and Secord Projects.
6. Per the 12.10 report:

“on May 19th, between 2:00 and -3:00 pm at Smallwood, operators discovered water gushing out of the lower level of the powerhouse building; water had risen so high in the tailrace that it has reached the level of an opening and was forced outside, causing earth erosion alongside the powerhouse building.”

Provide additional information (photos, tailwater elevations, etc.) regarding this matter. Per the provided photos, we were not able to confirm the tailwater elevation as well as other flood scenarios that could have caused the powerhouse flooding. This issue was also discussed in our July 15, 2020 letter on your consultant’s Smallwood Dam inspection report.

7. Submit any in-house dam safety inspection reports completed after the date of our last annual inspection and before the May 2020 flooding.

Operations & Data

8. Provide inflow and outflow hydrographs during the flood for the Secord, Smallwood, and Sanford dams and provide supporting calculations.
9. The gate opening/closing sequence report should be updated with the gate identifier for each of your projects. For example, on May 17th the gate opening at Edenville was documented as 4.5 feet at the beginning of the 24-hour period, 2 feet at Tittabawassee and 2.5 feet at Tobacco however, there are six gates at Edenville. Information for each gate's opening height instead of the cumulative opening height should be provided.
10. Clarify operational data records for Secord and Smallwood:
 - a. What type of data is provided below the columns labeled as "H2O_TMP_VALO", "U1_GATE_SCALED_VALO" and "KW_VALO" ?
 - b. There are two gates at each of these projects. Provide data for each gate.
11. Clarify operational data records for Sanford:
 - c. Why are different operational parameters presented for Secord and Smallwood than for Sanford? Why is "VALO" present on the elevation records for Secord and Smallwood but not for Sanford?
 - d. Provide tailwater elevations.
 - e. What type of data is provided under the columns labeled as U1, U2, and U3 Gate Scaled? Please provide an explanation of how these values correlate with headwater values.
 - f. There are six gates at this project. Provide data for each gate.
 - g. Turbine SPD: We assume this is turbine speed. Does this relate to wicket gate opening? If so, what are the corresponding flows?
12. Submit any photos taken between May 17 and May 20 that show any debris blockage at the Secord, Smallwood, and/or Sanford spillways.
13. The maximum observed elevation at the Smallwood Project was reported as 709.2 ft (NGVD29). Per the final construction report for the Smallwood PFM No. 8 (dated May 3, 2017), the minimum elevation of the left emergency overflow section is 709.28 ft. However, the May 2020 flood overtopped the emergency overflow section. Clarify this elevation disparity.
14. Provide information regarding the operational status of monitoring instrumentation and post-flooding monitoring data.

15. Provide information regarding the operational status of powerhouse intake stoplogs and the wooden stoplogs used to close the steel sheet pile diversion during the extreme floods at Smallwood.

Remediation

16. Provide a detailed description and photos of any damage to the Secord Project, including the status of any repairs.

17. Provide construction documentation for the emergency repairs completed for your projects after the May 2020 flood event. Include the following information:

- a. Foundation preparation of backfills.
- b. Gradation of earthfill materials, and placement, moisture conditioning, and compaction methods and equipment. Include loose placed and compacted lift heights and number of compaction equipment passes.
- c. Gradation, type and strength of riprap material and minimum riprap layer thickness.
- d. Gradation and type of bedding material under riprap.
- e. Criteria used to determine the extent of the riprap erosion protection.
- f. Plan view showing the different erosion repairs. Include typical cross sections of each repair type.

Document Content(s)

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