

OFFICE MEMO

TO: Jim Sung Senior Engineer, WR	DATE: 4/18/17
FROM: Larry Lopez, PE Engineer, WR	SUBJECT: Clifton Court Forebay Dam Intake Structure Monitoring

Purpose & Background

On April 16, 2017 the DFD scheduled initial operations of the Clifton Court Intake Structure after completion of repairs. Repairs were made to the downstream concrete wing walls and the apron. At the request of Dam Safety Branch (DSB) Chief, we monitored the initial gate opening at the intake structure for the first 3 hours, from 2100 hrs to 2400 hrs.

Discussion

We arrived on-site at 2030 hrs and entered facility at the gated entrance off Byron Highway near the Skinner Fish Facility. We notified ACC we were on-site and what our monitoring plans were for the duration. We also requested information as to the scheduled inflows and what gates were operational. We were approached by Trent Schaffer from Delta Field Division at the control structure. He was working at Skinner Fish Facility and was verifying our identities and provided information on the routine security patrols for the area and potential hazards. He was aware that DSB personnel were scheduled to be on-site for the initial gate operation.

The monitoring plan was to observe the upstream (U/S) intake area, downstream (D/S) intake area and the intake control structure periodically during for the first three hours of inflow operations. We specifically observed the repaired wing walls and any significant turbidity or turbulent flow changes that may indicate possible deterioration or failure. We also observed the radial gates during operation and any possible obstructions or debris that could interfere with the gates or flows.

Prior to opening the gates, we performed baseline inspection of the intake control structure. There were no significant findings during initial inspection. The radial gates were in the closed position, except for Gate No. 3, which had been removed for repairs. There were stop logs in-place of Radial Gate No. 3. We observed a minor water leakage through the stop logs. Only the top three inches of the D/S wing walls were visible during the monitoring activities.

The new repaired wing walls were thicker and were enclosed in steel plates. They were joined to the existing wing walls and the steel plate appeared to overlap a small section of the existing walls.

INSPECTION REPORT

Date: 4/16/2017
Start Time: 2100 hrs
End time: 1200 hrs

Weather: Cloudy, High 63/ Low 50, calm winds
Clifton Court Forebay WSE: -0.15 ft. @ midnight

Lake Conditions: Calm waters

Facility: Delta Field Division – Clifton Court Forebay Dam
Intake Control Structure: Lat: 37.83 Long: -121.557

Participants: Larry Lopez and Domingo Cardoza (O&M Dam Safety Branch)

Equipment

- Hand held Spot-light, On-site light tower

Observations

- **20:55 hrs:** Gate 1,2,4,5 in closed position, Gate 3 had stop logs in-place due to radial gate 3 refurbishment work. Gate 3 had some water leakage thru stop logs. U/S and D/S was clear of any noticeable debris. D/S right/left wing walls were approximately 0.3 ft. above WSEL.
- **21:00 – 21:15 hrs:** Radial Gate No. 1 was raised to 5.0 ft., No. 2 was raised 5.2 ft., & No. 5 was raised 4.0 ft. Gate No. 4 remained closed. We observed small woody debris and several large logs caught in the radial gate arms of Gate 1, 2, & 5. Heavy turbidity was observed D/S of gate No. 5 initially after it opened. After several minutes, the turbidity returned to normal.
- **21:45 hrs:** Gate No. 1 remained at 5.0 ft., Gate No. 2 was lowered to 4.65 ft., and Gate No. 5 remained at 4.0 ft. No other significant changes were noted.
- **22:30 hrs:** No Changes
- **23:00 hrs:** Gate No. 1 was lowered to 4.5 ft., Gate No. 2 remained at 4.65 ft., and Gate No.5 remained at 4.0 ft. No other significant changes were noted.
- **24:00:** No Changes

Summary

No defects, damage or deterioration of the concrete intake structure was observed during monitoring period. The surface water turbulence remained stable after initial radial gate opening. D/S surface water turbulence appeared to increase slightly during increase in higher tide elevation U/S of intake structure. The repaired left/right wing wall was stable during inflow monitoring period. At 2100 hrs: U/S El.1.68 ft. & D/S -0.31 ft., at 2400 hrs: U/S 2.39 ft. & D/S -0.15 ft.

Enclosures

Photos 1 – 4



Photo 1- View D/S of Intake control structure from right side during inflows.



Photo 2 – View of D/S right wing wall repair and surface turbulence.



Photo 3 – Large log caught in radial gate arm.



Photo 4 – Staff gauge on end of radial gate (typical).

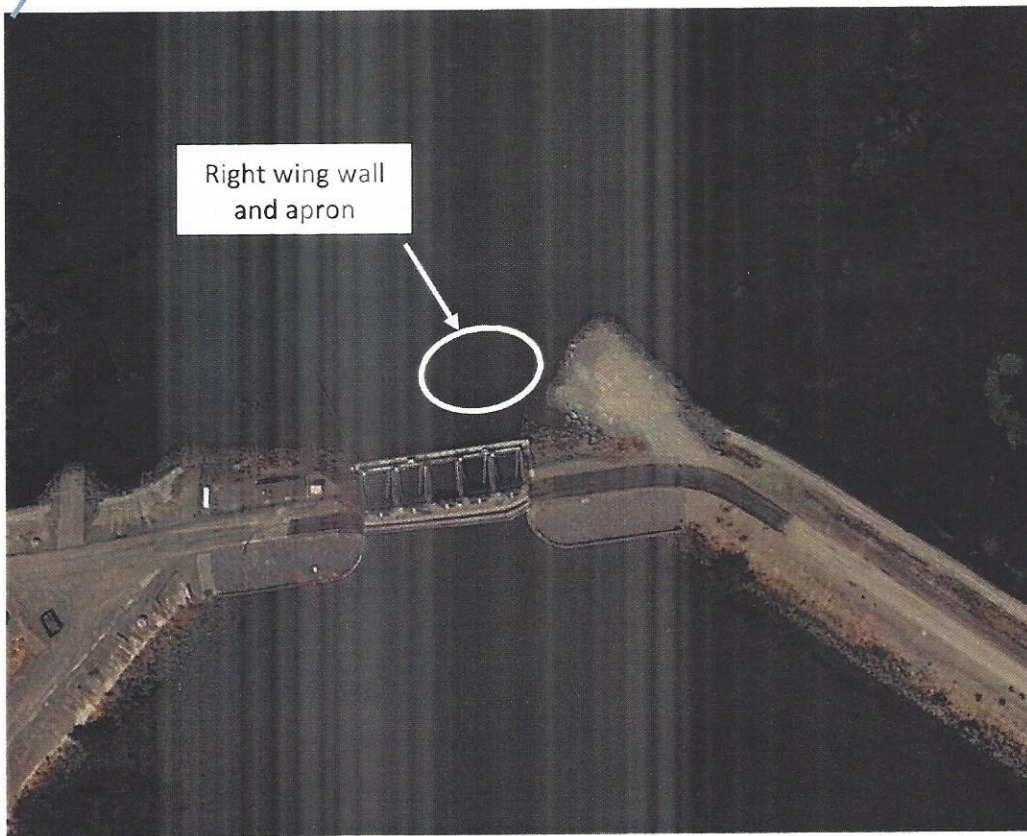


Figure 1