**McNary Dam Emergency Juvenile Fish Bypass**

In the event that either primary dewatering screen or the transportation flume becomes inoperable at McNary Dam, juvenile fish will be routed to the tailrace via the emergency bypass.   To use the emergency bypass, all flow from gatewell orifices must be stopped and dewatering bulkheads are dropped into the juvenile collection channel just upstream from primary dewatering screens (Figure 1.c). Four floor slots (2 ft x 8 ft each; Figure 1.b) are opened in the juvenile collection channel and flow is returned to the juvenile collection channel from gatewell orifices.

Flow (and fish) now pass through the floor of the juvenile collection channel through the four slots at about 10 fps and enters the old (upper) ice and trash sluiceway. Flow then runs north the length of the powerhouse slowing down from the 10 fps to about 6-7 fps and a depth of around 6 feet. Flow gradually accelerates to about 11 fps with a flow depth of about 3.5 feet as it cascades into the wet well (Figure 1.a).

The wet well is 16 ft x 20 ft wide and has a standing pool of water that is 12 to 19 ft deep. Water surface differences from the old sluiceway to the wet well are roughly 25 feet. Flow from the upper sluiceway enters the plunge pool at velocities in the low 40 fps before mixing with the plunge pool, that has an average velocity of 2 fps. The waterfall detaches from the vertical wall and allows for the development of a flow recirculation. Most of the flow transitions from 40 fps to 18 fps prior to passing out of the wet well. Flow reorientates horizontally as it passes though the 3 ft x 12 ft orifice at the downstream extent of the plunge pool, and then passes downstream to the lower ice and trash sluiceway (Figure 1.e).

Flow in the lower ice and trash sluiceway slows from 18 fps when passing through the orifice to around 3 to 4 fps and has a depth of around 8 feet. The flow exits the emergency bypass route via a weir at the end of the ice and trash chute and then enters the tailrace.
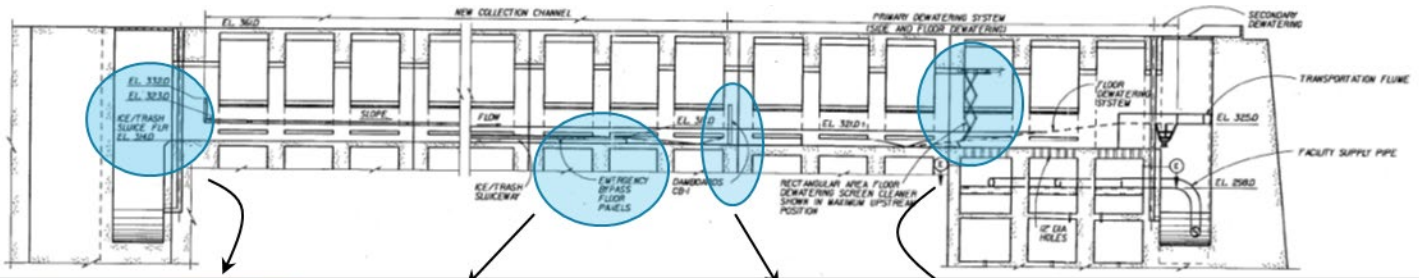
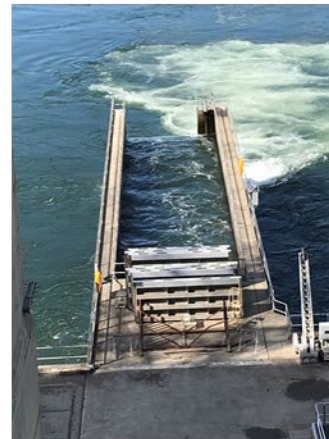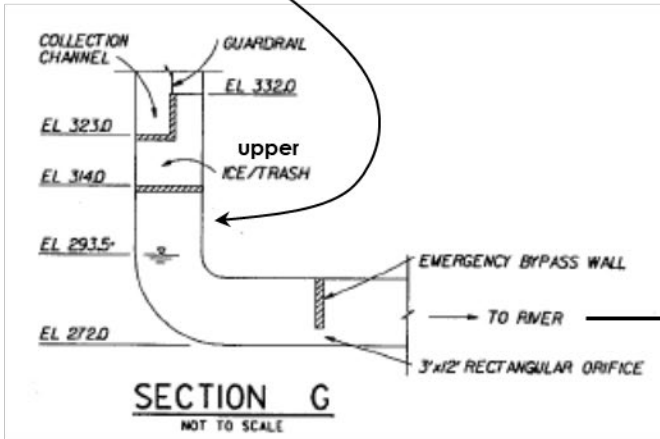b. Floor panels; four slots, 2 x 8 ft each

c. Dewatering bulkheads

d. Rectangular screen cleaning brush

a. Flow down wet well

e. Lower ice and trash sluiceway

Figure 1. Schematic of emergency bypass system at McNary Dam (not to scale).