

Subject: B2CC Interior channel Inspection 11-4-08.

1. Attendees: Mike Langelslay, Thareth Yin, Randy Lee, Matt Hanson, Pat Hunter, Jon Rerecich, 3 other Project and Operations personnel.
2. The inspection took place from about 10am to 11:45 on 11-4-08. The Channel was dry with the bulkhead in place. There was a maximum of about 2 inches of water in the channel. Generally, the concrete of the channel was in excellent condition with only minor shrinkage cracking, minimal erosion of the concrete surface, no exposed aggregate and new looking concrete and joints in most locations. There were several joints listed below, that have damage that either should be monitored or repaired. All stations listed in the attached photos are approximate:
3. Most joints in the floor were ¼” to about 1” at the maximum gap. Many of the joints had been filled with a flexible joint sealant. At most locations, the joint sealant was coming out of the joint and was not adhering to both sides of the joint.
4. The epoxy surface in the powerhouse was in excellent condition. There was only one location that I found that had a 2” diameter hole where the wall had been impacted by debris. There were no locations where there was loss of epoxy and even at the high velocity locations on the ogee or at the base of the ogee.
5. The gate sealed very well with almost no leakage.
6. The struts and precast panels appear to be in good condition. There is spalling on some of the strut grouting, but this is not considered a problem.
7. The flow deflector in front of the high flow PIT antennae does not look like it has been impacted by debris. There are no cracks or spalls in the deflector.
8. The flow deflector panel installed to reduce spray, etc at the exit of the Powerhouse channel to the outfall channel appears to be in good condition without damage.
9. The Hi Flow Antennae joints appeared to be in very good condition. Generally, joints around the PIT antennae were in good condition. However, the flexible joint sealant where the left wall (looking downstream) and the antennae floor meet was missing or not adhering to the corner. The surface of the antennae was also in good condition.
10. The outfall concrete was in good condition. The condition or profile of the plunge pool was not known. Randy Lee stated that the most recent plunge pool inspection was at least 1-2 years ago.
11. Spot checking of the outside of the channel with respect to the tailrace of the second powerhouse showed no erosion or loss of riprap to cause concern for undercutting the channel exterior foundation. The channel was not viewed along the whole length of the channel from the 2nd powerhouse. This should be walked to insure there is no loss of riprap.
12. Conclusions:
 - a. Any spalls over 2 square feet and greater than 1” should be repaired with a material as designated by Jim Hinds. In any repair, the gap at the

monolith joints should be maintained. Some of the repairs appeared to have been installed across the joints where they have bonded to one side or the other and separated from the original channel.

- b. Some of the larger spalls may need a concrete patch rather than a grout or epoxy grout surface. Any concrete patch should be installed with reinforcement to anchor the patch and a mix design of at least 6000psi to match the surrounding concrete. Any repair surfaces will be required to be dry during repair or the repairs will likely not hold. If repairs are performed with care, they should be permanent.
 - c. PIT Antennae – the corner where the left wall and antennae meet should be resealed with flexible joint sealant.
 - d. It is recommended to have an engineer walk the exterior of the channel from the stairway at the second powerhouse to the outfall to insure that erosion of the riprap is not occurring.
 - e. All other components of the Corner Collector were in good condition.
13. If you have any questions, please contact Matt Hanson, 503-808-4934.

Matt Hanson
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Photo 1 - Typical monolith join with 1/4" gap



Photo 2 - Typical loss of flexible sealant. Joint gap ranged from ¼ to 1" on floor joint



Photo 3 – Sta 21+30 4 ½" vertical on left wall by 1" wide to the downstream side of the joint



Photo 4 – Sta 23+84 right side, spall repair coming out. 14” high by 18” wide at max width.

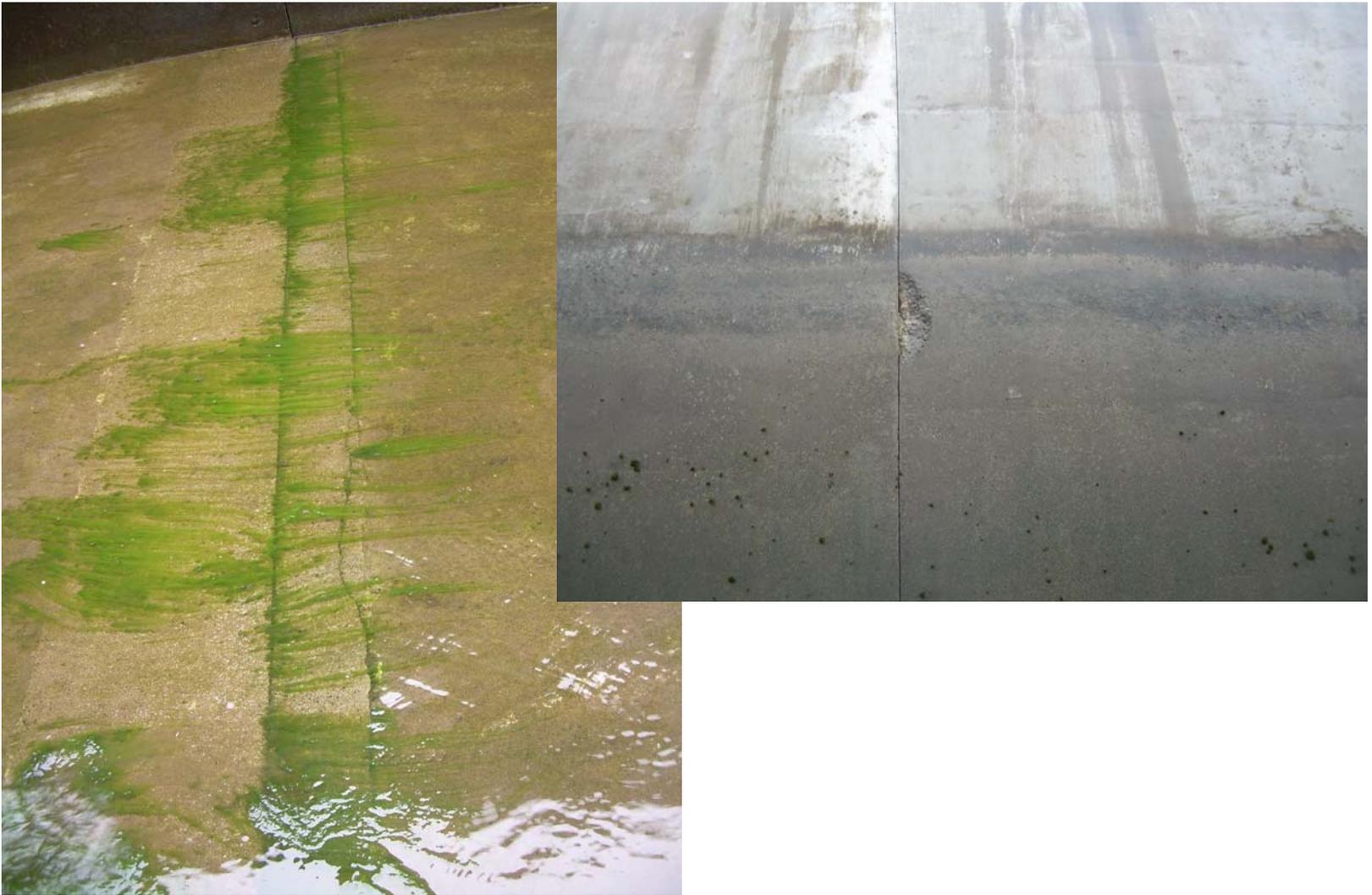


Photo 5 – Sta 24+86 iover crack, spall 18” by 6” located 14’ up on wall



Photo 6 – Sta 25+46 left side channel spall repair 28" high by 8" wide max. Spall is not adhered to concrete



Photo 7 – Sta 26+06 18" high by 4" wide by 1/2" deep

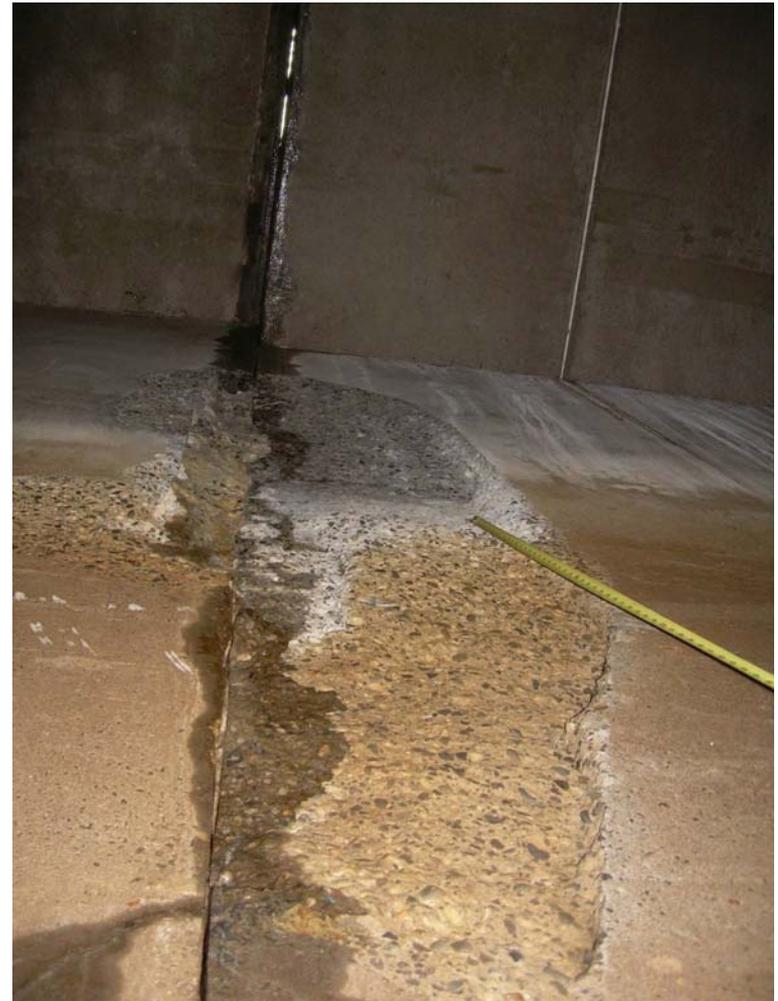


Photo 8 – Sta 12+78 right side 48" by 2" deep, left side channel spall in 2 locations, a 4' lower spall and a approx 15' high by 36" wide larger spall



Photo 9 – Sta 11+58 here is also a spall in the channel invert, 2" deep by about 30" long ad 24", similar cracking noted at Sta 7+05 where there are 2 - 16" wide spalls about 12" downstream and 1" maximum depth

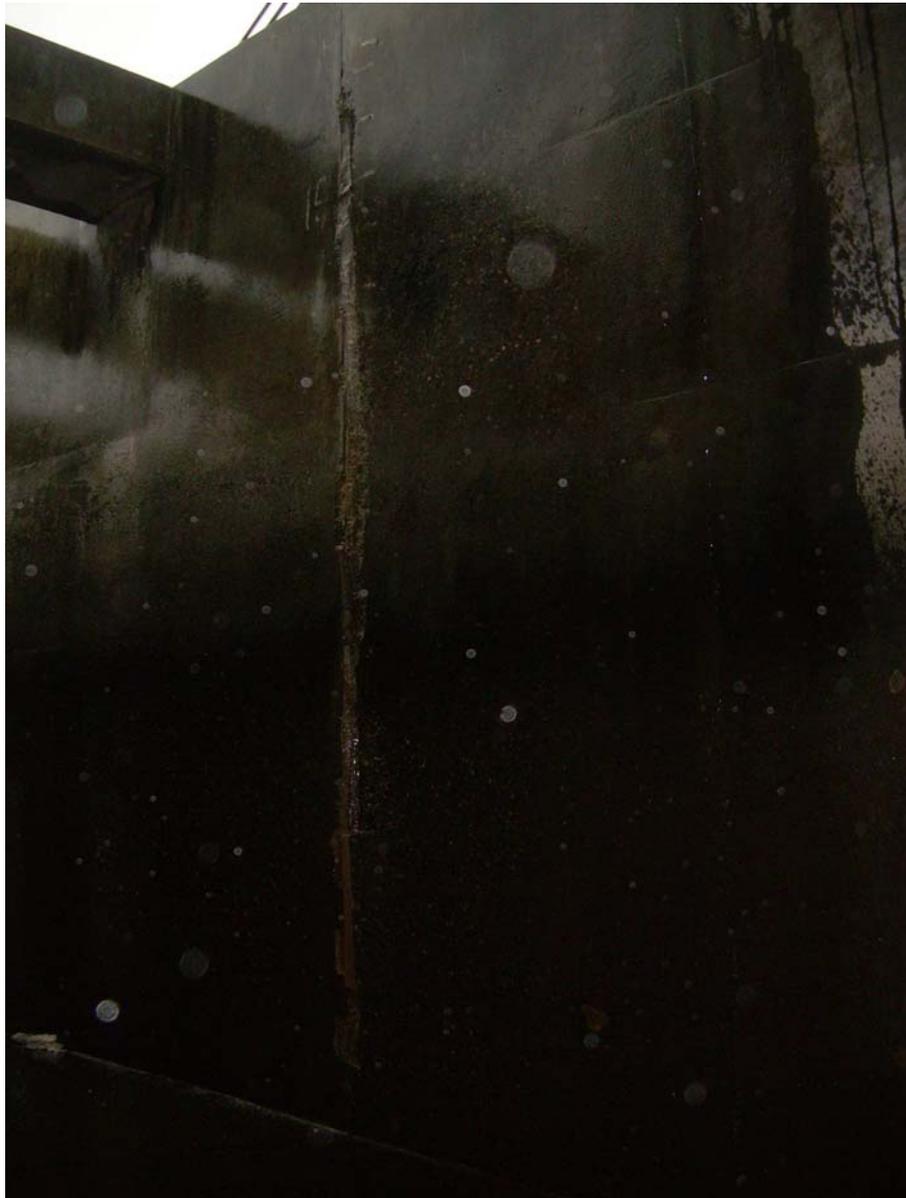


Photo 10 – Sta 25+46 left side channel spall repair 28" high by 8" wide max. Spall is not adhered to concrete

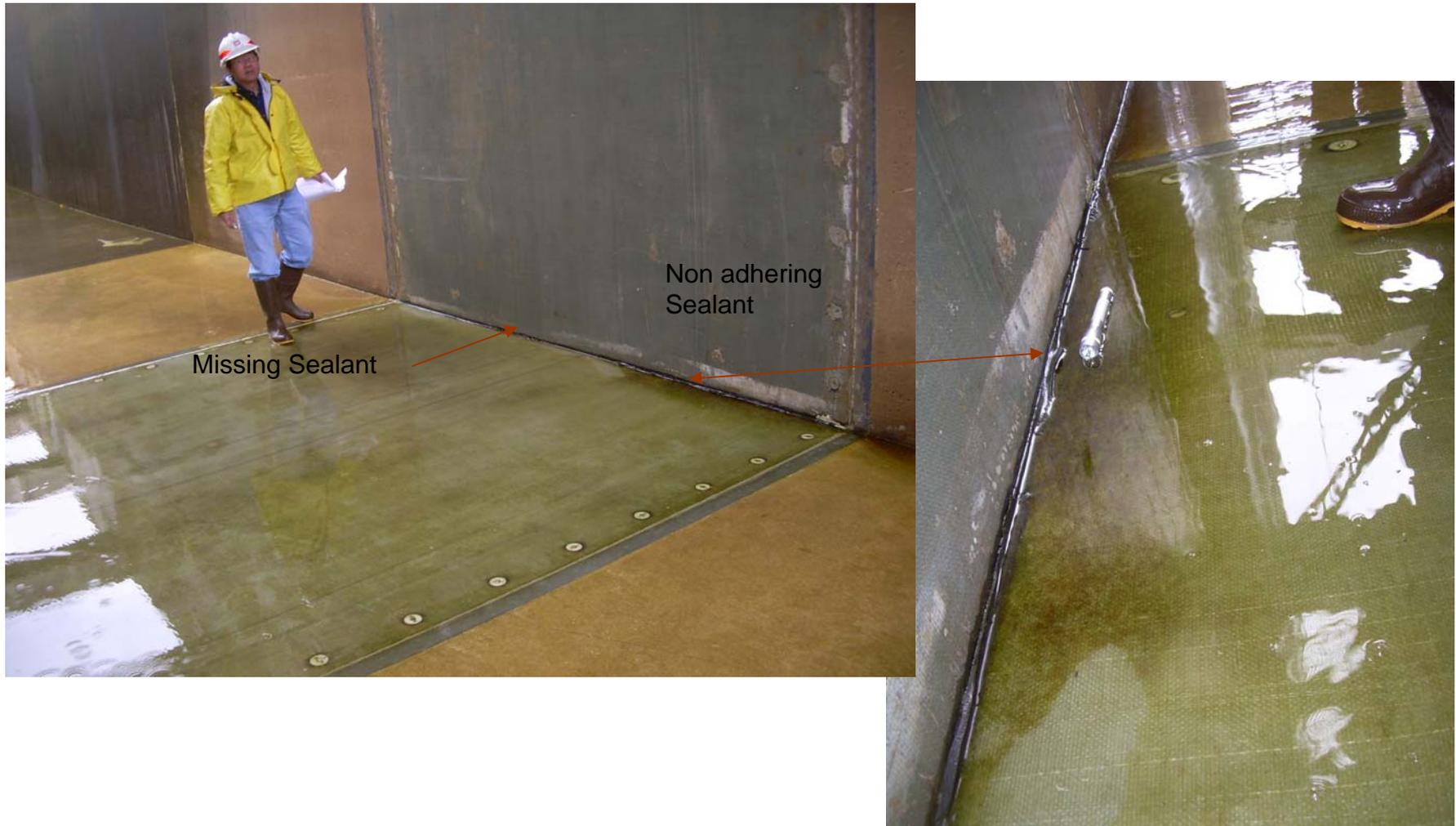


Photo 11. PIT Antennae Flexible Joint Sealant Missing or Not Adhering to Joint Between the Wall and Floor.