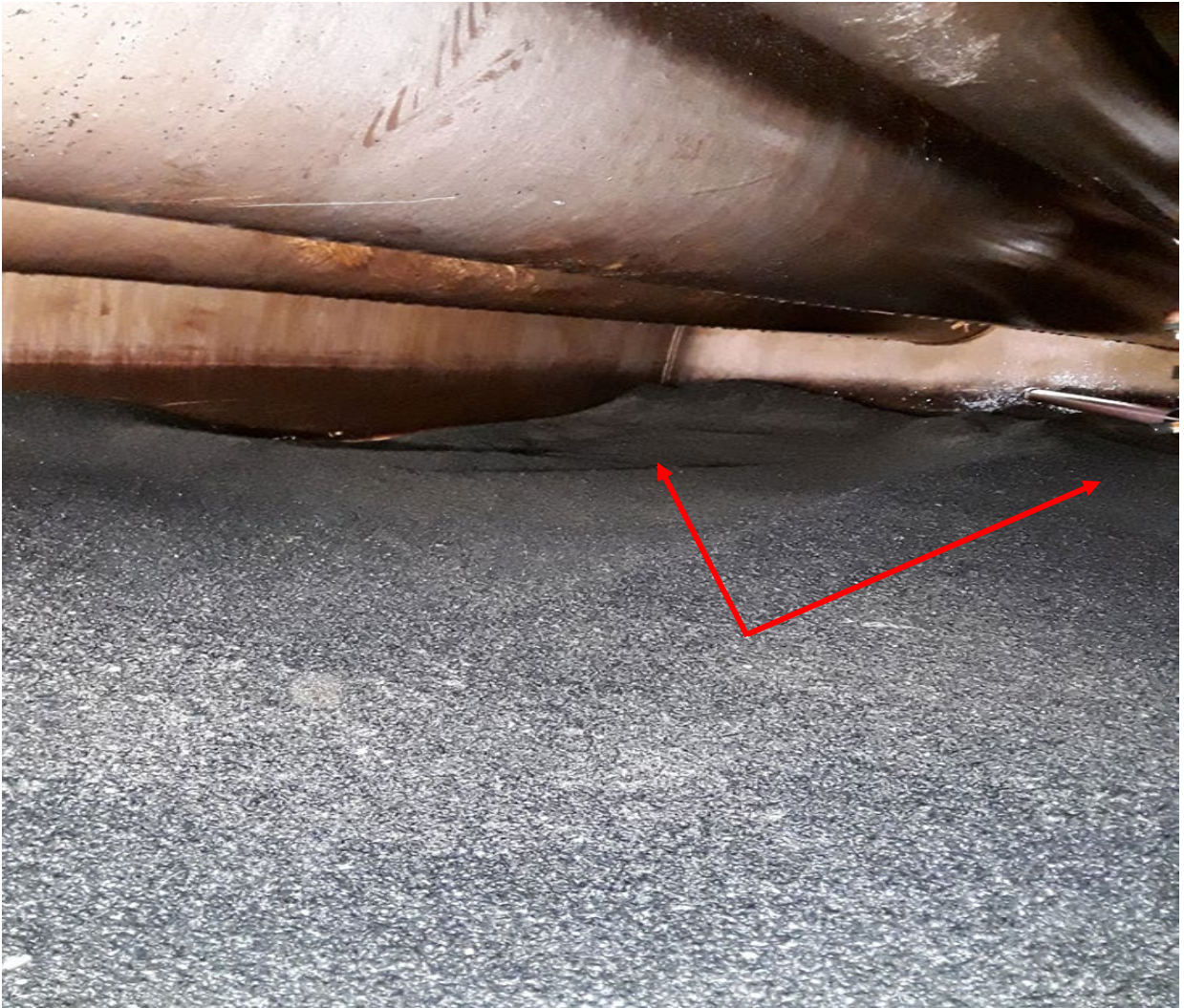


## FILTER EIGHT (TRAIN 6)

Filter 8 (train 6) is one of four 10ft x 50ft horizontal pressure filter at the Clear Creek CSD Water Treatment Plant (WTP). WTP Staff has been monitoring this filter for the last year since a decline in performance was discovered. The inside of the filter is separated into 3 individual cells. The media consists of anthracite coal, silica sand and layers of graded gravel.

Cell A: This is the cell that is closest to the WTP main building and has the most visual issues with the filter bed. All 4 corners of the cell have a depression in the media, which could be a sign of ruptured underdrain piping.



Cell A: South East corner



In the other corner of the same vessel:



Cell A: South West corner



Same vessel, opposite side:



Cell A: North East corner

Same Vessel, Opposite side:



Cell A: North West corner – this area has between 5" and 9" of anthracite. Typically the average depth is 14 inches of each layer.



Cell B: This is the middle cell of the filter. This cell has a flat media bed and the anthracite was an acceptable distance from the centerline of the surface wash bars. An area of gravel in the sand was discovered in the middle of the cell. This could be a sign of a ruptured underdrain as well. See the below photos.



Cell B: Flat bed with 2" to 3" to the centerline of surface wash arms.

Cell B: South West corner – depressions in anthracite media.



Cell B: Slight depressions in media



Cell B: Small area of algae and tiny mudballs



Cell B: Algae & Mudball build up.



Cell C: Cell C is the cell that is farthest North, closest to dam and its condition was similar to Cell B. The bed was flat with some areas of small mudballs. The media was 3.5 to 5" from the centerline of the underdrain.



Cell C: Algae & Mudball build up.



Underdrain: Sand was found in the underdrain back in March of 2020 and was cleaned out. The photos below show how much sand is getting past the gravel and into the underdrain. This too is a sign of a ruptured underdrain or lateral.



Underdrain – Train Six, Filter Eight.



Removal of material deposited into the underdrain of train 6, filter 8.



Underdrain Cleanout – Filter eight.