AQUA HD
Separation & Filtration Systems

CASE STUDIES

AQAUHD SOLUTION FOR WATER RECYCLING IN PACK HOUSES

CARROT PACK HOUSE WATER RE-USE

Location: Israel

Application: carrot packhouse

Water Source: municipal water

Challenges: cost and space

Average turbidity removal rate: 89%

Average TSS removal rate: 90%

Process description

1. Water was continuously discharged from the washer (for few seconds every few minutes) to a designated pit and was recycled to the head of the washer to use for produce conveying. When solids loading in the pit were too high (every few days), water was discharged from the pit and fresh water was filled in the washer.

2. The AquaHD system was installed next to the pit and was continuously pumping water from the pit, cleaning it and sending the clean water from the pit to the head of the washer. This configuration allowed for continues operation of the pit without the need for the frequent water replacements in the pit that resulted in high flows of highly loaded wastewater to the sewer lines.

SWEET POTATO PACK HOUSE WATER RE-USE

Location: Israel

Application: sweet potato packhouse

Water Source: municipal water

Challenges: cost

Average turbidity removal rate: 98%

Average TSS removal rate: 93%

Process description

1. The daily operations of the packhouse included discharge of the water from the washer at the end of the workday (8-10 hours of daily operation) resulting in high flow in a short period of time. In order to overcome this obstacle, an equalization tank was installed at the head of the system. The tank is continuously mixed to prevent settling of solids inside the tank. Water from the de-stoner wes also directed to the equalization tank.

2. Following the equalization tank, the water was pumped into the hydrodynamic separator. Since most particles in the water are very small (less than 50 microns), a process of enlarging the particles size and density using coagulation and flocculation agents were used.

The process was applied by injecting coagulant and flocculant through mixing tanks before the hydrodynamic separator.

3. Treated water from the separator was sent to a clean water holding tank and was sent back to the washer to be ready for next day operation. Separated particles were sent to a gravity sludge thickener. Sludge from the thickener was pumped for further sludge dewatering and water from the top of the thickener was sent to the clean water tank.

4. Dewatered sludge was collected to a bag where water was allowed to drip to a designated tank and was pumped back to the process. Overall, the system was able to recycle 92-96% (depending on inlet solids concentration) of the water back to the washer.