

Hydro MicroScreen™ demonstrates efficiency savings at carrot processing facility

Project profile

Objective

To evaluate the performance and demonstrate the efficiency improvements of the Hydro MicroScreen™ when applied to carrot process water.

Solution

Hydro International tested the Hydro MicroScreen™ MS28 and demonstrated significant performance benefits over the client's existing technology, which would lead to greater operational efficiency and cost savings.

Situation

A large US carrot processing company wanted to improve its process water treatment at its premier baby carrot processing facility in California in order to reduce the handling cost of carrot pulp and solids and improve its water recycling efficiency.

Problem

Baby carrots are created by cutting carrots into small segments, then peeling, polishing and washing them. This process generates significant quantities of carrot pulp that must be removed from the process water and disposed of.

The facility was using a gravity disc screen with a 185-mesh (81 µm) screen opening to remove these solids from its process water, and it was feeding the effluent to a spray system in order to recycle the process water onto its fields.

Solid content in the spray system reduces the effectiveness of the spray, however; reducing the solids content in the spray system would increase the area that the spray could cover, and increase the system's efficiency—saving the company money.

In addition, producing drier solids would reduce the weight of pulp, cutting the cost of handling and disposing of this by-product material.

Product profile

- Rotating belt screening of food processing water
- Exceptional solids removal performance
- Low energy, small footprint
- Range of unit and belt configurations to meet varying operational parameters
- Optional dewatering compression zone



The Hydro MicroScreen™ MS28 test system in action

Solution

The company approached Hydro International and requested a pilot test of the Hydro MicroScreen™ rotating belt screen to evaluate the system's performance for carrot processing applications.

Glenn Murphy of Hydro International's pilot testing team reviewed the facility's requirements and recommended the MS28 model with a 158/1000 belt.

Glenn designed and set up a test system tailored to the facility's specific influent flow rate, adjusting the system's dewatering zone compression in order to generate dry solids output on startup.

He also advised the site owner on optimal operation protocols, recommending solutions to common issues such as loss of system pressure during periods of high demand on the water supply line.

Outcome

The Hydro MicroScreen™ performed extremely well during testing, achieving an overall total suspended solids (TSS) removal efficiency measured at 90%.

The Hydro MicroScreen™ removed 100% more solids than the existing screening technology for a given volumetric feed.

The more efficient dewatering process also produced a visibly drier solids product, achieving a 30% reduction in pulp solids output.

As part of the testing, the Hydro MicroScreen™ treated both regular untreated influent and effluent from the gravity disc screen, to evaluate how much material the existing system was missing.

During the periods that the gravity disc screen's effluent was directed to the Hydro MicroScreen™ it was calculated that the gravity disc screen was missing 240 cu. ft. (6.8 m³) for every 8-hour shift of operation.

Hydro MicroScreen™ performance versus gravity disc screen:

100% more solids removed

30% reduction in solids by weight

240 cu ft of missed solids captured every eight hours



The Hydro MicroScreen™ influent feed



30% reduction in solids output



Hydro MicroScreen™ produces effluent with visibly reduced solids

Learn more

To learn more about how Hydro MicroScreen™ can help you to manage water more effectively, visit hydro-int.com, search **Hydro MicroScreen** online or contact us:

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