Recycling dairy farm wastewater for irrigation purposes by using Amiad ABF filters
Background

High Plains Ranch Dairy is a farm located in southwest Kansas, 12 miles north of Ulysses. The dairy uses fresh water on a daily basis for its normal operations such as washing the cows, the milk-producing process and for the supply of drinking water for the cows. These tasks produce wastewater, mostly from washing the cows and the milking process. For environmental reasons, the farm cannot dispose of water classified as wastewater and most choose to collect it into local ponds. Over time, these fill up with the raw water and it’s the farm’s responsibility to empty the ponds. A unique approach to do this is to use the water for irrigation purposes.

Southwest Kansas is known as a great area for growing corn, wheat, cotton and other crops and the most common irrigation method is the use of the center pivot. The water has high levels of organic material, and this is also a way to inject nutrients into the soil.

The Challenge

In order to use the pond water for irrigation, a filtration system was required prior to the center pivot with the ability to handle high loads of suspended solids as well as the suspended organic loads from the pond.

The existing 4 manual perforated screen filters, with a filtration degree of 3,500 micron, were functioning properly for a while, however, each time the filters got clogged, the dairy had to interrupt irrigation in order to clean the screens. This led to longer-than-planned irrigation times and the dairy incurred unexpected labor costs.

At this point, High Plains Ranch Dairy approached Jas Dale from Teeter Irrigation, one of Amiad’s dealers, for a solution.
The Results

The 2 ABF filters were installed by the dealer and the changeover to the Amiad filters proved to be a success story. During start-up, for testing purposes, the pump was set for 500 gpm (114 m³/h).

After verifying that the pivot nozzles were clean, the flow rate was increased to a maximum flow of 750 gpm (170 m³/h) for a short time period. As of results, the pump pushed 1,200 gpm (272 m³/h) through the filters.

Over the next month, the dairy was able to pump a total of 15,000,000 gallons (56,781,176 liters) of manure water with no clogged nozzles and keep the pond empty of water.

The Amiad ABF-6000 filters provided efficient filtration with very low total water loss, proper self-cleaning of the screen, low power consumption and better filtration performances.

The original filters by the other vendor were disassembled and removed from the site.

The Solution

Based on past experience, and after discussion between the dealer, Amiad’s RSM and Amiad’s application engineering department, 2 Amiad ABF-6000 automatic filters were recommended as a solution, each with a 1,500 micron perforated screen.

The filters were supplied with an Amiad AML 2 control panel and designed to operate by DP (differential pressure) at a set point of 7.3 psi.

| The Solution at a Glance |
|--------------------------|-----------------|-------------|
| Flow rate | Water source | Filtration degree |
| 2 x ABF-6000 filters | 1,200 gpm (272 m³/h) | Wastewater pond | 1,500 micron |
Interested in learning more about our filtration solutions?

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