



Application report

Turbidity in Treated Fishery Waste Water (Effluent)

In all seas of the world, large amounts of fish are being caught and processed to food fish or fish meal and fish oil.

Along the Pacific coast of Latin America, between Ecuador and the Southern tip of Chile, about 60 % of worldwide fishing is carried out. Peru alone produces 30 – 40 % of the global production of fish meal and fish oil.



Chimbote Bay, Peru

Along those roughly 6'000 km, there is Chimbote Bay approximately 400 km north of Lima. More than 70 % of Peru's fishing industry (fishing, processing and sale) is located in Chimbote.

Benefits

Monitoring the turbidity of processed sea water to fulfill the standards of that country online.

In the case of Peru, the maximum amount of solids in water to be discharged into the sea is set at 700 mg/l (ppm).



Separation fish/sea water

Typical application

At a distance of about 10 km from the bay, a service platform is installed at which the ships unload their catch. This fish is pumped together with sea water (pumping water) from the platform to be processed onshore in pipes of about 16" diameter. Small companies process about 40 t of fish/h and the largest companies process up to 220 t of fish/h. For this, 1 – 1.5 m³ of water is needed per ton of fish. This water is soiled with fish parts, fish blood, fish bones, fish oil etc. On-shore the fish is first separated from the water. This fish is then processed to food fish or to first quality fish oil and fish meal.

The effluent is separated from oil, fat and solids in several treatment steps. All these solids are subsequently also processed to fish meal of a somewhat lower quality.

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At the end of the process, salt water is fed from the plant into the sea as effluent in pipes of 3 – 14" diameter, depending on the amount of effluent.

In these pipes, the turbidity is measured using a PhaseGuard T with Varivent® housing or a mounting flange. All parts of the instrument contacting water have to be manufactured of Hastelloy. The output signal of the instrument (0 – 100 %) can be correlated to mg/l of solids at the plant. (In Peru 700 mg/l correspond to a PhaseGuard output signal of about 34 %).

Products

SIGRIST product and configuration:

- PhaseGuard T
- Matching Varivent® housing or mounting flange
- Optionally: SICON control unit

Parameter adjustments

- Threshold value for preliminary alarm and alarm to be determined with the customer

Advantages of SIGRIST PhaseGuard

Customer benefits

Instrument design

- LED light source, no change necessary
- Sealless, no changing of seal necessary
- Easy connection in Varivent® housing

Communication to SPS

- 4 .. 20 mA connection
- Optional connection of a SICON

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