

## JORDAN RIVER HYDROELECTRIC POWER STATION

Date: 2005

Country: Israel Distributor: Palbar

This installation is on a pipeline that serves a hydroelectric power station.

The pipe is 3 to 4 kilometers long, and goes from a small lake to the Jordan River. The pipe sizes span from 16 inches to 30 inches. At the end of the pipeline there is a drop of 60m, at the bottom of which is a hydroelectric power plant. The problem was the build-up of limescale. There was a ring of very hard limescale 80mm thick all along the pipe. As the power is generated by the flow of water, clearly a layer of limescale this thick is a major problem.



The pipeline to the power station was coated with a thick layer of extremely hard scale. Hydroflow prevented new scale from forming and began to remove existing scale.



The water level in this area often rises above the level of the pipes



The same installation in 2010. No damage to the HydroFlow despite periods of submersion.

In 1998 the power station installed a Custom Hydroflow. After one year they knew it was successful as deposit of limescale stopped. Existing limescale has consistently reduced by a few millimeters each year (the rate of removal is slow as the layer of limescale is extremely hard and dense). In 2003, two 26" Custom Hydroflow were installed, and after two years another Custom Hydroflow was also installed.

### Results

The plant is very happy with the success and with each new pipe installation, Hydroflow is also installed. The water level in this area often rises above the level of the pipes, and hence the units become completely submerged on occasion. As the conditioner units are completely waterproof ("IP68 rated"), this does not harm them. The Power Supply Units are installed above the high-water mark. While the signal will be reduced when the unit is under water, you can see that the units are not damaged and continue to work when the water level drops again.

Prior to the Hydroflow, the costs for cleaning the pipe by mechanical and acid systems were five times that of the cost of the Hydroflow. The replacement of completely blocked pipes cost several million dollars. The effect of limescale blocking the pipe sometimes caused flooding, as the pipe could not withstand the full water flow. With the installation Hydroflow this problem was solved.

## Case Study - Petroleum Production Scale in the Recycled Water Line

Updated on: June 30, 2014

**Customer:** Natural gas and oil producer in Nikiski, Alaska, USA.

**Installer:** Mike Colton, *HydroFLOW* Alaska. Phone: 907-260-5995 Email: [hydroflowalaska@alaska.net](mailto:hydroflowalaska@alaska.net)

**Water conditioning device:** *HydroFLOW* 120i.

**Application:** Offshore petroleum production operation. The device was installed on a 4.5" outer diameter recycled water pipe, after the separator.



**Goal of product evaluation:** Reduce scale accumulation inside the pipe and possibly soften existing scale deposits. The scale is predominantly made up of iron. In addition, lab analysis of the scale detected small quantities of magnesium, calcium carbonate and silicon.

**Installation date:** October 17, 2013.

**First inspection:** October 23, 2013 (*HydroFLOW* on for one week).

**Second inspection:** November 18, 2013 (*HydroFLOW* on for one month).

**Third inspection:** December 30, 2013 (*HydroFLOW* on for two months).

**Final inspection (if necessary):** Scheduled for June 2014 (*HydroFLOW* on for seven months).

### October 17, 2013 - Installed *HydroFLOW* 120i

