Case history brief:

Location:	Saint-Petersburg, Russia
Customer:	Danone Unimilk Petmol
Application:	FOG effluent from diary producing plant
Capacity:	up to 280 m^3/hr, 3800 m^3/day daily
Clarification:	SS, COD, FOG removal
Chemicals:	Aluminium based coagulant PAC and anionic flocculant, acid and alkali for pH control
Installation:	Turnkey, 2012

Case history features:

The problem

The factory had an existing WWTP consisting of a drum screen, a DAF unit with chemical treatment and a belt press. The existing WWTP was not performing well, although it was new, due to the lack of a buffer tank, bad DAF design, porly operating and not automated pH-control and chemical treatment equipment.

Waste water had a changing pH value (2-13), inlet flows between 50-280 m^3/hr, frequent product loses with peaks of FOG, COD and SS; whey was discharged with the effluent.

The solution

Following pilot plant trials, KWI designed a brand new process based on physical-chemical treatment. Biological treatment was not possible due to the low amount of space available in the plant.
A new pumping station was installed after the exisitng screen (3 mm mesh) and a new buffer tank with bottom aeration and surface mixers was also installed. The buffer tank has volume of 1400 m^3 total. Keeping the level at 50-70%, with over 6 h retention time, with good bottom aeration and surface mixers, it gives perfect homogenization.

A coagulation tank with mixer and final pH-control was installed before a Minicell MNC 27/1 DAF clarifier. Clarified water from the MNC-27 is discharged to the city sewer. Sludge with consistency of 2-3% is discharged to existing dewatering press. The belt press produces (with the use of lime and poly) a max dryness of 10%.

KWI Russia supplied a turnkey solution (excluding civil work) including design, equipment supply, installation, piping, wiring, automation and start up.

Raw water:		**Outcoming water:**		**Details:**
Flow,m^3/day:	3800			Start up : 2012
COD, mg/l:	2800-8500	COD, mg/l:	1000	PAC (18%): 275 mg/l
FOG, mg/l:	70-500	FOG, mg/l:	0.75	Anionic poly: 3.6 mg/l
SS, mg/l:	1000-5000	SS, mg/l:	200	
pH:	2-13	pH:	6.5-7.5	
Temp:	35-37 °C	Temp:	25-36 °C