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First application and market replication projects
Call 2011

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Monitoring plan

water reuse 3.0

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Project website: **www.iwec-water-reuse.eu**

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MONITORING PLAN

In the grant agreement have been appointed a number of work packages. One of the work packages is WP4 Operating and Monitoring. This document origins from an earlier sent plan in D1.4. The content of this monitoring plan is based on that. Things to be monitored:

1. ENERGY

During the project there should be a reduction of 65.000 kWh of energy. This represents a reduction of 30% in relation to the current situation.

- The energy consumption of the new installation must be monitored.
- monitoring energy use well fields (By using backwash water reuse, less groundwater has to be pumped to have the same amount of drinking water)

For the building of the plant, we should have a baseline report for energy use without reuse.

2. QUALITY:

During the project the water quality will be frequently monitored. This will happen with online measurements and by lab analysis. The following parameters are tracked online:

- turbidity effluent installation
- pH effluent installation

The following sample points should be taken regularly samples:

- influent membrane installation
- permeate Stack 1
- permeate Stack 2
- distributed drinking water
- effluent 2nd filtration step

The frequency of sampling and analysed parameters are listed in table 1:

Analysis costs January- July 2015	Sampling frequency			tariff WAP point		€ 2.08	
Parameter	Influent membrane installation	permeate stack 1 and 2	distributed drinking water	effluent 2nd filtration step	Wap points	Euro/ analysis	Euro total
pH	52	52	26	12	4	8.32	1614
EC	52	52	26	12	4	8.32	1614
hydrogen carbonate	52	52	26	12	4	8.32	1614
Oxygen	52	52	26	12	6	12.48	2421
Pretreatment micro parameters	52	52	26	12	7	14.56	2825
Pretreatment macro parameters	52	52	26	12	7	14.56	2825
iron	52	52	26	52	4	8.32	1947
manganese	52	52	26	52	4	8.32	1947
aluminium	52	52	26	12	4	8.32	1614
arsenic	26	26			4	8.32	649
color	12	12	26	12	6	12.48	924
taste and odor		26			6	12.48	649
temperature	52	52			1	2.08	324
turbidity	52	52	26	12	5	10.4	2018
ammonium	52	52			7	14.56	2271
nitrite	52	52			5	10.4	1622
nitrate	52	52			7	14.56	2271
CFU 22oC	52	52	26	26	8	16.64	3461

CFU 37oC	52	52	26	26	8	16.64	3461
coliforms	52	52	26	12	8	16.64	3228
enterococcus	52	52	26	12	8	16.64	3228
aeromonas	52	52	26	12	10	20.8	4035
Sampling costs						0	0
total							€ 46.563

Table 1 analysis costs

3. OTHERS

- Amount of produced sludge
- Chemical use
- Operational costs
- Environmental an sustainable benefits
- User experiences