OPERATION AND MAINTENANCE REPORT

ERLANGER HÜTTE

for summer season 2007

DAV Sektion Erlangen

August 2007
Content

1. Background ......................................................................................................................................................... 3
2. Waste Water Treatment System........................................................................................................................ 3
4. Inspection of Plant Components ........................................................................................................................ 4
  4.1 Grease Trap ................................................................................................................................................ 4
  4.2 Suspended Solids Trap ................................................................................................................................. 4
  4.3 Step-wise Composting Unit ......................................................................................................................... 5
  4.4 Infiltration / Percolation bed ....................................................................................................................... 7
  4.7 Discharge into Creek ................................................................................................................................... 7
1. Background

Posch & Partners Consulting Engineers made the design and construction supervision for several water supply and waste water treatment systems for mountain lodges in the Austrian Alps. Since it turned out that in many cases the operation and maintenance of the systems is very crucial for sustainable and reliable treatment performances, Posch & Partners also took over regular maintenance activities for some of the plants. Normally the plants (most of them are only operated during summer season, since they are hardly accessible during winter) are visited once a year, which is in line with respective legislation in Austria.

Below please find a short summary of the latest operation and maintenance report of the “Erlanger Hütte”, by which I try to give insight in the applied waste water treatment system, particularly the "step-wise composting unit". The lodge is only opened during summer period, normally from end of May to end of September.

The site visit was undertaken by my colleague Mr. Gunnar Amor and took place on 9th August 2007.

2. Waste Water Treatment System

Basically the system comprises the following components:

- Grease trap (increased grease amount due to kitchen service)
- Suspended Solid trap (for brown- and grey water)
- Step wise composting unit
- Infiltration / Percolation bed
- Sampling Manhole
- Discharge into creek
3. Inspection of Plant Components

3.1 Grease Trap

The grease trap receives kitchen waste waters. A layer of circa 2 cm separated grease was detected. The temperature was 24°C. In the outflow drain small amounts of free floating grease were found and removed. Since season opening on 30th June 2007 no grease has been removed.

3.2 Suspended Solids Trap

Both, grey and brown water (from water flushed toilets) undergo treatment in the suspended solids trap. Since only a short distance lies between toilets and solid trap, faeces are mostly still solid and not dissolved in the waste water (and thus removable in the trap). Despite installation of a ventilation pipe, a clearly faecal smell was noticed, which, however was not the case outside the room.

The suspended solids trap was fully operating. The wheelbarrow was approximately half filled with trapped solids. Straw and sometimes grape pomace are added manually to the solids in the wheelbarrow as bulking material. By the time of inspection date the wheelbarrow was emptied 4 times this season, which corresponds to approximately 360 litres.
4.3 Step-wise Composting Unit

Solids from above described trap are composted in a step-wise composting unit. Surprisingly the owner refuses to add also other organic material (kitchen waste) to the unit.

Because of decreased biological activity in this special environment (altitude 2,600m) prolonged composting periods are necessary. Therefore the step-wise composting unit was designed. It consists of 4 separate compartments (volumes can be kept small due to short season). Fresh organic material is only added to the top compartment. Every spring the bottom compartment is emptied and compost moved in a step wise manner to the lower compartment, taking advantage of the natural gradient. Thus compost remains in every compartment for 1 year, i.e. in total 4 years in the composting unit.

In August 2007 the composting unit was maintained very well. The measured temperature inside the compost was 17°C. Since no grape pomace was added to the composted material during the last 3 years, the compost was rather chunkily. Therefore compost of the years 2006, 2005 and 2004 was mixed manually, non-biodegradable material removed and pomace added.
Material of 2007 (0.36 m³)  
Compost of 2006 (0.22 m³)

Compost of 2005 (0.28 m³)  
Compost of 2004 (0.25 m³)

Ready compost, which is removed from the composting unit is normally applied to erosion prone sites near the lodge (not agriculturally used – acc. to local legislation).
4.4 Infiltration / Percolation bed

The liquid effluent of the suspended solids trap is treated in an infiltration / percolation bed. Before it is discharged into nearby creek percolated water is collected in a manhole, which serves also for sampling purposes. In order to avoid clogging of the bed by grease, it is important to clean and maintain the grease trap regularly.

4.7 Discharge into Creek

Discharge is done through another short infiltration bed, which is composted of sharp edged small rocks. At the time of inspection no signs of pollution (slippery layer or similar) were found.