

Garwnant hot tub waste water treatment strategy

Background

Forest Holidays cabins are equipped with hot tubs on the outside decking area. They are filled with tap water and heated to a temperature of 38deg C. They are treated with small quantities of Bromide compound (BCDMH) to disinfect the water. The water is changed at a frequency of once a week.

Treatment of hot tub water

There are three main considerations when treating hot tub water –

1. Temperature higher than ambient
2. Residual bromine content
3. Body fats and organics

Proposed method of treatment

The proposed method of treatment addresses those 3 considerations above. The hot tub water will be stored in a tank to allow the temperature to drop to ambient. This will also allow the Bromide to naturally dissociate. If further neutralisation of Bromide is required, Sodium Thiosulphate can be added. It is proposed to then feed the hot tub water into the foul treatment process.

This has the following advantages –

- The organic matter and any ammonia in the hot tub water are broken down with the treatment process
- The foul waste is diluted to reduce its strength, which helps ensure water is consistently treated to the required standard
- A dedicated drainage system for hot tubs is not required, which reduces the impact on the ground (half the trenching, pipework, pumping stations etc.)
- Allows hot tub water to mix with foul water, which further dissociates Bromide, which should mean Sodium Thiosulphate dosing not required (no chemical storage and handling)
- Tank arrangement provides additional storage if a breakdown occurs

The hot tub water is changed once a week and changeover days are Monday and Friday. This water will be diverted to a dedicated storage vessel. The diversion is carried out by a timer valve. See schematic diagram below. The hot tub water is then allowed to cool and is fed into the treatment zone throughout the week.

Hot tub drainage and treatment schematic

