

Dangerous water towers

by Dr Andrew Goldsworthy

There is a growing tendency to mount mobile phone base station antennas on water towers. This may seem convenient, but it carries a hidden risk because the radiation may also affect the water to make it *biologically active*.

Weak pulsed radiation is routinely used in electronic water conditioners to remove lime scale from plumbing. The mechanism of the conditioning effect is still controversial but it depends on the presence of impurities and does not work with all water supplies. It appears to involve changes in the pattern of ions bound to colloids, which alter their surface charge and make them more attractive to calcium ions.

However, the treated water has biological effects similar to those from exposure to weak electromagnetic radiation, perhaps due to its removing calcium ions from cell membranes, just as it removes lime scale from water pipes and boilers.

Laboratory experiments with yeast cultured in electromagnetically conditioned water showed that its biological effects depended on the length of time for which the water was conditioned. In our hands, treating London tap water for 30 seconds or less (as it would be when passing through a domestic water conditioner) resulted in its stimulating cell division in yeast but caused no obvious harm. However, treatment for longer than this (as it would be if a water storage tank were to be irradiated) inhibited cell division, suggesting that it may now be toxic (Goldsworthy *et al.* 1999).

If a similar effect were to occur in water towers fitted with mobile phone antennas, it could have adverse effects on public health. Because the conditioning effect on water can last up to several days, this gives ample time for it to be distributed widely through the water mains and so present an even greater threat to the public than the antennas themselves. **This needs urgent attention by the water companies since, unlike the mobile phone operators, they have no legal immunity from prosecution for distributing a potentially toxic product.**