

1st September 2021

Ultrawaves Wasser- und Umwelttechnologien GmbH
z.Hd. Herrn Dr. Nickel
Becker-Göring-Str. 17 - 25
76307 Karlsbad

Ultrawaves High-Power Ultrasound Technology for Improvement of Anaerobic Sewage Sludge
Digestion on Bünde WWTP

Dear Dr. Nickel,

We confirm that WWTP Bünde is using Ultrawaves High-Power Ultrasound Technology for
sewage sludge disintegration to improve the anaerobic sewage sludge digestion performance
since the year 2006.

The successful installation results in an improvement of 22% reading sludge VSD (volatile solids
degradation) and 22% regarding the biogas production. We also use a part of the sonicated
sludge as a carbon source for the denitrification process to improve the biological nitrogen removal
(BNR). We are very satisfied with the application of Ultrawaves HPUS Technology and achieved
process improvements.

Best regards,


Kommunalsparte Bünde (ASR)
Der Vorstand
- Niederlage -
Grabenstr. 68, 32257 Bünde

Schubert

(Operation Director of Bünde WWTP)