Reuse of Class-A Biosolids

MCB Camp Lejeune, North Carolina, USA

FUCHS ATAD
Autoheated Thermophilic Aerobic Digestion

Marine Corps Base Camp Lejeune, North Carolina, provides unique facilities of military training, logistic support and housing for more than 45,000 US-Marines. Including family members and civil staff approximately 150,000 people are living in Camp Lejeune. Besides of its primary, military mission MCB Camp Lejeune plays a leading role in environmental protection and sustainability.

Wastewater Treatment

In 1998 the new Camp Lejeune Advanced Wastewater Treatment Plant (CLAWWTP) commenced operations, replacing seven smaller wastewater treatment plants. CLAWWTP is a state-of-the-art treatment plant comprising primary clarification, biological nutrient removal, secondary clarification, sand filtration and UV-disinfection. Design capacity is 15 MGD.

Sustainable Biosolids Management

Every wastewater treatment plant generates solids in the form of sewage sludge. A management concept with land application was chosen, which allows taking advantage of the soil-improving benefits of biosolids.
FUCHS Autoheated Thermophilic Aerobic Digestion

A FUCHS ATAD system was installed producing Class-A biosolids according to the highest standards of US-EPA Part 503 Rule. The FUCHS ATAD process simultaneously provides for Class-A pathogen reduction and vector attraction reduction as is required for unrestricted land application.

Technical Details

The ATAD system is capable of processing up to 31,500 lbs (14,290 kg/d) of primary and waste activated sludge per day (dry solids without water). It mainly consists of upstream thickening, holding tanks and four digestion trains made up of two stages each. The biological degradation of organic solids in the digestion reactors releases heat. A thermophilic process temperature is enabled (> 130 F, 50°C) providing for pathogen reduction and high degradation rates. The two-stage design improves process stability and adds a further safety factor to pathogen reduction by extending the minimum isolated contact time.

The reactors contain specially designed equipment for aeration, mixing and foam control.

- **Sludge flow (dry solids):**
  - Up to 31,500 lbs per day (14,290 kg/d)
- **Dry solids content:**
  - 5%
- **Volume flow:**
  - Up to 75,500 gal / day
- **No. of reactors:**
  - 8
- **Reactor volume (each):**
  - 78,000 gal (300 m³)
- **Aeration and mixing:**
  - FUCHS Spiral Aerators
- **Foam Control:**
  - FUCHS Foam Controller

**Advantages of the FUCHS ATAD Process**

- simultaneous stabilization and disinfection
- meets or exceeds international biosolids standards (e.g. EPA regulation 503)
- short retention time
- low investment costs
- excellent process stability and reliability
- flexible operation
- easy extension of capacity
- more than 30 years of experience