Authorized Distributor for Active Water Sciences

Deployable Autonomous Aerobic Biodigestor (DAAB)

Water Phoenix
Specifications

1. System must meet or exceed waste water release standards in the Department of Defense Overseas Environmental Baseline Guidance Document (OEBGD) and meet or exceed the standards of the EPA Clean Water Act for release of effluent directly to the environment.
2. Each system (1 Buffer unit, 1 Treatment unit, 1 Control unit) must be capable of treating up to 25K gallons of municipal wastewater per day and provide a surge capacity of 5K gallons in the Buffer unit.
3. DAAB Control unit must have a modular design so additional Treatment and Buffer units can be added to increase the treatment capacity from 25K to 250K GPD in 25K increments, using 1 Control unit, for a single location.
4. A Buffer unit must have a minimum capacity of 5,000 gallons of effluent, grind up the solids and provide aeration and have the optional ability to act as the lift station.
5. All system components must be mounted into or fit within an ISO 20' container for shipping.
6. All system components (Buffer, Control, and Treatment) must be HEMTT compatible and transportable.
7. System must be able to be set up within 24 hours and capable of treating and releasing water that meets OEBGD and EPA 30/30 standards for release to the environment within an additional 24 hours.
8. Start up as well as restart must be controlled and monitored by an autonomous computer system.
9. System must have the option of being self powered or the can be wired into a local Prime Power source. If self powered system will include a diesel generator and fuel tank incorporated into the Control unit and be capable of running completely autonomous from base power. Energy requirements must be <20 KW of power for each Treatment, Control and Buffer in a single unit configuration, and less than 100 KW of power for a 5 gang system comprising of 5 Treatment units, 5 Buffer units and 1 Control unit.
10. Fuel tank /generator system will be diesel and have the capability to power the system for 7 days without refueling for the single unit configuration and 3 days without refueling on the 5 gang system configuration.
11. All system components should be self-contained and shielded from damage during shipping.
12. The system should be a closed loop system to reduce the possibility of providing breeding conditions for insects and rodents.
13. The Treatment unit must not use genetically modified organisms, only wild types that will digest carbonaceous material. The microbial consortium should contain at least 4 different t of bacteria. The microbial consortium design is proprietary information.
14. All flexible hosing shall be UV resistant and use quick connects.
15. The system must use a vertical aerator to inject air into the Treatment unit's bioreactor to create vacuum bubbles.

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16. The Treatment unit tank-to-tank flow must be by gravity flow.
17. The Treatment unit must use a hydrophobic polypropylene fixed film media for bacteria growth for primary adherers, that uses patented Microbes that have been scientifically selected for municipal wastewater. System cannot be an activated sludge system.
18. If the system loses power for up to 8 hours, the system must still be capable of producing EPA quality effluent water immediately when power is restored.
19. When power is restored after a power failure of less than 12 hours the system must autonomously come on line without human intervention.
20. Treatment unit must contain contoured shaped tank for optimum sludge removal.
21. The entire system must be under the control of an autonomous, computer based system.
22. The Computer system must log and control major inputs to the system such as influent flow, effluent flow, aeration operation, pump operation, tank levels, and any automatic valves must be monitored and controlled as well. All user inputs shall be logged as well.
23. The entire system must use distributable topology where all Inputs and Outputs (I/Os) from Treatment and Buffer unit are communicated to computer control system in the Control unit.
24. Control system in the Control unit must be capable of monitoring and controlling all attached Treatment units and Buffer units, up to a maximum of 10 ea Treatment units with 10 ea Buffer units attached.
25. Control system must have the ability to add modules or increase capacity in a modular fashion.
26. Control system must have an audio able alarm system that will signal on system failure, to alert the operator of a problem or fault.
27. Control system must be able to autonomous communicate its status on demand and at regular intervals, minimum of every 6 hours, via satellite, cell phone system, or internet to a designated receiver. Software shall be programmed using a graphical programming language.
28. System must have redundant treatment tanks in the treatment unit so that the tanks can be cleaned or repaired without shutting down the system.
29. System must be designed to receive waste water by three methods:
    a. Have the capability to directly pump the waste water from sewage lagoon.
    b. Direct feed into the top of the Buffer unit by tanker trucks.
    c. Gravity feed from the waste water line into a portable lift station that will transfer the sewage to the Buffer unit.
30. The buyer will be responsible for providing the equipment, construction and services to get the waste water to the DAAB system.
    a. Construction of the sewage lagoon if direct pump method (Option A) is used.
    b. Tanker Trucks and Drivers to deliver the waste water if top feed (Option B) is used.
    c. Provide the 4” sewer line and connect to the portable lift stations for transfer to the Buffer, if gravity feed (Option C) is used.

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