

Landfill Leachate: Cost-Effective, On-Site Treatment

SIEMENS

BATCH-OPERATED PACT® SYSTEMS

Landfill owners/operators get cost-effective on-site treatment of landfill leachates when they select sequencing batch PACT® reactors from Siemens Water Technologies (formerly USFilter).

The Reichs Ford Road landfill in Frederick County, MD, uses a system to treat landfill leachate (COD 2,250 mg/L; BOD 1,700 mg/L; TSS 820 mg/L; various organic compounds) for direct discharge to the receiving stream. The system includes five sequencing batch PACT® reactors, 45,000 gallons each; a sludge storage tank; a carbon addition system; and a recessed plate and frame filter press for dewatering solids (44 cubic foot capacity).

Average daily flow through the system is 80,000 gallons, with a future design flow of 140,000 gallons. The system was started up in Spring, 1995.

Design engineer on the project was Post, Buckley, Schuh & Jernigan, Bowie, MD. Contractor was Michael F. Ronca & Sons, Inc., Bethlehem, PA.

THE PACT® SYSTEM

The PACT® system is a powerful treatment technology which combines powdered activated carbon and biological treatment. This combination enables the system to treat concentrated wastewaters, including the toxic materials without upset; the carbon adsorbs non-biodegradable wastes, while the biological organisms treat the biodegradable portion.

As a result, landfills comply with their leachate discharge limits, even though the flow and concentration of leachate varies widely.



Sequencing batch operation of aerobic PACT® system reactors enables operators to treat influent, clarify and decant the treated liquid, and store sludge in the same tank.

THE PROCESS OPERATES LIKE THIS:

- 1) First, the influent valve opens, and influent fills the tank to the desired level.
- 2) When the tank is full, the aeration system starts up, aerating tank contents in the presence of microorganisms and powdered activated carbon. If additional carbon or nutrient is required to meet treatment objectives, those materials are added to the tank. Optionally, polymer can be added just prior to the decant step to enhance effluent clarity.
- 3) After a pre-selected operating interval, the aeration system shuts down, and the tank contents are allowed to settle.
- 4) Following settling, the decant system is activated, and the decant pump is started, pumping the clarified, treated effluent to storage, discharge, or subsequent treatment steps. It will shut down when the tank contents reach the trip point of the low level switch.
- 5) Once the decanting operation is complete, the decant cycle is deactivated, completing the batchoperated sequence and placing the tank into position to accept another batch of influent to be treated.

Solids concentration in the tank is controlled by removing excess sludge as necessary via a waste sludge pump. Waste sludge can be discharged to an aerated sludge storage tank, or to dewatering or carbon regeneration facilities.

COMPLETE SYSTEMS

To meet individual needs of landfills, Siemens Water Technologies designs and installs customized leachate treatment systems in various configurations of equipment as required.

The PACT® system can be provided as an anaerobic process, or as an aerobic process in multiple stages.

For metals removal, the company supplies WHM™ bulk chemical handling equipment and inclined plate separators. For solids dewatering, we can provide a compact, recessed plate and frame filter press capable of producing high-solids (> 40% solids), non-leaching cake without use of a dewatering aid.

If final filtration is required, the Hydro-Clear® pulsed bed filter can be used for efficient, economical effluent polishing.

We couple this design and equipment supply package with installation, startup, and operator training services, or we can operate and maintain the system for you.

WHY SIEMENS WATER TECHNOLOGIES?

We are the leader in supplying landfill leachate systems to the municipal solid waste and hazardous waste markets. We also serve the municipal and the industrial treatment markets.

At our office in Rothschild, WI, near Wausau we have extensive research and development facilities, including a complete treatability testing laboratory and pilot plant. We also maintain an engineering and design group, and ASME-code manufacturing facility, and we provide complete construction supervision, startup, and operator training services.

Altogether, we have participated in nearly 2,500 wastewater treatment projects world-wide over the last 30 years. We have supplied leachate treatment systems at more than 35 sites in the United States and Canada.

FOR MORE INFORMATION

For more information about our PACT® system, or any other Siemens equipment, contact your nearest representative or our office below.

The information provided in this literature contains merely general descriptions or characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of the contract.

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