



Earth Cycle BioTechnology LLC

THOMAS GETZ

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CONSULTING SERVICES

- Helping industrial, municipal and farm clients develop sustainable waste treatment systems for their facilities, including recovering the resources present in waste materials.
- Specializing in climate friendly technology: anaerobic digestion, composting, biochar. Offering technical support, bioenergy recovery, renewable natural gas, design review, facility commissioning and startup, technical writing, training, maintenance planning, process troubleshooting, regulatory affairs.

Earth Cycle BioTechnology LLC, (2017 – current)

- Advised farm and corporate clients on design, construction, startup, operation of farm-based anaerobic digesters with bio-energy recovery as electrical power or Renewable Natural Gas (RNG.) Work included commissioning new equipment; startup; O&M manuals; SOP's; recruiting/hiring staff; training on safety, process control, evaluation of substrates for co-digestion, onsite trouble-shooting; set up Computerized Maintenance Management system (CMMS)

Wastewater Treatment Expertise (Employers: Anheuser-Busch, Cape May NJ; BioTown Ag)

- Anaerobic treatment of wastes for biogas production including high strength wastes, food wastes, animal manures via anaerobic digestion or high rate UASB process.
- Wastewater treatment to final effluent standards for direct discharge under NPDES program.
- Process control of activated sludge process via microscopic monitoring of microbial biomass and adjustment for temperature and loading variations.
- Waste characterization and evaluation to identify materials with greatest biogas yield and reject materials with potential for adverse impact on process.
- Biological and Chemical adjustment of waste treatment process for control of sulfur, optimal liquid – solid separation, mitigate nutrient deficiency.
- Odor control systems via chemical scrubbing, biofiltration, liquid phase suppression.

Industrial Utility System Operations (Employers: Anheuser-Busch, BioTown Ag)

- Overall management of utility department of 8 million barrel per year brewery: ammonia refrigeration; high pressure steam boilers; compressed air; HVAC; water systems including carbon filtration, chlorination, dechlorination, chilling, and heating; carbon dioxide systems, emergency generators; Concurrently responsible for oversight of wastewater treatment NPDES discharge permit.
- Generating station Engine Room – technical support for fleet of 6 Jenbacher 1.06 MW biogas engines, selling contracted 6 MW power to grid, reporting, permitting, emissions monitoring, record keeping, operator training.

Solids Treatment Operations (Employers: Anheuser-Busch, BioTown Ag; Cape May NJ; WeCare Organics)

- Solids separation: belt filter, plate/frame filter, screw press, centrifuge.
- Composting systems for industrial waste, municipal biosolids, animal manure, digestate solids.
- Evaluation of coagulants and flocculants for cost-effective dewatering/liquid solid separation.

Facility Management (Employers: Anheuser-Busch, BioTown Ag; Cape May NJ; WeCare Organics)

- Recruitment, training, regulatory affairs, safety program, maintenance, laboratory supervision, record keeping, budgeting

Electrician: Farm, commercial, industrial electrical construction and service. (Employer: Reedy Electric)

EDUCATION

- MS. Environmental Science, Indiana University,
- BA. Biological Science, Indiana University



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Details of career employment and accomplishments

Project Development and Compliance Manager, BioTown Ag, Reynolds, IN (2014 – 2017)

Managed operation of on-farm anaerobic digester and environmental compliance for large livestock farm with composting and land application. Processing 100 dry tons per day of manure, food waste, biofuel waste in anaerobic digester, 9 MW electrical power generation from biogas engines, oversight of operation and compliance.

Senior Project Manager, WeCare Organics, Burlington NJ (2009 – 2013)

Managed private operation of publicly owned in-vessel composting system. Processing 200 wet tons per day of municipal biosolids. Responsible for operation, maintenance, data processing, regulatory compliance and reporting, personnel, purchasing, and profit/loss.

Utility Area Manager, Anheuser-Busch, Inc., Baldwinsville, NY. (2007 – 2008)

Managed utility department of 8 million barrel per year brewery. Responsible for ammonia refrigeration; high pressure steam boilers; compressed air; HVAC; fire water storage and pumping; water systems including carbon filtration, chlorination, dechlorination, chilling, and heating; carbon dioxide systems including collection, cleaning, liquefaction, distillation, storage, vaporization, and distribution, member of plant HAZWOPER team. Supervised staff of 19 utility operators (Teamsters), 2 salaried supervisors. Scope included operations, corrective and preventive maintenance, budgeting, safety, training. Responsible for utility budget of \$24,000,000.

Manager of Wastewater Treatment, Anheuser-Busch, Inc., Baldwinsville, NY. (1989 – 2008)

Managed 3.5 MGD Industrial wastewater treatment plant treating high strength brewery wastewater (100,000 lbs BOD5/day), utilizing: UASB anaerobic step with biogas recovery and innovative biofilter odor control system; extended aeration activated sludge with fine bubble aeration technology; phosphorus removal; aerobic digestion; sludge thickening and dewatering; 50 wet ton per day in-vessel composting facility, biological and chemical odor control systems. Responsible for: SPDES compliance and correspondence; budgeting and cost control: operation and maintenance of equipment and systems; safety; training; employee development: staff including operators, maintenance specialists and clericals; \$8,000,000 budget. Significant accomplishments: Work force reduced from 26 to 12 FTE via attrition, process improvement, outsourcing, and part-time substitutes. Total power consumption was reduced from 26 million kwh/yr to 9 million kwh/yr via process improvements. Coordinated company response to, and compliance with, two administrative consent orders. Negotiated terms and conditions of permits. Scope of regulatory compliance included permits pertaining to water, stormwater, air, solid waste, fertilizer sales, and transportation.

Composting Supervisor. Cape May County Municipal Utilities Authority, Cape May Court House, NJ. (1984 – 1988).

Supervised new County Wide Sludge Composting Facility, an in-vessel sewage sludge composting operation, 20 dry-ton per day capacity, utilizing Purac process, the first facility of this type in United States. Responsible for all aspects of compost operations, loading, lab analyses, odor control: supervised staff of 16 over three shifts, oversaw corrective and preventive maintenance on conveyors, blowers, instrumentation, mobile equipment, wrote facility O&M manual, provided operations and safety training to staff. Worked at facility from final phase of facility construction, through start-up



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performance testing, system expansion, and into period of normal operations.

Water Chemist and Laboratory Technician. Worked as a college research assistant and in temporary position with US Department of Interior. Performed wide variety of chemical and physical tests on surface water, ground water, wastewater, sediment and plant and animal tissues, collected and preserved samples in field, and prepared technical reports.

Electrician (Reedy Electric, Brownstown, IN) W Commercial, farm and industrial electric construction and service; 3 phase/480 volt, motor controls, service calls.

START-UP EXPERIENCE

- Managed restart of existing in-vessel biosolids composting facility following extended service outage for capital reinvestment.
- Upflow Anaerobic Sludge Blanket start-up. 4 MGD, 180,000 lbs/day BOD₅, Biothane design, startup of primary clarification, equalization, neutralization, high rate anaerobic treatment, odor control.
- Biofiltration. Design, permitting, startup and optimization of organic biofilter for treatment of hydrogen sulfide contaminated air. Project had substantial ROI based on shutdown of chemical scrubber. 1994-1995
- Compost System Start-up. IPS design 60 wet-ton per day. 1989
- Composting Program Expansion: Oversaw expansion of county owned in-vessel composting system from 12 dry ton/day capacity to 20 dry ton/day. Modification of reactors and material handling system, reprogramming of PLC, design and construction of curing area. 1986- 1988.
- Compost system start-up: Purac in-vessel system. 12 dry-ton per day. 1985.

CONTRACT MANAGEMENT EXPERIENCE

- Compost Marketing Agreement. Renegotiation of price (annually) and terms (triennially) of Marketing Agreement for sale of 30,000 cubic yards of compost per year to compost broker by industrial compost producer.
- Trademark protection: worked with corporate legal department to establish trade mark protection of brand name for registered fertilizer.
- Contract Maintenance: Oversaw maintenance of industrial facility by contractors, value \$500,000 per year. Developed written specifications and work scope, coordinated requisitioning, handled change orders and payment approval.
- Land Application. Negotiated contracts and handled long-term implementation of program to recycle biosolids by land application, composting and reclamation of industrial brown-field site.



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PROJECT MANAGEMENT EXPERIENCE

- Permit applications and regulatory reporting for all farm environmental responsibilities including CFO expansion, digester construction, land application of manure, Title V air emissions, stormwater, on-farm composting.
- Supervision of labor for construction of 2.2 million gallon anaerobic digesters. Installation of piping, electrical controls, rotating equipment. Facility startup and operator training.
- Startup of ammonia stripping and acid reaction towers to strip ammonia gas from anaerobic digester effluent and produce liquid ammonium sulfate fertilizer.
- Installation of Emergency Generator: Led team that selected and installed generator to support wastewater treatment plant emergency power needs. Oversaw installation of generator, transfer switch, feeder conductors. Wrote procedures for load shedding to run plant on emergency power. Trained operators. Tested.
- Fine bubble aeration: Led team that evaluated process improvements for 6 MG extended aeration activated sludge process. Evaluated consulting engineers, provided process data set for evaluation, coordinated selection of alternatives, reviewed design, coordinated construction, start-up and performance testing.
- Air Blower Medium Voltage VFD's: Worked on team that selected 4160 volt Variable Frequency Drives to provide turndown of 800 hp positive displacement blowers including installation of 4160 volt transfer switch. Coordinated equipment selection, drawing review, construction.
- Biogas compressor VFD's: Led team that installed 480 volt Variable Frequency Drives on 200 hp biogas compressors, measured motor power to determine power cost and expected savings, coordinated start-up.
- Stormwater System Restoration: Led team that designed restoration plan for 25 year old stormwater treatment basins. Conducted research showing impact of extended retention time on elevated pH due to algal photosynthesis. Negotiated alternative outfall sample locations with agency.
- Stormwater Monitoring Automation: Oversaw installation of instrumentation to monitor stormwater system for contamination, radio frequency modems to transmit equipment status and analog instrumentation data from PLC in unmanned stormwater pumphouse to PLC in remote control room. Computer trending of signals, remote control over sample collection, plan for operator response.



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RESEARCH EXPERIENCE

- Substrate Evaluation. Led process of laboratory evaluation of dozens of food wastes to determine suitability for anaerobic digestion substrates. Determination of rate of digestion, biogas energy yield, presence of inhibition, appropriate tipping fee.
- Inventor: Developed and implemented unique modifications to sulfur biofiltration system that resulted in improvement in design and US Patent application. Wrote technical documentation and coordinated preparation of patent application with patent attorney.
- Compost Ammonia Reduction: Oversaw full-scale research into reduction of ammonia emissions in composting, tested effects of various amendments, chemical adjuncts and mixing on nitrogen balance of in-vessel composting system.
- Biofilter optimization. Full scale testing to determine performance and life cycle cost of iron sponge vs. ground wood for filtration media in biofilter removing hydrogen sulfide at 200-500 ppm.
- Research into feasibility of recycling wet strength packaging materials via composting. Conducted under Solid Waste Research Permit issued by New York State Department of Environmental Conservation.
- Research into feasibility of recycling obsolete telephone books via composting. Conducted under Solid Waste Research Permit issued by New York State Department of Environmental Conservation. Public/private joint venture co-sponsored and co-funded by Anheuser-Busch Inc., NYNEX, Inc., Onondaga County Resource Recovery Authority and Syracuse Department of Public Works.

TRAINING/EDUCATION EXPERIENCE

- Wrote training literature and conducted live presentations for operators treating farm and food waste in farm-based 7 MG anaerobic digester system.
- Wrote Operations and Maintenance manual for 200 ton per day in-vessel biosolids composting facility. Developed equipment list and tasks for CMMS corrective and preventive maintenance program.
- Wastewater Systems for Utility Operators training program: Served as Subject Matter Expert for development of 4 hour training program to instruct utility operators in the properties of brewery wastewater. Coordinated with outside consultant and corporate training department.
- Bio-Energy Recovery Systems operator training program: Served as Subject Matter Expert for development of 8 hour training program for operators of high-rate anaerobic wastewater treatment systems. Coordinated with outside consultant and corporate training department.
- Developed 14 minute video for training plant production workers on Wastewater Awareness as part of effort to reduce wastewater treatment costs, assure regulatory compliance and increase plant production capacity. Video dealt with flow, heat, organic load, solids, phosphorus and chemicals,
- Wastewater Chemistry. Training workshop developed for and presented to wastewater treatment plant operators, State University of New York. Morrisville, NY.
- Wastewater Mathematics. Training workshop developed for and presented to wastewater treatment plant operators, State University of New York, Morrisville, NY.
- Introduction to Composting. Training workshop developed for and presented to wastewater treatment plant operators, State University of New York, Morrisville, NY.
- Advanced Operations. Developed and presented training on nutrient removal, odor control and management portions (1 day) of 5 day training course sponsored by State University of New York, Morrisville, NY. Multiple dates.
- Introduction to Composting. Training workshop, State University of New York, Morrisville, NY.



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OTHER MANAGEMENT EXPERIENCE

- Chemical Treatability Review: Led process of screening all chemicals prior to purchase for environmental impacts including wastewater treatability. Evaluated for toxicity, degradability, shock loading, accumulation in biosolids, and compliance with NYSDEC Water Treatment Chemical guidelines.
- Bargaining representative: Participated on bargaining team representing management in contract negotiations with International Brotherhood of Teamsters for representing small department of facility operators. Led to voluntary decertification of represented group.
- Administrative Consent Order: Coordinated outside independent audit pursuant to Consent Order written by state regulatory authority against industrial discharger. Implemented audit findings via in-house procedures, capital improvements and management systems.
- Total Quality Management Team: Member of plant steering committee for implementation of Total Quality Management in Fortune 100 company. Participated in vision development, policy deployment, sponsorship of work teams. Training included; seminars, benchmarking trips, expert consultation, and reading of dozens of books and articles on the subject.
- Diversity Committee: Member and elected co-leader, developed mission, norms, statement of responsibility for employee team assigned to promote awareness of human diversity In manufacturing environment, Interviews, problem analysis, brainstorming, root cause analysis, led to development of 8 hour Diversity Awareness training program for 900 employees:

PILOT SCALE EXPERIENCE

- Compost Odor Scrubber. Conducted pilot tests on chemical wet scrubbing of compost odors. Developed design concept for three stage (deluge, acid, caustic/hypochlorite) full scale chemical scrubber. Coordinated construction and startup. 1985-1986.
- Pilot scale research into Biobed and BioPaque high rate anaerobic wastewater treatment reactors. Operated pilot plants from competing technology vendors leading to competitive bids for full scale systems. 1993-1994.
- Pilot scale research for biological removal of hydrogen sulfide from methane biogas. Oversaw operation of patented Biopuric process, 1993.
- Pilot scale research into various media for biofiltration of odors resulting from in-vessel composting. Led to revised, improved specifications of biofiltration media. 1992 -1993.
- Pilot scale research in biological wet scrubbing of hydrogen sulfide in packed column scrubber using activated sludge as scrubbing medium, 1993.
- Operated 20,000 gpd pilot plant including trickling filter, pure-oxygen activated sludge, nitrification, multi-media effluent filtration and ozone disinfection, conducted experiments on impact of priority pollutants on the nitrification process.
- Supervised operator technicians performing bench scale and pilot scale screening of polymers



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for solids dewatering and effluent clarification. Specified and coordinated procurement of pilot-scale plate and frame filter press with mixing tank and feed pump. Coordinated screening of dozens of products from competing vendors. Compiled reports of polymer screening results. Oversaw competitive bidding of equivalent products.

PROFESSIONAL PRESENTATIONS

- History of Biosolids Composting in New Jersey and Mid-Atlantic Region. Presented at New Jersey Water Environment Association annual meeting, Atlantic City, NJ, May 16, 2012.
- Biofiltration for Biosolids Odor Control. November 2, 2000. Syracuse, NY.
- Treating Brewery Wastewater with the UASB Process Featured speaker for Environmental Compliance Outreach Program, Syracuse, NY. March 15, 1995.
- Odor Control at Wastewater Treatment plants. Lecture and tour for graduate class on air pollution control at Syracuse University. November, 1993.
- Odor Control through Process Control. Presented Controlling Sludge/Composting Odors, New England Interstate Environmental Training Center. April 23, 1992.
- Composting Problems and Solutions. Presented at Annual Biocycle Conference, Boston, MS. May, 1987.

AWARDS

- Industrial Achievement Award, conferred by New York Water Environment Association, January, 1994 upon the environmental program at Anheuser-Busch, Inc., Baldwinsville, NY.
- Select Society of Sanitary Sludge Shovelers, conferred by New York Water Environment Association. June 13, 1995.

PUBLICATIONS

- Getz, T., M. Reif, R. Cleeton, M. Aquilino. Energy Conservation at Anheuser-Busch: Brewery WWTP Improvements Create Big Energy Savings. Clearwaters. Vol. 38, No. 1(Quarterly publication of the New York Water Pollution Control Association.) Spring 2008, 35-42.
- Correcting Activated Sludge Inhibition by Addition of Trace Amounts of Copper. Stover, E., T. Getz, R. Cleeton, M. Aquilino, M. Reif. 2000 WEFTEC Proceedings, Anaheim, CA
- Getz, T. Composting with a Simple Spreadsheet, Operations Forum, 11:11, 14-18. November, 1994.
- Getz, T. Treating Brewery Wastewater with the UASB Process, Presented to several audiences in Peoples Republic of China as delegate of Citizens Ambassador Program, several cities and institutions in mainland China, October 1995.
- Getz, T.J., Recycling Wet Strength Packaging Materials by Composting – Demonstration Project. Submitted to New York State Department of Environmental Conservation under



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Solid Waste Research Permit, October 13, 1994.

- Beers, Allen R. and Thomas J. Getz. Composting Biosolids Saves \$3.3 Million in Landfill Costs. Biocycle, 33:5, 42-77. May, 1992.
- Anheuser-Busch, Inc. Recycling Obsolete Telephone Books by Composting — Demonstration Project. Submitted to New York State Department of Environmental Conservation under Solid Waste Research Permit, May 6, 1991
- Getz, T.J. Composting, A Capital idea. Clearwaters. Vol.10, No. 3, 10-13. Quarterly publication of the New York Water Pollution Control Association.) Fall, 1990.
- Getz, T.J. Composting of Brewery Wastes. Proceedings of Food Processing Waste Management Conference, Hershey, PA. November 14-15, 1989.

CIVIC ACTIVITIES

- Citizen volunteer with Mecklenburg County, NC Stormwater program; trash pickup events, planting and maintaining trees in riparian zones, supervision of other volunteer groups. Recognized as “Volunteer of the Month: March, 2025.
- Engineers Without Borders. Adult mentor provided technical guidance and traveled with 6 students from Princeton University on service trip to Samne, Peru to assist with environmental and engineering infrastructure in underdeveloped rural community, 2011-2012.
- Burlington County Solid Waste Advisory Council. Member of board to assist and advise Board of Chosen Freeholders pertaining to the collection, disposal and recycling of solid waste in Burlington County, New Jersey.
- Burlington County Resource Recovery Facility Stormwater Pollution Prevention team member. Member of board to assist and advise Burlington County managers pertaining to stormwater controls at county complex.
- Volunteer. Assisted planting community garden. Dr. Weeks Elementary School, Syracuse, NY. 2007-2008.
- Assistant Scoutmaster, Boy Scouts of America, Troop 117, Cicero, NY. 1996-2005.
- Merit Badge Counselor. Boy Scouts of America, Hiawatha-Seaway Counsel, 1996-2008.
- Water Resources and Environmental Compliance Delegation, Participated in delegation of water specialists sponsored by People to People International Citizen Ambassador Program, who traveled to the Peoples Republic of China for technical exchange of water resources issues with representatives of government, academia and industry, October, 1995.
- Technical Advisory Committee/ TAC member for New York State Energy, Research and Development Authority for evaluation of energy saving proposal which replaces existing activated sludge process with patented high rate anaerobic process for pretreatment of winery wastewater, 1995.
- Environmental Careers: talk given to area high school classes. Occasions and dates too numerous to mention, 2001-2008.
- How wastewater treatment works, Talk, demonstration and wastewater plant tour presented to student groups, public officials, consultants, private Industry and other groups. Occasions and dates too numerous to mention, 1989-2008.
- Thesis Committee Member: State University of New York, Graduate Steering Committee for master’s thesis on Design and Operation of a Biological Fixed-Film Scrubber for Removal of



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Hydrogen Sulfide Gas, 1993-1994.

- Technical Advisory Committee. TAC member for New York State Energy, Research and Development Authority joint research project with Michigan Biotechnology Institute investigating reductive dechlorination of chlorinated solvents during simultaneous anaerobic treatment of ethanol, 1992.
- Cornell Cooperative Extension Service of Onondaga County NY, Master Composter volunteer, 1990-1992.
- Cornell Cooperative Extension Service of Onondaga County NV, Agricultural Committee member 1991- 1994, secretary, 1992-1994.
- Cornell Cooperative Extension Service of Onondaga County NY, Planning Committee member 1991 - 1993, secretary 1991 -1992.
- Home Composting, Presented to Youth Environmental Action Club, Liverpool H.S., Liverpool, NY. November, 1992.
- How composting works, Composting plant tour presented to student groups, public officials, consultants, private industry and others. Occasions and dates too numerous to mention.