

Name	Jan A. Oleszkiewicz, PhD; PEng; CEng(UK); BCEE(US), FCSCE
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Research and Professional Experience

J. Oleszkiewicz specializes in biosolids and biological wastewater treatment with emphasis on relationship between the two streams. Diverse 40 years international experience in North America, EU and Australia in sludge biomass minimization; advanced nutrient removal from municipal and industrial wastewater; pathogen inactivation and sludge disinfection; anaerobic digestion; process kinetics; plant operations. Published over 400 papers and a decision maker's manual on biosolids management and a manual on solid waste management with landfilling. Recent research and consulting on biosolids master-plans; advanced digestion with pathogen inactivation; sludge liquor treatment; anoxic low-lime sludge disinfection; physical-chemical sludge stabilization; sludge liquor management; in-process sludge disintegration to augment biological phosphorus removal and denitrification.

Selected Recent Engineering and Pilot Work

- **Lead Advisor:** Winnipeg Biosolids Master Plan. TetrES, AECOM, CH2MHill, RV Anderson; **2007-9**
- **Advisor:** Independent Evaluation: Region of Waterloo ON; Digested sludge centrate treatment facility. J. Husband - Malcolm & Pirnie, White Plains NY **2008**
- **Team Leader:** Independent Review of Conceptual Design of conversion of Winnipeg-South to biological nutrient removal. Team: JL Barnard, G. Daigger, J. Husband, for City of Winnipeg, **2007-09**
- **Advisor** on sludge processing technologies to meet Class A and fertilizer requirements. For BCR Environmental - St Augustine FL, and for Unity Environmental-Tampa FL; **2008-2009**
- **Advisor:** Winnipeg-North Master Plan – \$600M conversion of HPOAS to full BNR. Biosolids process upgrade. For TetrES Consult., AECOM, CH2MHill, RV Anderson; **2006-2008**
- **Independent Reviewer:** Master Plan for Biosolids Management and BNR process at Gdansk-East PL 180 ML/d upgrade to European Union's TN, TP standards. **2006 - 07**
- **Team Leader:** Independent Review of the Winnipeg-West WWTP conversion to full BNR (team G. Daigger, J. Barnard, P. Burrowes). Plant built **2005**
- **Advisor:** Design of total nitrogen removal facility from sludge centrate at the Winnipeg-North WWTP. For EarthTech and City of Winnipeg Plant built **2005-2008**
- **Advisor/reviewer** Master plan for biosolids processing at City of Warsaw PL: Warsaw-East plant.
- **Advisor** on biosolids management in two Lisbon P plant: Beirolas and Chelas. Beirolas plant built
- **Advisor and consultant:** on biosolids processing; increased biogas recovery and/or volatile solids destruction in several cities e.g. Bialystok PL; Portage MB
- **Advisor and consultant:** on biological nutrient removal and solids management in number of plants in Poland; Slovenia; Portugal, Australia, USA and Canada
- **Advisor:** on four proprietary biosolids treatment processes to meet the US EPA's Pathogen Equivalency Committee (PEC) requirements for Class A Product. With Dr R. Reimers, Tulane University, New Orleans LA
- **Leader:** pilot study of anoxic low-lime disinfection of anaerobically digested biosolids. Winnipeg West with US Filter, Asdor and Winnipeg Water and Waste Dept.
- **Leader:** pilot study of high-solids dry anaerobic digestion of sludge and organic fraction of solid waste. Portage MB, with Procter & Gamble, DRANCO, Environment Canada

Selected Recent Service

- **Editorial Advisory Board:** *Jour. Residuals Science and Technology*, DEStech, Lancaster PA, USA
- **Member**, NBP-National Biosolids Partnership (USA), BioEnergy Subcommittee
- **Member**, Management Committee, Specialist Group: *Design, Operation and Costs of Large Wastewater Treatment Plants*, IWA - International Water Association, London UK
- **Chair**, NRR *Nutrient Removal and Recovery* - London UK
- **Member**, IWA Specialist Group *Sludge Management* Group, IWA London UK
- **Scientific Chair & Organizer:** IWA Specialty Conference on Nutrient Management in Wastewater Streams. Krakow PL 7-9 Sept., **2009** www.bnr-iwa2009.pl
- **Director:** Central Region, Canadian Association on Water Quality – CAWQ
- **Member:** Technical Advisory Board, Paradigm Environmental Technologies, Vancouver BC
- **Co-organizer/Speaker:** Small Systems Nutrient Removal Seminar. WCW-WEF, Winnipeg, **2009**
- **Co-organizer:** WEF-IWA Joint Conference on Nutrient Removal, Washington DC **2009**
- **Chair, moderator and speaker:** Biosolids treatment: arrival at a socially accepted product *Workshop, LEMTECH*, Krakow PL 29-30 June **2006**
- **Regional Editor** (The Americas), *Environmental Technology*, London, UK
- **Editorial board** of 4 other journals including *Jour. Material Cycles & Waste Mgmt*, Springer, Japan. *Jour. Environmental Engineering and Science* NRC Ottawa CDN
- **Chair, Scientific Committee:** *Nutrient management in wastewater treatment and sludge recycle streams*. IWA- International Water Association Conference, Krakow 18-21 Sept. **2005**
- **Scientific Committee:** *Anaerobic Digestion* 10th World Congress IWA Montreal **2010**
- **Moderator & Speaker:** *BioEnergy Summit: Advanced Biosolids Digestion Session* Water Environment Federation (WEF), New Orleans, LA 14-15 August 2003
- **Moderator, speaker and editor:** *Recent advances in biosolids processing and utilization* Western Canada Water Seminar, Winnipeg, Oct. 2003
- **National Lecture Tour:** *Biosolids management: state-of-the-art and future trends* Canad.Soc. Civil Engin. (CSCE) Tour: Winnipeg, Calgary, Thunder Bay, Toronto, London, Montreal, St. John; 2001

Selected Publications

- Dytczak M, Oleszkiewicz JA (**2008**) A., Performance change during long-term ozonation aimed at augmenting denitrification and decreasing waste activated sludge. *Chemosphere* **73**:1529-1532
- Puchajda B, Oleszkiewicz J (**2008**) Impact of sludge thickening on energy recovery from anaerobic digestion. *Water Sci. Tech.* **57**: 385-403
- Dytczak M, K. L. Londry, J. Oleszkiewicz (**2008**) Activated sludge operational regime has significant impact on the type of nitrifying community and its nitrification rates. *Water Research* **42**:2320-2328
- Celmer D, J. Oleszkiewicz, N. Cicek (**2008**) Impact of shear force on the biofilm structure and performance of a membrane biofilm reactor for tertiary denitrification of municipal wastewater. *Water Research* **42**: 3057-3065
- Dytczak M, K. L. Londry, and J. A. Oleszkiewicz (**2008**) Nitrifying genera in activated sludge may influence nitrification rates. *Water Envir. Res.* **80**: 388-396
- Huang J., Elektorowicz M., Oleszkiewicz JA (**2008**) Dewatering and disinfection of aerobic and anaerobic sludge using an electrokinetic (EK) system; *Water Sci. Tech.* **57.2**: 231–236
- Dytczak M, K. L. Londry, and J. A. Oleszkiewicz (**2008**) Biotransformation of estrogens in nitrifying activated sludge under aerobic and alternating anoxic/aerobic conditions – *Water Envir. Res.* **80**: 47-52
- Hwang JH, Oleszkiewicz JA (2007) Impact of cold temperature shock on nitrification. *Water Envir. Res.* **79**: 964-968
- Cicek, N., K. Londry, J. Oleszkiewicz, D. Wong, YM Lee (2007) Fate analysis of selected natural and synthetic estrogenic compounds in a Canadian full-scale municipal wastewater treatment plant. *Water Envir. Res.* **79**: 795-800
- Dytczak M, K Londry, H Siegrist, J Oleszkiewicz (2007) Ozonation improves denitrification and reduces sludge production *Water Research* **41**: 543-550

- Fitzmorris K. B., Reimers R. S., Oleszkiewicz J. A., Little, D. M. (2007) Decrease of time for pathogen inactivation in alkaline disinfection systems using pressure. *Water Envir. Res.* **79**: 388-395
- Rezania, B., J. Oleszkiewicz, N. Cicek (2007) An approach to the measurement of decay, active fraction of biomass and extracellular polymeric substances: applied to hydrogen-driven denitrification. *Water Research* **41**: 1074-1080
- Puchajda B, J A Oleszkiewicz (2007) Inactivation of fecal coliform during acid fermentation of sludge. *Forum Ekspl.* 4/2007 (31): 25-26 (in Polish)
- Sears K, J.E. Alleman, J.L. Barnard, J. A. Oleszkiewicz (2006) Density and activity characterization of activated sludge flocs. *Jour. Environ. Engineer.* **132**: 1235-1243
- Oleszkiewicz J A, Barnard J L (2006) **Nutrient removal technology in North America and the European Union: A Review.** *Water Qual. Res. J. Canada* **41**: 449-462
- Rezania B., J. Oleszkiewicz, N. Cicek (2006) Hydrogen-driven denitrification of wastewater in an anaerobic submerged membrane bioreactor: potential for water reuse. *Water Sci. Tech.* **54** (11-12): 207-214
- Celmer D., J. Oleszkiewicz, N. Cicek, H. Husain (2006) Hydrogen limitation – a method for controlling the performance of membrane biofilm reactor for autotrophic denitrification of wastewater, *Water Sci. Tech.* **54** (9): 165-172
- Dytczak M, K. Londry, J Oleszkiewicz (2006) Extracellular polymers in partly ozonated return activated sludge: impact on flocculation and dewaterability. *Water Sci. Tech.* **54** (9):155-164
- Rezania B., J. Oleszkiewicz, N. Cicek (2006) Quantifying inorganic fouling in a membrane bioreactor treating nitrate-contaminated groundwater using hydrogen as energy source. *Water Sci. Tech.: Water Supply* **6** (3): 115-121.
- Puchajda B., Oleszkiewicz J., Sparling R., Reimers R. (2006) Low-temperature inactivation of fecal coliform in sludge digestion. *Water Envir. Research*, **78**: 680-685
- Esmaeily A., M. Elektorowicz, S. Habibi, J. A. Oleszkiewicz (2006) Dewatering and Coliform inactivation in biosolids using an electrokinetic phenomena. *J. Envir. Eng. Science*, **5**:197- 202
- Puchajda, B. and Oleszkiewicz, J. A. (2006) Single and two-stage anaerobic digestion: hydrolysis, acidification and sludge stabilization. *Jour. Envir. Eng. Sci.* **5**: 175-186
- Basu, S.K., J. A. Oleszkiewicz, R. Sparling (2005) Effect of sulfidogenic and methanogenic inhibitors on reductive dehalogenation of 2-chlorophenol. *Envir. Tech.* **26**: 1383-1391
- Rezania, B., N. Cicek J. A. Oleszkiewicz, (2005) Kinetics of hydrogen-dependent denitrification under varying environmental conditions. *Biotech. Bioengineering* **92**: 900-906
- Head M., Oleszkiewicz, J. (2005) Nitrifying bacteria addition into reactors operating near the nitrifier washout conditions. *Jour. Environ. Eng. Sci.* **4**:257-264
- Head M., Oleszkiewicz, J. (2005) Bio-augmentation with nitrifying bacteria acclimated to different temperatures. *Jour. Environ. Eng. ASCE* **131**: 1046-1051
- Barnard, J.L, Oleszkiewicz J.A. (2005) Recent developments in biological nutrient removal. International Water Association Yearbook, *Invited Paper*, IWA 2005, 51-54
- Brewster J., A. Nartey, K.M. Coombs and J.A. Oleszkiewicz (2005) Enteric virus indicators of disinfection: reovirus versus polio. *Jour. Environ. Eng. ASCE* **131**:1010-1013
- Mo, H., J.A. Oleszkiewicz, N. Cicek, B. Rezania (2005) Incorporating membrane gas diffusion into a membrane bioreactor for hydrogenotrophic denitrification of groundwater *Wat. Sci. & Techn.* **51**, No 6-7, 357-364
- Rezania, B., J.A. Oleszkiewicz, N. Cicek, H. Mo (2005) Hydrogen-dependent denitrification in an alternating anoxic-aerobic SBR membrane bioreactor. *Wat. Sci. & Techn.* **51**, No 6-7, 403-409
- Oleszkiewicz J.A., Kalinowska E, Dold P., Barnard J.L., Bieniowski M., Ferenc Z. Jones R., Rypina A., Sudol J. (2004) Carbon limitation in the pre-design simulation of Warsaw's new BNR plant. *Environ. Technology*, **25**: 1405-1411
- Sears K., J.E. Alleman, J.L. Barnard, J.A. Oleszkiewicz (2004) Impacts of reduced sulfur components on active and resting ammonia oxidizers. *J. Ind. Microbiol. Biotechnology*, **31**:369-378
- Lee Y., J.A. Oleszkiewicz (2004) Bench-scale assessment of the effectiveness of an anaerobic selector in controlling filamentous bulking in activated sludge. *Environ. Technology*, **25**: 751-755

- Puchajda B., J. Oleszkiewicz, D. Bowman (2004) Pathogen inactivation in single and two-phase anaerobic digestion. *Jour. Resid. Scie. and Techn.* **1**: 183 - 189
- Lee Y., J.A. Oleszkiewicz, N. Cicek, K. Londry (2004) Endocrine disrupting compounds (EDC) in municipal wastewater treatment: a need for mass balance. *Environ. Techn.* **25**: 635-645

Selected Conference Papers

- Yuan Q, J. Oleszkiewicz (2008) Interaction between denitrification and phosphorus removal in SBR phosphorus removal system. *Proc. WEFTEC08 Conference*, Chicago IL, 18-22 Oct.
- Yuan Q, Sparling R., J. Oleszkiewicz (2008) Effect of different carbon sources on biological phosphorus removal and polyhydroxybutyrate (PHB) production. *Proc. WEFTEC08 Conference*, Chicago IL, 18-22 Oct.
- Celmer D, J. Oleszkiewicz, N. Cicek (2008) Impact of Ultrasound Treatment on the Biofilm Structure and Performance of a Membrane Biofilm Reactor for Tertiary Hydrogen Driven Denitrification of Municipal Wastewater. *Proc. WEFTEC08 Conference*, Chicago IL, 18-22 October
- Reimers RS, Weber DA, Oleszkiewicz JA, Tuttle RE (2008) Residuals management drying technology produces non-combustible ammonium sulphate inorganic/organic fertilizer. *Proc. ECSM European Conf. on Sludge Management*, Liege, 1-2 Sept.
- Yuan Q, J. Oleszkiewicz (2008) Production of polyhydroxybutyrate from industrial waste. *Proc. IWA Chemical industries* 9-11 Nov. Beijing CH
- Hwang JH, N. Cicek, J. Oleszkiewicz JA (2008) Effect of Inorganic Precipitation on the Performance of H₂-driven Membrane Biofilm Reactor for Denitrification. *Proceed. IWA World Congress* Vienna Sept.
- Wohlgemut O, N Cicek, J Oleszkiewicz (2008) Co-Digestion of hog manure with glycerol to boost biogas production. *CSBE Ann. Conf. Vancouver, BC*; 13-16 July
- Hwang JH, J. Oleszkiewicz (2008) The effect of sudden temperature drop on nitrification. *Proc. 20th Intern. Conf. Water Supply and Water Quality*, p. 301-313
- Elektorowicz M., J. Oleszkiewicz, J. Huang, E. Safaei, H. Abdoli, A. Habel (2008) EKDIM – an electrokinetic process treats municipal wastewater sludge for safe land application. *Proc. 20th Intern. Conf. Water Supply and Water Quality*, p. 276-287
- Celmer D, J. Oleszkiewicz, N. Cicek (2008) Impact of ultrasound treatment on the biofilm structure and performance of a membrane biofilm reactor for tertiaryhydrogen denitrification of municipal wastewater. *Proc. 20th Intern. Conf. Water Supply and Water Quality*, p. 251-264
- Dytczak M, Oleszkiewicz J (2008) Nitrifying populations in SBR with anoxic periods increase nitrification rates. *Proceed. IWA's 4th Sequencing Batch Reactor Conference*, Rome Italy 7-10 April
- Oleszkiewicz J, Hwang JH (2008) Limit of treatment (LOT) nutrient removal technology in cold climate. *Proceed. BCWWA Annual Conf. Whistler BC* 25-30 April
- Oleszkiewicz J, Hwang JH (2007) Limit of Nutrient Removal Technology. *Proceed, WCWWA-WEF Seminar on Nutrient Removal* , November 22-23
- Reimers RS, K. B. Fitzmorris, S. D. Pillai, J. A. Oleszkiewicz, J.E. Smith (2007) Emerging chemical processes to produce value-added products (VAPs) from manure and municipal residuals, *WEF Joint Resid. Biosolids Management Conf.* Denver CO April 15-18
- Elektorowicz M, Safaei E, Oleszkiewicz J, Reimers RS (2007) Electrokinetic remediation of biosolids through inactivation of *Clostridium perfringens* spores. *Proceed. New solutions for environmental pollution 6th Sympos. Electrokin. Remediation*, Vigo, Spain, 12-15 June
- Fitzmorris KB, Reimers RS, Pillai SD, Oleszkiewicz JA, Smith JE (2007) Production of safe biosolids from agricultural and municipal residuals: emerging physical-chemical processes. *Moving forward: wastewater biosolids sustainability*. *Intern. Water Assoc. IWA Spec. Conf. Moncton NB* 24-27 June

Education

Wroclaw University of Technology MSc; Vanderbilt University PhD - Environmental Engineering

Recent Award/Honors

- **2008** – Excellence in Teaching Award: University of Manitoba Graduating Class
- **2008** – PROTE Award: *for outstanding achievements in environmental protection*. Poland
- **2004** – Laboratory Analyst Excellence Award: Western Canada Water WCW – WEF
- **2003** - Select Society of Sanitary Sludge Shovelers (5 S Society) Western Canada WEF
- **2003** - Gordon M. Fair Medal: Water Environment Federation (WEF) USA
- **2002** – “Aquarina” Award and Prize: SEEN Ltd and Polish Association of Sanitary Engineers
- **1998** - Albert E. Berry Medal: Canadian Society for Civil Engineers CSCE
- **1998** - Gold Medal: Minister of Environment, Poland