

JEFFREY L. PIERCE, P.E.

Education

B.S. - Civil Engineering, University of Pittsburgh, 1973

M.S. - Environmental Engineering, University of Pittsburgh, 1977

Professional Licenses

Professional Engineer - California (No. 37587) and Massachusetts (No. 31147).

Professional Affiliations

American Society of Mechanical Engineers

Professional Experience

Mr. Pierce has 40 years of experience in energy and environmental facilities project development, engineering, construction management and operation/maintenance. He has been responsible for a wide range of activities and services on energy and environmental projects, including: feasibility studies; conceptual engineering; construction and operating cost estimating; negotiation of energy sales and energy purchase contracts; financial studies and modeling; facility siting; air and wastewater permitting; power line and pipeline routing and right-of-way work; detailed design; construction management; operations training; operation/maintenance manuals; start-up; performance testing; and ongoing operation.

Since its formation in 2001, and through mid-2013, Mr. Pierce managed SCS Energy, the division within SCS Engineers which is responsible for the design, construction and operation/maintenance of biogas energy facilities. During his tenure in that position, SCS Energy was responsible for the:

- Design of 28 biogas fueled power plants with a total capacity of 70 MW. The projects employ reciprocating engines, combustion turbines, microturbines and fuel cells;
- Operation/maintenance of 19 biogas-fueled power plants with a total capacity of 32 MW;
- Design of three biogas-to-pipeline quality gas plants with a total inlet capacity of 12.4 mmscfd;
- Operation/maintenance of five biogas-to-pipeline quality gas plants with a total inlet capacity of 28 mmscfd; and
- Design of nine facilities to produce high purity medium-Btu from biogas.

Almost all of the above design assignments were components of to design/construct projects executed by SCS Energy. Mr. Pierce is currently a Project Director with SCS Energy.

Waste Fuels Utilization Projects and Assignments

- Feasibility studies, conceptual design, cost estimating, financial modeling, environmental permitting, and/or assistance in securing power sales agreements for more than 40 landfill gas-fired electric power generation projects.
- Engineering project manager for the construction, start-up, and performance testing of the 50 MW Puente Hills landfill gas-fired steam electric power plant located in Los Angeles. The plant is fired on 23,000 cfm of landfill gas.
- Feasibility studies, conceptual design and cost estimating for 10 landfill gas-to-pipeline quality gas plants.
- Due diligence investigations to support project financing, project acquisition or the monetization of tax credits for more than 50 landfill gas-to-energy projects that produce or would produce electricity or medium-Btu gas.
- Due diligence investigations to support the acquisition or financing of eight landfill gas-to-pipeline quality gas projects. The projects employed Selexol, membranes or pressure swing adsorption.
- Feasibility studies for three landfill gas-to-CNG projects. Design and implementation of a demonstration-scale landfill gas-to-CNG project that produced 660 gallons per day of gasoline equivalent (GGE).
- Preparation of a waste classification and minimization study to reduce waste management costs at seven landfill gas-to-pipeline quality gas plants. Studies to investigate technical problems or optimize performance at four other landfill gas-to-pipeline quality gas plants.
- Conceptual design, cost estimating, and financial modeling of alternatives for an industrial cogeneration project which would burn 140,000 cfm of low-Btu blast furnace gas (110 Btu/ft²) and produce 675,000 pph of steam and 25 MW of power.
- Team member on a feasibility study on alternatives for productive use of 5,000 cfm of existing and increased digester gas production at the City of Los Angeles' main wastewater treatment plant. This study recommended expansion of the existing cogeneration facilities to 25 MW.
- Preparation of a feasibility study on sludge and digester gas-fired power production at the City of San Bernardino's 20 MGD wastewater treatment plant.
- Engineering project manager for the detailed design, construction, start-up, and performance testing of the sludge combustion and energy recovery facilities at the City of Los Angeles' 400 MGD main wastewater treatment plant. The project employed fluidized bed combustion and advanced air emission controls in burning powdered sludge, sludge oil, and digester gas (600 Btu/ft³).

- Engineering project manager for the conceptual design, detailed design, and construction of a 30 MW wood and agricultural waste-fired fluidized bed power plant in Delano, California.
- Conceptual design and cost estimating for three projects in Pennsylvania and West Virginia totaling 115 MW intended to be fired on coal preparation plant wastes.
- Landfill gas utilization feasibility study for Korea's largest municipal solid waste landfill. The landfill has 70 million tons of waste in place and is currently accepting 17,000 tons per day. Alternatives under consideration included electric power generation (50 MW) and pipeline-quality gas (24 mmscfd). In a subsequent assignment, he provided design engineering consulting services to Korea Power Engineering Company in support of the design of a 50 MW steam cycle power plant.
- Landfill gas utilization consulting project at Korea's largest closed municipal solid waste landfill. The landfill has over 100 million tons in place. The project involved installation of two 100 mmBtu/hr hot water boilers to supply 250°F low-pressure water to a district heating system. Mr. Pierce provided advice on boiler plant modifications to support landfill gas firing, prepared landfill gas recovery projections, and recommended well field improvements to increase landfill gas recovery.
- Preparation of landfill gas-to-energy feasibility studies for projects in Muribeca, Brazil; Lima, Peru; and Managua, Nicaragua.
- Design, procurement, construction and startup engineering support for a 120 MW coal mine methane power plant located in Jincheng, Shanxi Province, People's Republic of China.
- Feasibility study for two 6.4 MW coal mine methane power projects in Urumqui, Xinjiang Province, People's Republic of China.

Conventional Power Projects and Assignments

- Project manager for the design of a 24 MW natural gas-fired reciprocating engine cogeneration plant in Indiana, Pennsylvania.
- Engineering project manager for the detailed design, construction, start-up, and performance testing of a 50 MW coal-fired fluidized bed power plant in Stockton, California.
- Conceptual design, detailed construction cost estimate, and preliminary air, water, and wastewater permitting for a 250 MW coal-fired fluidized-bed power plant to be located in central Pennsylvania.
- Conceptual designs and cost estimates for five natural gas-fired combustion turbine projects totaling 375 MW.

- Participation in reactivation/upgrade cost assessments for a cold-reserved 300 MW coal-fired power plant and a cold-reserved 330 MW combustion turbine power plant.
- Preparation of feasibility evaluations for two dozen potential “inside-the-fence” natural gas-fired cogeneration projects at industrial and institutional sites across the United States. Execution of technical/economic performance models to optimize the conceptual design of individual facilities based on “in-house” thermal and power demands and based on projected public utility charges for standby and supplemental power.
- Preparation of a cogeneration feasibility study for the expanded greater Pittsburgh International Airport.

Landfill Gas Collection and Control Projects and Assignments

- Preparation of landfill gas recovery projections for more than 80 landfills across the United States.
- Project Manager for the design of a landfill gas collection and control system for a Superfund Site in Los Angeles. The site had 29 million tons of municipal solid waste in place. The system incorporated over 250 extraction wells and a 7,000 cfm 99.99 percent DRE flare station.
- Project Manager for the design of a landfill gas collection and control system for a municipal solid waste disposal site in San Diego. The active site had 25 million tons of waste in place. The system incorporated a 6,000 cfm flare, over 250 extraction wells, 20,000 feet of low-pressure transmission line, and a 2,500 cfm gas processing/compressor station. The project fueled cogeneration facilities at two remote locations.
- Project Manager for the design of a landfill gas collection and control system for a Superfund Site in Denver. The municipal solid waste landfill had 6 million tons of waste in place. The system incorporated 50 extraction wells and a 2,000 cfm flare equipped for destruction of condensate and off-gas from a groundwater treatment plant.
- Project Manager for various landfill gas projects at a 9-million-ton active landfill in San Diego. Projects include development of an updated surface monitoring and well field operations manual; design and installation of additional extraction wells; testimony before the local air pollution control district; implementation of an expanded well field monitoring program for downhole well temperatures and carbon monoxide; and development of a conceptual plan for the landfill gas component of the landfill’s final closure plan.
- Project Manager for the landfill gas component of a project to develop a 40-year waste management strategic master plan for San Bernardino County. Responsible for determining the landfill gas collection and control system needs for 17 active and 23

- inactive landfills. The scope of work covered the development of landfill gas production models, conceptual designs, and construction/operating cost estimates.
- Project manager for preparation of landfill gas master plans for four landfills having a total of 42 million tons of refuse in place. Review of the regulatory status, operations, performance, and condition of the existing landfill gas collection systems. The studies addressed subsurface migration, surface emissions, groundwater impacts, and the condition and performance of the well fields and flare stations.
 - Development of a NSPS design plan for a landfill gas collection and control system for a 6,000 ton/day landfill in Las Vegas.

Municipal and Industrial Wastewater Treatment Projects and Assignments

- Preparation of a leachate management feasibility study for a closed 5 million ton landfill in Northern California. The study addressed treatment with surface discharge, leachate evaporation, pretreatment and discharge to a POTW, and recycle/reuse.
- Preparation of a study on alternatives for water conservation and wastewater reduction (including a zero discharge plan) for the largest refuse-fired energy recovery facility in New England.
- Preparation of a conceptual design, detailed design, permit application, and operation/maintenance manual for a zero discharge wastewater management system for a 30 MW power plant in California.
- Development of an oily wastewater treatment and partial wastewater reuse system for a major hydrocarbon storage and distribution terminal in Southern California.
- Preparation of an industrial wastewater pretreatment program to regulate dischargers tributary to the City of Pittsburgh's 200 MGD main wastewater treatment plant.
- Final technical responsibility for more than 50 studies addressing the siting, cost-effectiveness, and environmental impact of municipal wastewater facilities projects ranging in the size from 0.5 MGD to 20 MGD.
- Preparation of a feasibility study addressing options for improved sludge processing/disposal facilities and for expansion of the secondary treatment facilities at the Allegheny County Sanitary Authority's 200 MGD wastewater treatment plant which serves the City of Pittsburgh and 76 adjacent municipalities. A financing and institutional arrangements plan was developed. Also responsible for the preliminary design and siting of a 500 ton/day lined landfill and an analysis of sludge transportation options, routes, and costs. The study recommended a \$120 million capital improvement program designed to replace aged equipment, improve energy efficiency and reduce operating costs.

Publications and Presentations

Pierce, J. "Siloxanes and Landfill Gas Utilization," MSW Management, June 2015.

Pierce, J. and Hamilton, S., "Landfill Gas to CNG 101: Basics of LFG Conversion to B-CNG and B-CNG Utilization," 16th Annual LMOP Conference and Project Expo, Baltimore, Maryland, January 2013

Pierce, J., "Evaluation of the Relative Performance and Economics of Membranes Versus Pressure Swing Adsorption Technology for Pipeline Quality Gas Plants," SWANA's 35th Annual Landfill Gas Symposium, Orlando, Florida, March 2012.

Pierce, J. and Ramirez, A., "Sonoma Landfill Gas to Vehicle Fuel Demonstration Project: Final Report," SWANA's 35th Annual Landfill Gas Symposium, Orlando, Florida, March 2012.

Pierce, J., "Alternatives for Co-Firing Biomethane in Fossil-Fueled Power Plants," EUEC 15th Annual Energy and Environmental Conference and Expo, Phoenix, Arizona, February 2012.

Pierce, J., "Siloxane Sampling, Analysis and Data Reporting: Recommendations on Standardization for the Biogas Utilization Industry," SWANA's 34th Annual Landfill Gas Symposium, Dallas, Texas, March 2011.

Pierce, J., "Conversion of Landfill Gas to Compressed Natural Gas for Use as a Vehicle Fuel: Technology and Economics," SWANA E-Session, March 2011.

Pierce, J. and Smyth, P., "Quantification of the Incremental Cost of Nitrogen and Oxygen Removal at High-Btu Plants," 14th Annual LMOP Conference and Project Expo, Baltimore, Maryland, January 2011.

Pierce, J., "Performance and Economics of Currently Available Technologies for Removal of Siloxane from Biogas," Wastecon 2010, August 2010.

Pierce, J., "Upgrading and Expanding the McCommas Bluff High-Btu Gas Plant," SWANA 32nd Annual Landfill Gas Symposium, Atlanta, Georgia, March 2009.

McConnell, R. and Pierce, J., "Initial Operation/Maintenance Experience with the Caterpillar 3520C on Landfill Gas," SWANA 32nd Annual Landfill Gas Symposium, March 2009.

Pierce, J., "Conversion of Biogas to a Natural Gas Equivalent for Delivery into Pipelines or Use as a Vehicle Fuel," Renewable Energy World Conference and Expo North America 2009, Las Vegas, Nevada, March 2009.

Pierce, J., "Technical and Economic Evaluation of Alternative Methods for Removal of Siloxane from Landfill Gas," SWANA 31st Landfill Gas Symposium, Houston, Texas, March 2008.

Pierce, J., "Landfill Gas Capture: Project Design vs. Actual Performance and the Future for CDM Projects," World Bank Workshop, Washington, D.C., April 2007.

Pierce, J. and Ramirez, A., "Mountaingate Medium-Btu Gas Plant: Over 20 Years of Successful Operation," SWANA 30th Annual Landfill Gas Symposium, Monterey, California, March 2007.

Pierce, J., "Landfill Gas to Vehicle Fuel: Assessment of Its Technical and Economic Feasibility," SWANA 30th Annual Landfill Gas Symposium, Monterey, California, March 2007.

Pierce, J., "Reactivation of the Closed 7.5 MW Landfill Gas Fired Penrose Power Plant," 10th Annual LMOP Conference and Project Expo, Baltimore, Maryland, January 2007.

Pierce, J. and Liang, L., "Design and Implementation of a 120 MW Coal Mine Methane Fired Power Plant in Shanxi Province, People's Republic of China," China Power Gen Event, Hong Kong, September 2006.

Pierce, J., "Air Emissions from Landfill Gas Fired Electric Power Generation Facilities -- Past, Present and Future," SWANA 29th Annual Landfill Gas Symposium, St. Petersburg, Florida, March 2006.

Ramirez, A. and Pierce, J., "Update on the Status of the 250 kW Microturbine Demonstration Project at the Burbank Landfill," SWANA 29th Annual Landfill Gas Symposium, St. Petersburg, Florida, March 2006.

Pierce, J., "Pipeline Quality Gas -- An LFG Utilization Alternative Soon Ready to Come in From the Cold," 9th Annual LMOP Conference and Project Expo, Baltimore, Maryland, January 2006.

Pierce, J., "Landfill Gas to Energy -- Current Status of Technologies, Energy Markets and Incentives," SWANA's WasteCon 2005, Austin, Texas, September 2005.

Pierce, J., "Designing and Operating a Landfill Gas to Energy Project," Intermountain CHP Application Center Workshop -- CHP and Bioenergy for Landfills and Wastewater Treatment Plants, Salt Lake City, Utah, August 2005.

Pierce, J., "Capstone 30 kW and 60 kW Microturbine Installations at Landfills," Intermountain CHP Application Center Workshop -- CHP and Bioenergy for Landfills and Wastewater Treatment Plants, Salt Lake City, Utah, August 2005.

Pierce, J., "Overview of LFG Utilization Alternatives: Current Status and Emerging Technologies," Arizona Landfill and Solid Waste Seminar, Phoenix, Arizona, May 2005.

Wheless, E. and Pierce, J., "Siloxanes in Landfill and Digester Gas Update," SWANA 28th Annual Landfill Gas Symposium, San Diego, California, March 2005.

Pierce, J., "250 kW Landfill Gas Fired Microturbine Demonstration Project at the Burbank Landfill," SWANA's 28th Annual Landfill Gas Symposium, San Diego, California, March 2005.

Pierce, J., "Siloxane Quantification, Removal and Impact on Landfill Gas Utilization Facilities," 8th Annual LMOP Conference and Project Expo, Baltimore, Maryland, January 2005.

Pierce, J., "Development of a 50 MW Landfill Gas Fired Power Plant at South Korea's Largest Landfill," SWANA 27th Annual Landfill Gas Symposium, San Antonio, Texas, March 2004.

Pierce, J., "Microturbines Update," USEPA 7th Annual LMOP Conference and Project Expo, Washington, D.C., January 2004.

Pierce, J., "Modeling Landfill Gas Generation and the Costs of Energy Recovery Projects," USEPA Landfill Methane Outreach Program LFGTE Workshop, Honolulu, Hawaii, December 2003.

Pierce, J., "Emerging LFGTE Technologies for Low Methane Content Landfills and Small Power Applications," USEPA Landfill Methane Outreach Program Mini-Course, Scottsdale, Arizona, May 2003.

Pierce, J., "Landfill Gas Management with Microturbines," SWANA Western Regional Symposium, Palm Springs, California, May 2003.

Pierce, J. and LaFountain, L., "OII Landfill Microturbine Power Plant: Case Study," SWANA 26th Annual Landfill Gas Symposium, Tampa Florida, March 2003.

Pierce, J., "Industry Hills Power Plant -- Co-Firing, Cogeneration and a Catalyst," SWANA's 26th Annual Landfill Gas Symposium, Tampa Florida, March 2003.

Pierce, J., "Development and Operation of Six Biogas Fired Microturbine Power Plants," 6th Annual Electric Utilities Environmental Conference, January 2003.

Pierce, J. and Benson, B., "Three Successful Landfill Gas Fired Microturbine Projects: Case Studies," SWANA WasteCon 2002, Long Beach, California, October 2002.

Pierce, J., "Conversion of Landfill Gas to Vehicle Fuel: Current Status," 2nd Asian Pacific Landfill Symposium, Seoul, Korea, September 2002.

Pierce, J., "Landfill Gas Utilization Alternatives -- Technologies, Performance and Costs," 2nd Asian Pacific Landfill Symposium, Seoul, Korea. September 2002.

Pierce, J. and Benson, B., "Jamacha Landfill Microturbine Power Plant: A Case Study," SWANA 25th Annual Landfill Gas Symposium, Monterey, California, March 2002.

Pierce, J., "Microturbine Distributed Generation Using Waste Fuels," Electric Utilities Environmental Conference 2002, Tucson Arizona, January 2002.

Pierce, J., "Institutional, Financial and Interconnection Issues and Options," California Energy Commission's California LFGTE Workshop, Sacramento, California, October 2001.

Pierce, J., "Microturbine Distributed Generation Using Conventional and Waste Fuel," Power-Gen Asia, Kuala Lumpur, Malaysia, September 2001.

- Pierce, J., "Commercial Development of Closed Landfills: Case Studies and Technical/Regulatory Issues," SWANA's 6th Annual Landfill Symposium, San Diego, California, June 2001.
- Pierce, J., "Recent Developments in LFGTE Incentives and in LFGTE Energy Markets," SWANA's 24th Annual Landfill Gas Symposium, Dallas, Texas, March 2001.
- La Fountain, L., Pierce, J. and Benson, B., "Landfill Gas Migration Monitoring and Landfill Gas System Operation Before, During, and After Final Closure of the OII Landfill," SWANA's 24th Annual Landfill Gas Symposium, Dallas, Texas, March 2001.
- Pierce, J., and Stege, A., "Characterization of Landfill Gas Surface Emissions at Landfills with Soil Covers," Waste Tech 2001, San Diego, California, February 2001.
- Pierce, J., "Fuel Cost Savings and Greenhouse Gas Emission Reduction through Co-Firing with Landfill Gas," Power-Gen International, Orlando, Florida, November 2000.
- Pierce, J., "Specific Considerations in the Design, Construction and Operation of LFG Extraction Systems," Korea Solid Wastes Engineering Society 2000 Waste Landfill Symposium, Seoul, Korea, October 2000.
- Pierce, J., Cho, S. C., and Joo, W. C., "Landfill Gas Control and Utilization at the Sang-Am Landfill (Korea)," SWANA 23rd Annual Landfill Gas Symposium, San Diego, California, March 2000.
- Pierce, J., and LaFountain, L., "Application of Advanced Characterization Techniques for Identification of Thermogenic and Biogenic Gases," Waste Tech 2000, Orlando, Florida, March 2000.
- Pierce, J., "Greenhouse Gas Emission Reduction Credits from Landfill Gas Utilization and Control," Power-Gen International, New Orleans, Louisiana, December 1999.
- Pierce, J., and Stege, A., "Destruction of Landfill Gas Toxics in Conventional Enclosed Flares," SWANA 22nd Annual Landfill Gas Symposium, Lake Buena Vista, Florida, March 1999.
- Pierce, J., "Landfill Gas Utilization Alternatives: Pipeline Quality Gas; Vehicle Fuel; Hydrogen; Methanol; and Fuel Cells," Waste Tech '99, New Orleans, Louisiana, February 1999.
- Pierce, J., "Landfill Gas Utilization: Project Development in a Distressed and Changing Energy Market," Waste Expo '98 Conference and Exhibition, Chicago, Illinois, June 1998.
- Pierce, J., "Implementation of NSPS and Emission Guidelines for Municipal Solid Waste Landfills," CIWMB/AEG Landfill Gas Assessment and Management Symposium, Ontario, California, April 1998.
- Pierce, J., and Beizer, M., "Design and Implementation of a Landfill Gas Control System at the Operating Industries Landfill Superfund Site," SWANA 21st Annual Landfill Gas Symposium, Austin, Texas, March 1998.

Pierce, J., and Stege, A., "Landfill Gas Surface Emissions Monitoring under NSPS--An Adequate Measure of Landfill Gas Control System Performance?" SWANA 35th Annual International Solid Waste Exposition, St. Louis, Missouri, October 1997.

Pierce, J., "Landfill Gas Electric Power Generation: A Cost-Effective and Environmentally Sound Renewable Energy Source," Power-Gen '97 ASIA, Singapore, September 1997.

Pierce, J., "Municipal and Industrial Waste Minimization in the United States," National Conference on Waste, La Baul, France, September 1997.

Pierce, J., "Landfill Gas Management--Update on Control/Recovery Options," Waste Expo '96, Las Vegas, Nevada, May 1996.

Pierce, J., "Landfill Gas Air Emissions Modeling and Reporting Under NSPS," SWANA Landfill Gas Emission Regulation (NSPS) Workshop, Los Angeles, California, April 1996.

Pierce, J., "Waste-to-Energy Opportunities in Municipal Solid Waste Management," USETI Solid Waste Management Training Program, Tijuana, Mexico, March 1996.

Pierce, J., "VOC and HAP Control Regulations and Options for the Aerospace Industry," Aerospatial Seminar, Paris, France, February 1996.

Pierce, J., and Gauntlett, S., "ISO 14000--The International Environmental Management Standard: Potential Impacts on Environmental Management and Auditing in the Electric Power Generation Industry," Annual Exhibition and Conference for the Power Generating Industries (Power-Gen '95), Anaheim, California, October 1995.

Pierce, J., and Sbei, S., "Augmentation of Combustion Turbine Power Output through the Application of Inlet Air Absorption Chilling," Annual Exhibition and Conference for the Power Generating Industries (Power-Gen '94), Orlando, Florida, December 1994.

Pierce, J., "Industrial Estate Assessment and Pollution Control Workshop," World Environmental Center Indonesian Delegation Environmental Training Program, San Francisco, California, April 1994.

Pierce, J., "Evaluation of Alternatives for Air Emissions Reduction and Increased Electric Power Output for a 130 MW Central Heating Plant in Nachod, Czech Republic," ASME Industrial Power Conference, San Francisco, California, March 1994.

Pierce, J., "NO_x Offset Trading: Regulatory and Economic Considerations in the Developing Market," Annual Exhibition and Conference for the Power Generating Industries (Power-Gen '93), Dallas, Texas, November 1993.

Duckett, E. J., and Pierce, J., "Landfill Gas Electric Power Generation--an Emerging Renewable Resource, Annual Exhibition and Conference for the Power Generating Industries (Power-Gen '93), Dallas, Texas, November 1993.

Pierce, J., "Review of SO₂, NO_x, and Particulate Control Technologies Applicable to Coal-Fired Utility Power Plants," Czech Power Company Seminar, Prague, Czech Republic, November 1993.

Pierce, J., Williams, D. and Duckett, E.J., "Air Emissions at Landfill Gas-fired Electric Power Generation Facilities," AWMA Conference on the Environmental Aspects of Cogeneration, Pittsburgh, Pennsylvania, November 1992.

Pierce, J., Karl, M. and Duckett, E.J., "Evaluation of Contracting Alternatives for Reactivation of a 330 MW Combined Cycle Power Plant," Annual Exhibition and Conference for the Power Generating Industries (Power-Gen '92), Orlando, Florida, November 1992.

Pierce, J., "Alternative Contractual and Financial Arrangements for Implementation of Landfill Gas Power Generation Projects," Solid Waste Association of North America 15th Annual Landfill Gas Symposium, Arlington, Virginia, March 1992.

Pierce, J., Haug, R. and Duckett, E.J., "Initial Operation of Three Solid Fuel-Fired Non-Utility Power Plants Designed for Ultra-Low SO₂ and NO_x Emissions," 53rd American Power Conference, Chicago, Illinois, April 1992.

Pierce, J., and Sbei, S., "Design, Permitting, and Initial Operation of a 31 MW Agricultural Waste Fired Power Plant," ASCE/EPRI Specialty Conference, Pittsburgh, Pennsylvania, March 1991.

Pierce, J., "Zero Discharge Wastewater Management System at a 31 MW Agricultural Waste-Fired Power Plant," Water Environment Federation Annual Conference, Industrial Waste Symposium, Washington, D.C., October 1990.

Pierce, J., "Cogeneration Feasibility Study for the Greater Pittsburgh International Airport Expansion," American Society of Civil Engineers, 1988 National Convention, Session No. 60--Trends and Changes in Power Generation Facilities Construction, Nashville, Tennessee, May 1988.

Cooper, J., Eshelman, M., and Pierce, J., "Status of Combustion System for Dried Sewage Sludge at Los Angeles HERS Facility," Eighth International Conference on Fluidized Bed Combustion, Houston, Texas, March 1985.

Pierce, J., "Development of an Industrial Wastewater Pretreatment Plan for the Pittsburgh Metropolitan Area," Water Environment Federation 56th Annual Conference, Atlanta, Georgia, October 1983.

Huang, P., and Pierce, J., "Obstacles and Problems to Be Overcome in Developing an Effective Areawide Hazardous Waste Management Plan," Water Environment Federation, 54th Annual Conference, Detroit, Michigan, October 1981.

Pierce, J., and Lundberg, L., "Economic and Technical Feasibility of Large-Scale Anaerobic Digestion of Municipal Wastewater Treatment Plant Sludge," Water Environment Federation, 53rd Annual Conference, Las Vegas, Nevada, September 1980.

Pierce, J., and Bradd, B., "Industrial and Hazardous Residue Classification System," Twelfth Mid-Atlantic Industrial Waste Conference: Toxic and Hazardous Waste Management, Bucknell University, July 1980.

Pierce, J., "Metropolitan Pittsburgh's Sludge Management Plan," American Society of Civil Engineers 1979 Convention and Exposition, Boston, Massachusetts, April 1979.

Patents

Method for Production of a Compressed Natural Gas Equivalent from Landfill Gas and Other Biogases (U.S. Patent No. 8,999,036 – April 7, 2015)