

DANIEL A. BURGARD, PHD

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I. Education

- August 2006 Doctor of Philosophy, Chemistry
University of Denver, Denver, CO
Thesis: *Remote Sensing of Ammonia, Sulfur Dioxide, and Nitrogen Dioxide Emissions from Cars and Trucks*
- May 1996 Bachelor of Arts, Chemistry
The Colorado College, Colorado Springs, CO

II. Academic Appointments

- 7/17 – present **Professor of Chemistry:** University of Puget Sound, Tacoma, WA
- 9/21 – 7/22 **Senior Research Fellow:** Institute of Pesticides and Waters, University of Jaume I, Castellon, Spain
- 7/16 – 6/19 **Chair of Chemistry Department:** University of Puget Sound, Tacoma, WA
- 7/11 – 6/17 **Associate Professor of Chemistry:** University of Puget Sound, Tacoma, WA
- 7/13 – present **Affiliate Associate Professor:** University of Washington, Tacoma, WA
Department of Interdisciplinary Arts and Sciences
- 7/08 – 6/11 **Assistant Professor of Chemistry:** University of Puget Sound, Tacoma, WA
- 8/06 – 6/08 **Visiting Assistant Professor:** University of Puget Sound, Tacoma, WA
- 1/06 – 3/06 **Adjunct Faculty:** University of Denver
- 08/97 – 05/02 **Chemistry Teacher:** Regis Jesuit High School, Aurora, CO
- 06/96 – 06/97 **Chemistry Paraprofessional:** The Colorado College, Colorado Springs, CO

III. Awards

- 2022 Bartanen Research Award: University of Puget Sound
- 2020 Lynwood W. Swanson Scientific Research Award: M.J. Murdock Charitable Trust
- 2017 Senior Faculty Research Award: University of Puget Sound
- 2014 Thomas A. Davis Teaching Award: University of Puget Sound

IV. Funding

- 2020 – 2023 NIH/NIDA *Drug Consumption Trends and Take Back Program Indicators: A wastewater-based approach in Washington State* (R15DA051792) Principle Investigator
- 2020 M.J. Murdock Charitable Trust, Lynwood W. Swanson Scientific Research Award
- 2015 – 2017 NIH/NIDA *Using Sewers to Understand the Legalized Retail Sales Effects on Marijuana Consumption* (R03DA038806) Principle Investigator
- 2016 – 2017 M.J. Murdock Charitable Trust, Partners In Science Program *Investigating the Removal of Emerging Contaminants from a Surface Water Biofiltration System* (Support for a high school teacher for two summers) PI/Mentor

2015 NSF-MRI *Acquisition of High performance Liquid Chromatography and Mass Spectrometry Instrumentation to Support Research and Training at Puget Sound* (1531435) Co-PI

2006 – present University of Puget Sound Internal research and conference travel grants for my lab

V. Manuscripts * denotes University of Puget Sound student co-author

- (1) Gao, J.; **Burgard, D.A.**; Tscharke, B.J.; Yin Lai, F.; O'Brien, J.W.; Zheng, Q.; Li, J.; Li, X.; Du, P.; Wang, D.; Castiglioni, S.; Cruz-Cruz, C.; Baz-Lomba, J.A.; Yargeau, Y.; Emke, E.; Thomas, K.V.; Mueller, J.F.; Thai, P.K. Refining the estimation of amphetamine use by wastewater-based epidemiology using the ratio of amphetamine to methamphetamine produced by methamphetamine consumption. *Water Res.* **2022** doi.org/10.1016/j.watres.2022.119182
- (2) Bade, R.; White, J.; Ghetia, M.; Adiraju, S.; Adhikari, S.; Bijlsma, L.; Boogaerts, T.; **Burgard, D.**; Castiglioni, S.; Celma, A.; Chappell, A.; Covaci, A.; Driver, E.; Halden, R.; Hernández, F.; Lee, H.; van Nuijs, A.; Oh, J.; Pineda Castro, M.; Salgueiro Gonzalez, N.; Subedi, B.; Shao, X.; Yargeau, V.; Zuccato, E.; Gerber, C. A Taste for New Psychoactive Substances: Wastewater analysis study of 10 countries. *Environ Sci. Technol. Lett.* **2021** doi.org/10.1021/acs.estlett.1c00807
- (3) Bade, R.; White, J.M.; Chen, J.; Baz-Lomba, J.A.; Been, F.; Biglsma, R.; **Burgard, D.A.**; Castiglioni, S.; Celma, A.; Chappell, A.; Emke, E.; Salguero Gonzalez, N.; Steenbeek, R.; Wang, D.; Zuccato, E.; Gerber, C. International Snapshot of New Psychoactive Substance Use: Case study of eight countries over the 2019/2020 New Year Period. *Water Res.*, **2021**, *193*, 116891. <https://doi.org/10.1016/j.watres.2021.116891>
- (4) González-Mariño, I.; Baz-Lomba, J.A.; Alygizakis, N.A.; Andrés-Costa, M.J.; Bade, R.; Barron, L.P.; Been, F.; Berset, J.-D.; Bijlsma, L.; Bodík, I.; Brenner, A.; Brock, A.L.; **Burgard, D.A.**; et al. (+58) Spatio-temporal assessment of illicit drug use at large scale: evidence from 7 years of international wastewater monitoring. *Addiction*. **2020**, *115* (1), 109-120.
- (5) **Burgard, D.A.**; Williams, J.; Westerman, D.*; Carpenter, R.*; LaRock, A.*; Rushing, R.*; Sadetsky, J.*; Clarke, J.*; Fryhle, H.*; Pellman, M.*; Banta-Green, C.J. Using Wastewater-based Analysis to Monitor the Legalized Retail Sales Effects on Cannabis Consumption. *Addiction*. **2019**, *114*, 1582-1590. DOI: 10.1111/add.14641
- (6) Breuer, M.A.*; **Burgard, D.A.** Bridge-based remote sensing of NO_x emissions from locomotives. *Atmos. Environ.* **2019**, *198*, 77-82.
- (7) van Nuijs, A.; Lai, F.; Been, F.; Andres Costa, M.J.; Barron, L.; Baz Lomba, J.A.; Berset, J.D.; Benaglia, L.; Bijlsma, L.; **Burgard, D.**; Castiglioni, S.; Christophoridis, C.; Covaci, A.; de Voogt, P.; Emke, E.; Fatta-Kassinos, D.; Fick, J.; Hernandez, F.; Gerber, C.; Gonzalez-Marino, I.; Grabic, R.; Gunnar, T.; Kannan, K.; Karolak, S.; Kasprzyk-Hordern, B.; Kokot, Z.; Krizman, I.; Li, A.; Li, X.; Love, A.; Lopez de Alda, M.; Meyer, M.; Oberacher, H.; O'Brien, J.; Quintana, J.B.; Reid, M.; Schneider, S.; Simoes, S.; Thomaidis, N.; Thomas, K.; Yargeau, V.; Ort, C. Multi-year interlaboratory exercises for the analysis of illicit drugs and metabolites in wastewater: development of a quality control system. *Trends Anal. Chem.* **2018**, *103* 34-43. doi.org/10.1016/j.trac.2018.03.009
- (8) Causanilles, A.; Baz-Lomda, J.A.; **Burgard, D.A.**; Emke, E.; Gonzalez-Marino, I.; Krizman-Matasic, I.; Li, A.; Love, A.S.C.; McCall, A.K.; Montes, R.; van Nuijs, A.L.N.; Ort, C.; Quintana, J.B.; Senta, I.; Terzic, S.; Hernandez, F.; de Voogt, P.; Bijlsma, L. Improving wastewater-based epidemiology to estimate cannabis use; focus on the initial aspects of the analytical procedure. *Anal. Chim. Acta.* **2017**, *988* 27-33 doi.org/10.1016/j.aca.2017.08.011
- (9) Williams, J.; Banta-Green, C.; **Burgard, D.** The need for better marijuana sales data. *Addiction*. **2017**, *112*(12), 2179-2180. doi: 10.1111/add.14037.

- (10) Bishop, G.A.; Stedman, D.H.; **Burgard, D.A.**; Atkinson, O.* High-mileage Light-duty Fleet Vehicle Emissions: Their Potentially Overlooked Importance. *Environ Sci Technol.* **2016**, *50* (10), 5405-5411.
- (11) **Burgard, D.A.**; Bria, R.M.* Bridge-based sensing of NO_x and SO₂ emissions from ocean-going ships. *Atmos. Environ.* **2016**, *136* 54-60. doi:10.1016/j.atmosenv.2016.04.014
- (12) Moore, D.; **Burgard, D. A.**; Larson, R.* ; Ferm, M.* Psychostimulant Use Among College Students During Periods of High and Low Stress: An Interdisciplinary Approach Utilizing Both Self-Report and Unobtrusive Chemical Sample Data. *Addictive Behaviors*, **2014**, *39*(5) 987-993
- (13) **Burgard, D.A.**; Banta-Green, C.; Field, J.A. Working Upstream: How far can you go with sewage-based drug epidemiology? *Environ. Sci. Technol.* **2014**, *48* (3) 1362-1368.
- (14) **Burgard, D.A.**; Fuller, R.; Becker, B.*; Ferrell, R.*; Dinglasan-Panlilio, M.J. Potential Trends in Attention Deficit Hyperactivity Disorder (ADHD) Drug Use on a College Campus: Wastewater Analysis of Amphetamine and Ritalinic Acid. *Sci Total Environ* **2013**, *450-451*, 242-249.
- (15) **Burgard, D.A.**; Bria, C.R.M.*; Berenbeim, J.A.* Remote Sensing of Emissions from In-Use Small Engine Marine Vessels. *Environ. Sci. Technol.* **2011**, *45*, 2894-2901.
- (16) **Burgard, D.A.**; Provinsal, M.* On-Road, In-Use Gaseous Emissions Measurements by Remote Sensing of School Buses Equipped with Diesel Oxidation Catalysts and Diesel Particulate Filters. *J. Air Waste Manage. Assoc.*, **2009**, *59*, 1468-1473.
- (17) **Burgard, D.A.**; Bishop, G.A.; Stedman, D.H.; Gessner, V. H.; Daeschlein, C. Remote Sensing of in Use Heavy Duty Diesel Vehicles. *Environ. Sci. Technol.*, **2006**, *40*, 6938-6942.
- (18) **Burgard, D.A.**; Bishop, G.A.; Stedman, D.H. Remote Sensing of Ammonia and Sulfur Dioxide from On-Road Light Duty Vehicles. *Environ. Sci. Technol.*, **2006**, *40*, 7018-7022.
- (19) **Burgard, D.A.**; Bishop, G.A.; Stadtmuller, R.S.; Dalton, T.R.; Stedman, D.H. Spectroscopy Applied to Mobile Source Emissions. *Appl. Spectrosc.*, **2006**, *60*, 135A-148A.
- (20) Bishop, G.A.; **Burgard, D.A.**; Dalton, T.R.; Stedman, D.H.; Ray, J.D. Winter Motor Vehicle Emissions in Yellowstone National Park. *Environ. Sci. Technol.*, **2006**, *40*, 2505-2510.
- (21) **Burgard, D.A.**; Dalton, T.R.; Bishop, G.A.; Starkey, J.R.; Stedman, D.H. A Nitrogen Dioxide, Sulfur Dioxide, and Ammonia Detector for Remote Sensing of Vehicle Emissions. *Rev. Sci. Instrum.*, **2006**, *77*, 014101/1-014101/5.
- (22) **Burgard, D.A.**; Abraham, J.; Allen, A.; Craft, J.; Foley, W.; Robinson, J.; Wells, B.; Xu, C.; Stedman, D.H. Chemiluminescent Reactions of Nickel, Iron, and Cobalt Carbonyls with Ozone. *Appl. Spectrosc.*, **2006**, *60*, 99-102.
- (23) **Burgard, D.A.** An Introduction to the General Chemistry Laboratory that Makes a Lasting Impression Concerning Laboratory Safety. *Chem. Educator*, **2005**, *10*, 427-429.

VI. Books and Book Chapters

*denotes Puget Sound student co-author

- (1) Bijlsma, L.; **Burgard, D.A.**; Been, F.; Ort, C.; Matias, J.; Yargeau, V. The estimation of cannabis consumption through wastewater analysis. In: *Comprehensive Analytical Chemistry, Volume 91, Analysis of Cannabis* (Elsevier), edited by I. Ferrer & M. Thurman. **2020**, ISSN 0166-526, DOI: 10.1016/bs.coac.2020.04.005.

- (2) Rushing, R.*; **Burgard, D.A.** Wastewater-Based Epidemiology to Determine Temporal Trends in Illicit Stimulant Use in Seattle, WA, USA. In *Wastewater Based Epidemiology - Estimation of Community Consumption of Drugs and Diets*; Subedi, B.; Burgard, D.A.; Loganathan, B., Eds. ACS symposium series: American Chemical Society, Washington D.C. Volume 1319, Chapter 8, **2019**, 155-166. DOI: 10.1021/bk-2019-1319.ch008
- (3) Subedi, B.; **Burgard, D.A.** Wastewater Based Epidemiology as a Complementary Approach to the Conventional Survey-Based Approach for the Estimation of Community Consumption of Drugs. In *Wastewater Based Epidemiology - Estimation of Community Consumption of Drugs and Diets*; Subedi, B.; Burgard, D.A.; Loganathan, B., Eds. ACS symposium series: American Chemical Society, Washington D.C. Volume 1319, Chapter 1, **2019**, 3-21. DOI: 10.1021/bk-2019-1319.ch001
- (4) Wastewater Based Epidemiology - Estimation of Community Consumption of Drugs and Diets Subedi, B.; **Burgard, D.A.** Loganathan, B., Eds. ACS symposium series: American Chemical Society, Washington D.C. Vol.1319, **2019**, DOI: 10.1021/bk-2019-1319.

VII. Conference Presentations (while at Puget Sound) * denotes Puget Sound student co-author

- (1) Moroso, J.* **Burgard, D.** “Population biomarkers in wastewater: Validation with United States census and mobile device data” PAPER ID: 3661009, poster presented at the 263rd ACS National Meeting, San Diego, CA, March 21, 2022.
- (2) Coleman, E.* **Burgard, D.** “Community wastewater analysis as a complementary approach to determining health impacts of wildfire smoke” PAPER ID: 3661468, poster presented at the 263rd ACS National Meeting, San Diego, CA, March 21, 2022.
- (3) Tran, D.* **Burgard, D.** “Analyzing the use and disposal of opioids in Washington State through wastewater-based epidemiology” PAPER ID: 3656866, poster presented at the 263rd ACS National Meeting, San Diego, CA, March 21, 2022.
- (4) Moroso, J.* **Burgard, D.** “Determining Dynamic Population Trends with Biomarkers in Wastewater” Virtual poster presented at Testing the Waters, 5th International Conference on Wastewater-Based Epidemiology, Brisbane, Australia, Lisbon, Portugal, 28 September – October 1, 2021.
- (5) Coleman, E.* **Burgard, D.** “Tracking Albuterol Use During Changes in Air Quality Using Wastewater Based Epidemiology” Virtual poster presented at Testing the Waters, 5th International Conference on Wastewater-Based Epidemiology, Brisbane, Australia, Lisbon, Portugal, 28 September – October 1, 2021. ***Runner-up, People’s Choice Best Poster***
- (6) Tran, D.* **Burgard, D.** “Analysis of Opioid Use and Disposal in Washington State Through Wastewater Based Epidemiology” Virtual poster presented at Testing the Waters, 5th International Conference on Wastewater-Based Epidemiology, Brisbane, Australia, Lisbon, Portugal, 28 September – October 1, 2021.
- (7) Bade, R.; White, J.M.; Barron, L.; Baz-Lomba, J.A.; Been, F.; Bijlsma, L.; **Burgard, D.A.**; Castiglioni, S.; Celma, A.; Chappell, A.; Covaci, A.; Emke, E.; Hernandez, F.; Salgueiro-Gonzalez, N.; van Nuijs, A.L.N.; Wang, D.; Zuccato, E.; Gerber, C. “International Snapshot of Novel Psychoactive Substance Use: Case study of ten countries over the 2019/2020 New Year Period” VII International Conference on Novel Psychoactive Substances (Online), Nov 18-19, 2020.
- (8) Melin, A.*; **Burgard, D.A.** “Investigation of commonly consumed compounds as potential population biomarkers for wastewater-based epidemiology” PAPER ID: 3300180, 259th ACS National Meeting, Philadelphia, PA, March 22-26, 2020, poster accepted but conference canceled.

- (9) Nelson, L.*; **Burgard, D.A.** “Washington cannabis use estimated with wastewater epidemiology: A 2019 update” PAPER ID: 3299527, 259th ACS National Meeting, Philadelphia, PA, March 22-26, 2020, poster accepted but conference canceled.
- (10) Gray, K.*; **Burgard, D.A.** “Wastewater-based epidemiology methods and analysis of opioids and illicit substances” PAPER ID: 3290819, CHED 827, 259th ACS National Meeting, Philadelphia, PA, March 22-26, 2020, poster accepted but conference canceled.
- (11) Subedi, B.; **Burgard, D.A.** Current Status and Future Implications of Wastewater-Based Epidemiology in the USA, Testing the Waters IV 2019, 4th International Conference on Wastewater-based drug epidemiology, Foshan, China, 30 October – 1 Nov, 2019. (Invited)
- (12) Melin, A.*; **Burgard, D.A.**; “Towards Establishing Population Markers in Wastewater in the United States” Poster presented at Testing the Waters IV 2019, 4th International Conference on Wastewater-based drug epidemiology, Foshan, China, 30 October – 1 Nov, 2019.
- (13) **Burgard, D.A.** Four-Year Illicit Stimulant Use Trends in Seattle, WA USA 258th ACS National Meeting, San Diego, CA, August 26, 2019.
- (14) **Burgard, D.A.**; Williams, J.; Westerman, D.*; Carpenter, R.*; LaRock, A.*; Rushing, R.*; Sadetsky, J.*; Clarke, J.*; Fryhle, H.*; Pellman, M.*; Banta-Green, C. Using Sewers to Monitor the Effects of Legalized Retail Sales on Cannabis Consumption in Washington State, USA. Invited talk, ESAR-Net Spanish network for the analysis of wastewater workshop. Barcelona, Spain (Skype), 7 May, 2019. (Invited)
- (15) Rushing, R.; Burgard, D.A. Wastewater-Based Epidemiology to Determine Temporal Trends in Illicit Stimulant Use in Seattle, WA, USA, Air & Waste Management Association Pacific Northwest International Section Conference. Nanaimo, BC, Nov 3-6, 2018. ***Won 1st Place for student presenters***
- (16) **Burgard, D.A.**; Williams, J.; Westerman, D.*; Carpenter, R.*; LaRock, A.*; Rushing, R.*; Sadetsky, J.*; Clarke, J.*; Fryhle, H.*; Pellman, M.*; Banta-Green, C. Wastewater as a tool to understand legalized retail sales effect on cannabis consumption in WA. 256th ACS National Meeting, Boston, MA August 19-23, 2018.
- (17) Rushing, R.*; **Burgard, D.A.** “Estimating Changes from Legalization of Cannabis through Wastewater-Based Epidemiology” poster presented at the 255rd ACS National Meeting, New Orleans, LA March 18-22, 2018.
- (18) **Burgard, D.A.**; Rushing, R.*; Clarke, J.*; LaRock, A.*; Sadetsky, J.*; Westerman, D.*; Carpenter, R.*; Fryhle, H.*; Pellman, M.*; Williams, J.; Banta-Green, C. Using Sewers as a Tool to Understand Legalized Retail Sales Effects on Cannabis Consumption in Washington State, USA., Testing the Waters 2017, 3rd International Conference on Wastewater-Based Drug Epidemiology, Lisbon, Portugal, 26-27 October, 2017. (Invited)
- (19) **Burgard, D.A.**; Clarke, J.*; Rushing, R.* “Revised Cannabis Correction Factor for Back-Calculation: A broader picture” Poster presented at Testing the Waters 2017, 3rd International Conference on Wastewater-Based Drug Epidemiology, Lisbon, Portugal, 26-27 October, 2017.
- (20) LaRock, A.*; Sadetsky, J.*; Westerman, D.*; **Burgard, D.A.** “Quantification of 11-nor-9-carboxy-tetrahydrocannabinol in wastewater from Washington State to estimate consumption patterns of cannabis use” poster presented at the 253rd ACS National Meeting, San Francisco, CA April 2-6, 2017.
- (21) Sadetsky, J.*; LaRock, A.*; Carpenter, R.*; **Burgard, D.A.** “Quantification of THC-COOH to estimate cannabis consumption trends via wastewater based drug epidemiology” poster presented at the 253rd ACS National Meeting, San Francisco, CA April 2-6, 2017.

- (22) Westerman, D.*; Carpenter, R.*; **Burgard, D.A.** “Quantification of THC-COOH in wastewater: A tool to assess cannabis consumption in WA State” poster presented at the 251st ACS National Meeting, San Diego, CA March 13-17, 2016.
- (23) Carpenter, R.*; Westerman, D.*; **Burgard, D.A.** “Quantifying THC-COOH as a tracer of cannabis use in wastewater from a residential treatment plant using LC-MS/MS” poster presented at the 251st ACS National Meeting, San Diego, CA March 13-17, 2016.
- (24) **Burgard, D.A.**; Westerman, D.*; Carpenter, R.*; Fryhle, H.*; Pellman, M.*; Banta-Green, C. “Using Sewers as a Tool to Understand Legalized Retail Sales Effects on Marijuana Consumption: A test case using two treatment plants” Poster presented at Testing the Waters II 2015, 2nd International Conference on Wastewater-based drug epidemiology, Congressi Stefano Franscini, Monte Verita, Ascona, Switzerland, 11-15 October, 2015.
- (25) Fryhle, H.*; Pellman, M.*; **Burgard, D.A.** “Method development towards quantifying marijuana consumption using sewage-based drug epidemiology: Preliminary results for Treatment Plant #1” poster presented at the 2015 Summer Meeting of the Pacific Northwest Regional Section of AOAC International. Tacoma, WA, June, 2015. ***Won 2nd place in poster contest***
- (26) **Burgard, D.A.**; Fryhle, H.*; Pellman, M.* Using 5-hydroxyindoleacetic acid as an anthropogenic population biomarker in wastewater treatment plant influent, presented at the 249th ACS National Meeting, Denver, CO, March 22-26, 2015
- (27) Fryhle, H.* Pellman, M.*; **Burgard, D.A.** “Method development towards quantifying marijuana consumption using sewage-based drug epidemiology: Preliminary results for Treatment Plant #1” poster presented at the 249th ACS National Meeting, Denver, CO, March 22-26, 2015.
- (28) Pellman, M.*; Fryhle, H.*; **Burgard, D.A.** “Method development towards quantifying marijuana consumption using sewage-based drug epidemiology: Preliminary results for Treatment Plant #2” poster presented at the 249th ACS National Meeting, Denver, CO, March 22-26, 2015.
- (29) Atkinson, O.*; **Burgard, D.A.** “Analysis of on-road emissions of high-mileage airport shuttle vehicles and Prius taxis” presented at the 24rd CRC On-Road Vehicle Emissions Workshop. San Diego, CA, March 31-April 2, 2014.
- (30) Ginsberg, K.*; **Burgard, D.A.** “Method development for wastewater epidemiology” poster presented at the 247th ACS National Meeting, Dallas, TX, March 16-20, 2014.
- (31) Ginsberg, K.*; **Burgard, D.A.** “Method development for wastewater epidemiology” poster presented at the 2013 Murdock College Science Research Program Conference. Portland, OR, Nov., 2013. ***Won 1st place in Environmental Science/Geology division***
- (32) Ferrell, R.*; **Burgard, D.A.** “Determination of stimulant use by commercial truck drivers: Wastewater analysis by LC-MS/MS” poster presented at the 2013 Summer Meeting of the Pacific Northwest Regional Section of AOAC International. Tacoma, WA, June, 2013. ***Won 1st place in poster contest***
- (33) **Burgard, D.A.**; Fuller, R.; Becker, B.*; Ferrell, R.*; Dinglasan-Panlilio, M.J. “Trends in attention deficit hyperactivity disorder (ADHD) drug use on a college campus as evidenced through wastewater analysis” presented at the 245th ACS National Meeting, New Orleans, LA, April 7-11, 2013.

- (34) Ferrell, R.*; **Burgard, D.A.** “Determination of stimulant use by commercial truck drivers: Wastewater analysis by LC-MS/MS” poster presented at the 245th ACS National Meeting, New Orleans, LA, April 7-11, 2013.
- (35) Breuer, M.*; **Burgard, D.A.** “Remote Sensing Measurements of In-Use Locomotive NO_x Emissions” presented at the 23rd CRC On-Road Vehicle Emissions Workshop. San Diego, CA, April 8-10, 2013.
- (36) Breuer, M.*; **Burgard, D.A.** “On-Road Measurements of Transit Bus Emissions” presented at the 2012 Air & Waste Management Association Pacific Northwest International Section Conference. Portland, OR, Nov 3-6, 2012. ***Won 2nd Place for student presenters***
- (37) Larson, R.*; Ferm, M.*; Moore, D.; **Burgard, D.** “Psychostimulant use among college students during periods of high and low stress: An interdisciplinary approach utilizing both self-report and unobtrusive chemical sample data” poster presented at the 93rd Proceedings of the AAAS Pacific Division. Boise, ID, June 24-27, 2012. ***Won 2nd place in student poster competition***
- (38) Breuer, M.*; **Burgard, D.A.** “On-Road Measurements of Transit Bus Emissions” presented at the 22nd CRC On-Road Vehicle Emissions Workshop. San Diego, CA, March 26-28, 2012.
- (39) **Burgard, D.A.**; Horsley, D.* “Effects of New Heavy-Duty Diesel Truck Standards on Gaseous Emissions Measured On-Road Via Remote Sensing” presented at the 2011 ACS Northwest Regional Meeting. Portland, OR June 26-29, 2011.
- (40) Horsley, D.*; **Burgard, D.A.** “On-road Measurement of the Effects of New Heavy-Duty Diesel Truck Emission Standards” poster presented at the 241st ACS National Meeting. Anaheim, CA, March 27-31, 2011.
- (41) Bria, C.*; **Burgard, D.A.** “Remote Sensing Measurements of Gaseous Emissions from Ocean-Going Vessels: Lions Gate Bridge in Vancouver, BC” poster presented at the 2010 Summer Meeting of the Pacific Northwest Regional Section of AOAC International. Tacoma, WA, June, 2010. ***Won 1st place in poster contest***
- (42) Bria, C.*; **Burgard, D.A.** “Remote Sensing Measurements of Gaseous Emissions from Ocean-Going Vessels: Lions Gate Bridge in Vancouver, BC” poster presented at the 20th CRC On-Road Vehicle Emissions Workshop. San Diego, CA, March 22-24, 2010.
- (43) Bria, C.*; **Burgard, D.A.** “Remote Sensing Measurements of Gaseous Emissions From Marine Vessels” presented at the 2009 Air & Waste Management Association Pacific Northwest International Section Conference. Cle Elum (Suncadia Resort), WA Nov 3-6, 2009.
- (44) **Burgard, D.A.**; Bria, C.* “Remote Sensing Measurements of Gaseous Emissions from Ocean-Going Vessels: Lions Gate Bridge in Vancouver, BC” presented at the 2009 Air & Waste Management Association Pacific Northwest International Section Conference. Cle Elum (Suncadia Resort), WA Nov 3-6, 2009.
- (45) **Burgard, D.A.**; Berenbeim J.* “Remote Sensing Measurements of Gaseous Emissions From Marine Vessels” presented at the 2009 ACS Northwest Regional Meeting. Tacoma, WA June 28-July 1, 2009.
- (46) **Burgard, D.A.**; Provinsal, M.* “On-Road, in-Use Gaseous Emission Measurements by Remote Sensing of School Buses Equipped with Diesel Oxidation Catalysts and Diesel Particulate Filters” presented at the 2009 ACS Northwest Regional Meeting. Tacoma, WA June 28-July 1, 2009.
- (47) Berenbeim. J.*; **Burgard, D.A.** “Remote Sensing Measurements of Gaseous Emissions from Marine Vessels” presented at the 2009 ACS Puget Sound Section Undergraduate Research Symposium. Tacoma, WA, May 2, 2009.

- (48) Guyer, K.*; **Burgard, D.A.** “Solid Phase Microextraction Used to Quantitate BPA Leaching from Plastic Bottles” poster presented at the 2009 ACS Puget Sound Section Undergraduate Research Symposium. Tacoma, WA, May 2, 2009.
- (49) Berenbeim, J.*; **Burgard, D.A.** “Remote Sensing Measurements of Gaseous Emissions from Marine Vessels” poster presented at the 19th CRC On-Road Vehicle Emissions Workshop. San Diego, CA, March 23-25, 2009.
- (50) Virginia, J.*; **Burgard, D.A.** “Analysis of Red Dye in Unburned and Combusted Diesel Fuel” poster presented at the 235th ACS National Meeting. New Orleans, LA, April 6-10, 2008.
- (51) Provinsal, M.*; **Burgard, D.A.** “Examining Gaseous Emissions from School Buses in Washington State” presented at the 18th CRC On-Road Vehicle Emissions Workshop. San Diego, March 31-April 2, 2008.
- (52) **Burgard, D.A.** “Car, Truck, and Snowmobile Emissions as Measured by Remote Sensing”, presented at the Summer Meeting of the Pacific Northwest Regional Section of AOAC International. Tacoma, WA, June 22-23, 2007.

VIII. Reports (only those as an independent investigator at Puget Sound listed)

- (1) **Burgard, D.A.**; Bisceglia, K.; Banta-Green, C. Wastewater Testing as a Pipeline to Public Health Data. In *The Potential of Wastewater Testing for Public Health and Safety*. Keshaviah, A., Ed.; Mathematica Policy Research: Washington, DC, 2017.

IX. Symposia Organizer

- (1) **Burgard, D.**; Matus, M.; Subedi, B. Wastewater-Based Epidemiology: Opportunities, Challenges & Applications to Public Health and Safety, 258th ACS National Meeting and Exposition, San Diego, CA, August 25-29, 2019.
- (2) **Burgard, D.**; Loganathan, B.; Subedi, B. Wastewater-Based Epidemiology: Opportunities & Challenges 256th ACS National Meeting and Exposition, Boston, MA, August 19-23, 2018 (First WBE meeting at ACS)

X. Professional Organizations

- 2003 – Present American Chemical Society
- 2009 – Present Air & Waste Management Association
 - Board of Directors, Pacific Northwest International Section, 2015-2017.
 - Board of Directors, Puget Sound Chapter, 2010-2013.