

CURRICULUM VITAE

NEIL R. THOMSON, PhD, PEng

Professor

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Dr. Thomson is a Professor of Civil and Environmental Engineering, Director of the Soil and Groundwater Remediation Engineering Group, and a member of the Environmental and Water Resources Engineering Research Group and [The Water Institute](#) at the University of Waterloo. His core research interests focus on subsurface contaminant fate, and the remediation of soil and groundwater systems through the use of field investigations, laboratory experiments, and numerical models.

Current Position

Professor of Environmental and Civil Engineering

Professional Memberships

1987-present Professional Engineers of Ontario (PEO)

1983-present American Geophysical Union (AGU)

1992-present National Ground Water Association (NGWA)

2009-present International Association of Hydrogeologists (IAH)

Research Interests

Soil and Groundwater Remediation

Subsurface Contaminant Transport and Fate, Risk and Uncertainty Analyses

Multiphase Flow and Unsaturated Zone Processes

Numerical Modelling, Parameter Estimation and Optimization

Teaching Areas

- Contaminant Transport
- Water Quality Engineering
- Advanced Mathematics
- Hydrology
- Environmental Chemistry
- Fluid Mechanics
- Soil and Groundwater Remediation Engineering
- Organic Contaminants in Groundwater
- Finite Element Methods
- Numerical Methods for Environmental Applications
- Water Quality Management
- Hazardous Waste Treatment

Consulting Activities

Over the past 32 years, Dr. Thomson has provided technical and strategic guidance on proposals and projects related to groundwater and soil remediation for numerous consulting firms and regulatory agencies in Canada, United States, England, Scotland, Wales, Sweden, Australia, Brazil, China, Mexico, and Argentina. Expert technical assistance has included:

- ❖ Hydrogeological data interpretation
- ❖ Conceptual site model development
- ❖ Groundwater flow analysis (single phase, multiphase, density driven, tidal effects)
- ❖ Contaminant fate analysis (water phase and gas phase)
- ❖ Model selection, development, and/or modification
- ❖ Model calibration and sensitivity
- ❖ Remedial alternative selection
- ❖ Design of remedial systems (e.g., P&T, SVE, IAS, ISCO, PRBs, etc)
- ❖ Regulatory education and training

Selected Professional Activities

- ❖ Editor in Chief, Ground Water Monitoring & Remediation a NGWA Publication, 2012-present
- ❖ Editorial Board, Journal of Contaminant Hydrology, 2006-present.
- ❖ Editorial Board, Journal of Advanced Oxidation Technologies, 2005-present.
- ❖ Numerous invited presentations
- ❖ Instructor in the University of Sheffield Short Course: Behaviour and Restoration of Non-Aqueous Phase Liquids in Porous and Fractured Rocks, 2003-2010.
- ❖ Instructor in the University of Birmingham Short Course: Groundwater Remediation, May 2003.

Graduate Student Supervision (2008-2020)

PhD

1. Diogo Livera, 2018-Present. Novel use of Functional Nanoparticles to Treat PHCs In Situ.
2. Yunxiao Wei, 2016-Present. Treatment of FMGP Residuals Using Sub-Boling Temperatures.
3. Andrea Marrocco, 2015-Present. Carbon Based Injectates for the Remediation of Petroleum Hydrocarbons in Groundwater.
4. Sonia Jaber, 2015-Present. Transport and Binding of Stabilized Iron NPs in Unsaturated Porous Media: A Targeted Delivery Approach.
5. Michelle Cho, 2012-2019. Chaotic Advection for Enhanced Reagent Delivery.
6. Saeid Shafieiyoun, 2011-2017. Multi-Component Mass Transfer and Chemical Oxidation.
7. Mahsa Shayan, 2009-2015. Persulfate Oxidation Coupled with Microbial Sulfate Reduction as a Combined Remedy.
8. Mohammed AL-Shamsi, 2009-2013. Iron Nanoparticles for In Situ Chemical Oxidation.
9. Sara Esmaeili, 2008-2013. Comprehensive Simulation Assessment of Nitrate Mass Loading to Groundwater from Agricultural Landscapes
10. Kanwartej Sra, 2005-2010. Persulfate Persistence and Treatability of Gasoline Compounds

Masters

1. Bill McLaren, 2019-Present. Modelling the Treatment of PHCs using Carbon Based Injectates.
2. Adam Schneider, 2019-Present. Bioaugmentation to Increase the Effectiveness of Carbon Based Injectates to Treat PHCs.
3. Griselda Rocha Diaz de Leon, 2018-Present. Biofilm Impacts on Carbon Based Injectates.
4. Carlos Jacob, 2017-2020. Functional Nanoparticles for Site Assessment.
5. Zahra Ardestani, 2014-2019. Foam as a Vehicle for Reagent Delivery.
6. Waleed Gusti, 2015-2018. The Effectiveness of Persulfate and Hydrogen Peroxide on the Oxidation of Hydrocarbon Contaminants at 30°C: A Study with Focus on the Performance of Compound Specific Isotope Analysis.
7. Janice Cooper, 2015-2018, Investigation of the Efficacy of Degradation of Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS) in Groundwater using Thermally-Activated Persulfate.
8. Summer Jin, 2014-2017. Dual Oxidant Systems.
9. Yunxiao Wei, 2013-2015. Treatment of a PHC Source Zone using Land Application of Sulfate
10. Felipe Solano, 2011-2013. Isotopes and Chemical Oxidation.
11. Angela McIsaac, 2010-2013. Evaluation of Persulfate in the Treatment of Manufactured Gas Plant Residuals.
12. Dave Stevenson, 2010-2013. Developing a Probe for Real-Time Monitoring of Reagent Injections.
13. Tyler Gale, 2009-2011. A Field and Numerical Investigation of the Pressure Pulsing Reagent Delivery Approach.
14. Hector Ruiz, 2009-2011. Performance of Large Diameter Residential Drinking Water Wells - Biofilm Growth: Laboratory and Field Testing.
15. Ashley Mathai, 2009-2011. Push-Pull Tests to Support In Situ Chemical Oxidation System Design.
16. Chao Huo, 2007-2010. Mathematical Simulation of a Dipole Delivery System for In-situ Remediation.
17. Paul Javor, 2007-2009. Performance Comparison of Large Diameter Residential Drinking Water Wells.
18. Karen Greer, 2007-2009. Evaluation of an Oxygen Injection Technology for In-Situ Hydrocarbon Bioremediation in a Fractured Bedrock Environment.
19. Maureen O'Connell, 2006-2009. Optimizing Solvent Extraction of PCBs from Soil.
20. Gillian Roos, 2006-2008. Development of the Dipole Flow and Reactive Tracer Test (DFRRTT) for Aquifer Parameter Estimation.
21. Jenifer Lambert, 2006-2008. Pulsed Biosparging of the E10 Gasoline Source in the Borden Aquifer.

Research Contributions

- Shafieiyoun, S., B.L. Parker, K.E. Dunfield, **N.R. Thomson**, R. Aravena, E.A. Haack, D.T. Tsao, 2020. Influence of individual mechanisms and remediation concerns involved in the enhanced attenuation of toluene in a shallow fractured dolostone bedrock. To be presented at the AGU Fall Meeting, Dec. 1-17, 2020.
- Linley S., A. Mellage, **N.R. Thomson**, P. van Cappellen, F. Rezanezhad, 2020. Spatiotemporal geo-electrical sensing of a Pluronic-coated cobalt ferrite nanoparticle slug in natural sand flow-through columns. Submitted to Science of the Total Environment
- Linley, S., D. Phann, **N.R. Thomson**, K. McVey, K. Sra, F.X. Gu, 2020. Pluronic as a general coating strategy for nanoparticle targeted attachment to an LNAPL in porous media. Submitted to Environmental Science: Processes & Impacts.
- Linley, S., **N.R. Thomson**, 2020. Environmental applications of nanotechnology: nano-enabled remediation processes in water, soil, and air treatment. In revision, Water, Air, & Soil Pollution.

- Stevenson, D., F. Solano, Y. Wei, **N.R. Thomson**, J.F. Barker, 2020. Simple resistivity probe system for real-time monitoring of injected reagents. *Groundwater Monit R.* doi.org/10.1111/gwmr.12411
- Linley, S., **N.R. Thomson**, K. McVey, K. Sra, F.X. Gu, 2020. Factors affecting pluronic-coated iron oxide nanoparticle binding to petroleum hydrocarbon-impacted sediments, *Chemosphere*. 254, doi.org/10.1016/j.chemosphere.2020.126732
- Stonebridge, J., R. Baldwin, **N.R. Thomson**, C. Ptacek, 2020. Fluoride-selective electrode as a tool to evaluate the degradation of PFAS in groundwater: A bench-scale investigation. *Groundwater Monit R.*, 40(2), 73-80. doi.org/10.1111/gwmr.12374
- Cho, M.S., Z. Zhao, **N.R. Thomson**, W. Illman, 2020. Use of steady-state hydraulic tomography to inform the selection of a chaotic advection system. *Journal of Contaminant Hydrology*, 229, 103559. doi.org/10.1016/j.jconhyd.2019.103559
- Longpré-Girard, M., R. Martel, T. Robert, R. Lefebvre J-M, Lauzon, **N.R. Thomson**, 2020. Surfactant foam selection for enhanced LNAPL recovery in contaminated aquifers, *Transp Porous Med*, 131m 65-84. doi.org/10.1007/s11242-019-01292-0
- Linley, S., **N.R. Thomson**, K. McVey, K. Sra, F. Gu. 2020. Influence of Pluronic coating formulation on nanoparticle transport in natural and oil-impacted sandy aquifer media. *Can J Chem Eng*, 98(3), 642-649, doi.org/10.1002/cjce.23650
- Esmaili, S., **N.R. Thomson**, D.L. Rudolph, 2020. Evaluation of nutrient beneficial management practices on nitrate loading to groundwater in a southern Ontario agricultural landscape. *Canadian Water Resources Journal / Revue canadienne des ressources hydriques*, 45:1, 90-107, DOI: 10.1080/07011784.2019.1692697
- Metcalf, G., D. Lester, M. Trefry, M. Cho, **N. Thomson**, J. Wu, 2020. Chaos and mixing in engineered and natural Darcy flows. Presented at *Mixing in Porous Media*, Leiden, Netherlands, February 3-7, 2020.
- Cho, M.S., F. Solano, **N.R. Thomson**, M.G. Trefry, D.R. Lester, G. Metcalfe, 2019. Field trials of chaotic advection to enhance reagent delivery. *Groundwater Monit R.*, 39(3), 23-39. doi.org/10.1111/gwmr.12339
- Linley, S., A. Holmes, T. Leshuk, W. Nafu, A. Al-Mayah, **N.R. Thomson**, K. McVey, K. Sra, F. Gu. 2019. Targeted nanoparticle binding & detection in petroleum hydrocarbon impacted porous media. *Chemosphere*, 215, 353-361, doi.org/10.1016/j.chemosphere.2018.10.046
- Bartlett, C., R.M. Slawson, **N.R. Thomson**, 2019. Response of sulfate-reducing bacteria and supporting microbial community to persulfate exposure in a continuous flow system. *Environ. Sci.: Processes Impacts*, 21, 1193-1203, doi.org/10.1039/c9em00094a
- Shafieiyoun, S., **N.R. Thomson**, 2019. Intra-NAPL diffusion and dissolution of a multi-component NAPL exposed to persulfate in a flow-through system. *Journal of Hazardous Materials*, 365, 366-374, doi.org/10.1016/j.jhazmat.2018.10.096
- Linley, S., A. Holmes, T. Leshuk, W. Nafu, A. Al-Mayah, **N.R. Thomson**, K. McVey, K. Sra, F. Gu. 2019. Targeted nanoparticle binding & detection in petroleum hydrocarbon impacted porous media. *Chemosphere*, 215, 353-361, doi.org/10.1016/j.chemosphere.2018.10.046
- Cho, M.S., **N.R. Thomson**, M.G. Trefry, D.R. Lester, G. Metcalfe, W.A. Illman, 2019. Chaotic advection for enhanced reagent mixing. *SERDP-ESTCP Symposium*, December 3-5, Washington, DC.
- Cho, M.S., F. Solano, **N.R. Thomson**, M.G. Trefry, D.R. Lester, G. Metcalfe, 2019. Field trials of chaotic advection to enhance reagent delivery. *Groundwater Quality 2019*, September 9-13, Liège, Belgium
- Brey, A., S. Shafieiyoun, **N.R. Thomson**, C. Gasinski, 2019. Realistic expectations for the treatment of Former MGP residuals by chemical oxidants. *MGP Conference 2019*, October 7-9, Philadelphia, Pennsylvania.
- Wei, Y., **N.R. Thomson**, K.G. Mumford, S. Li, L. Guo, B. Wang, X. Wang, 2019. The benefits of sub-boiling heat for the treatment of FMGP residuals. *International In-Situ Thermal Treatment (I2T2) Symposium*, June 6-7, Banff, AB.

- Cho, M.S., **N.R. Thomson**, Z. Zhao, W.A. Illman, 2019. Use of steady-state hydraulic tomography to inform the design of a chaotic advection system. NovCare 2019, May 28-31, Waterloo, ON.
- Mellage, A. A. Holmes, S. Linley, L. Vallée, F. Rezanezhad, **N.R. Thomson**, F. Gu, P. Van Cappellen, 2019. Sensing coated nanoparticles with spectral induced polarization (SIP) in fully-saturated flow-through column experiments. EGU General Assembly, April 7-12, Vienna, Austria.
- Marrocco, A., **N.R. Thomson**, L. Hug, E.A. Edwards, 2019. Carbon-Based Injectates for the Treatment of Petroleum Hydrocarbons in Groundwater. Fifth International Symposium on Bioremediation and Sustainable Environmental Technologies, Baltimore, Maryland, April 15-18, 2019.
- Marrocco, A., **N.R. Thomson**, L. Hug, E.A. Edwards, 2019. Carbon-Based Injectates for the Treatment of Petroleum Hydrocarbons in Groundwater. 2019 RemTEC Summit, Denver, CO, February 26-28, 2019.
- Mellage, A., A. Holmes, S. Linley, F. Rezanezhad, **N.R. Thomson**, F. Gu, P. van Cappellen. 2018. Sensing iron-oxide nanoparticles with spectral induced polarization (SIP): Experiments in natural sand packed flow-through columns. Environ. Sci. Technol. 2018, 52(24), 14256-14265. doi.org/10.1021/acs.est.8b03686
- Bouchard, D., D. Hunkeler, E.L. Madsen, T. Buscheck, E. Daniels, R. Kolhatkar, C.M. DeRito, R. Aravena, **N.R. Thomson**, 2018. Application of diagnostic tools to evaluate remediation performance at petroleum hydrocarbon-impacted sites. Groundwater Monit R., 38 (4), 88-98. doi.org/10.1111/gwmmr.12300
- Wei, Y., **N.R. Thomson**, R. Aravena, M. Marchesi, J.F. Barker, E.L. Madsen, R. Kolhatkar, T. Buscheck, D. Hunkeler, C.M. DeRito. 2018. Infiltration of sulfate to enhance sulfate-reducing biodegradation of petroleum hydrocarbons. Groundwater Monit R., 38(4), 73-87. doi.org/10.1111/gwmmr.12298
- Shafieiyoun, S., **N.R. Thomson**, A.P. Brey, C.M. Gasinski, W. Pence, M. Marley, 2018. Realistic expectations for the treatment of FMGP residuals by chemical oxidants. Journal of Contaminant Hydrology, 219, 1-17. doi.org/10.1016/j.jconhyd.2018.08.007
- Bouchard, D., M. Marchesi, E. Madsen, C.M. DeRito, **N.R. Thomson**, R. Aravena, J.F. Barker, T. Buscheck, R. Kolhatkar, E.J. Daniels, D. Hunkeler, 2018. Diagnostic tools to assess mass removal processes during pulsed air sparging of a petroleum hydrocarbon source zone. Groundwater Monit R., 38(4), 29-44. doi.org/10.1111/gwmmr.12297
- Shafieiyoun, S., **N.R. Thomson**, 2018. The role of intra-NAPL diffusion on mass transfer from multi-component NAPLs. Journal of Contaminant Hydrology, 213, 49-61. doi.org/10.1016/j.jconhyd.2018.04.002
- Shayan, M., **N.R. Thomson**, R. Aravena, J.F. Barker, E.L. Madsen, T. Buscheck, R. Kolhatkar, E.J. Daniels, 2017. Integrated plume treatment using persulfate coupled with microbial sulfate reduction, Groundwater Monit R., 38(4), 45-61, doi.org/10.1111/gwmmr.12227
- Solano, F.M., M. Marchesi, **N.R. Thomson**, D. Bouchard, R. Aravena, 2017. Carbon and hydrogen isotope fractionation of benzene, toluene and o-xylene during chemical oxidation by persulfate. Groundwater Monit R., 38(4), 62-72. doi.org/10.1111/gwmmr.12228
- Ferreira, Ieda D., Tatiana Prieto, Juliana G. Freitas, **Neil R. Thomson**, Iseli L. Nantes, Etelvino J. H. Bechara, 2017. Natural persulfate activation for anthracene remediation in tropical environments. Water Air Soil Pollut, 228:146. doi.org/10.1007/s11270-017-3322-8
- Brey, A.P., **N.R. Thomson**, 2017. Field-scale trial of sodium persulfate for treatment of MGP residuals. Seventh International Symposium and Exhibition on the Redevelopment of Manufactured Gas Plant Sites, October 16-18, New Orleans Louisiana.
- Shafieiyoun, S., **N.R. Thomson**, 2017. The role of intra-NAPL diffusion on mass transfer from multi-component NAPLs subjected to persulfate. GeoOttawa 2017, October 1-4, Ottawa, ON.
- Cho, M., **N.R. Thomson**, 2017. Field trials of subsurface chaotic advection for enhanced reagent delivery. GeoOttawa 2017, October 1-4, Ottawa, ON.

- Hunkeler, D., D. Bouchard, V. Ponsin, M. Marchesi, R. Aravena, J. Barker, **N. Thomson**, Eugene L Madsen, Tim Buscheck, Ravi Kolhatkar, Eric Daniels, Kammy Sra, 2017. Tiered approach for the application of diagnostic tools to evaluate remediation performance at petroleum-hydrocarbon contaminated sites. Bioremediation and Sustainable Environmental Technologies: Fourth International Symposium, May 22-25, Miami, FL
- Ponsin, Violaine, Daniel Hunkeler, Daniel Bouchard, Eugene L Madsen, Chris DeRito, **Neil R. Thomson**, Kammy Sra, Tim Buscheck, Ravi Kolhatkar, Eric Daniels, 2017. Bioremediation and Sustainable Environmental Technologies: Fourth International Symposium, May 22-25, Miami, FL
- Cho, Michelle S., **Neil R. Thomson**, 2017. Field trials of subsurface chaotic advection for enhanced reagent delivery. Bioremediation and Sustainable Environmental Technologies: Fourth International Symposium, May 22-25, Miami, FL
- Oliveira, Fernanda C. Juliana G. Freitas, Sheila A. C. Furquim, Renata M. Rollo, **Neil R. Thomson**, Luís R. F. Alleoni, Claudio A. O. Nascimento, 2016. Persulfate interaction with tropical soils. *Water Air Soil Pollut* 227:343, 14 pgs. doi.org/10.1007/s11270-016-3000-2
- Favero, M.; J.G. Freitas, S.A.C. Furquim, **N.R. Thomson**, M. Cooper, 2016. How ISCO Can Interfere in Soil Pore Distribution and Solute Transport, American Geophysical Union Fall Meeting, San Francisco, CA.
- Yao, Y., K. Volchek, C.E. Brown, J. Vogan, J. Burdick, I. Ross, T. Pancras, C. Ptacek, **N. Thomson**, L. Groza, J. Ma, and J. R. Baldwin, 2016. Degradation of Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic Acid (PFOA) in Aqueous Film Forming Foam (AFFF)-Impacted Groundwater and Soil by Oxidation Methods. Proceedings of the Thirty-Ninth AMOP Technical Seminar, Environment and Climate Change Canada, Ottawa, ON, 383-407.
- Bartlett, C., **N.R. Thomson**, R. Slawson, 2016. In situ chemical oxidation / bioremediation: The Use of persulfate and sulfate-reducing bacteria in PHC remediation. Canadian Society of Microbiologists Annual Meeting, Toronto, ON, CA. June 12-16.
- Kramer, A., **N.R. Thomson**, S.L. Massey Simonich, 2016. Analysis of transformation products from PAH remediation using chemical oxidants. Superfund Remediation Program, Eugene, United States.
- Solano, F., **N.R. Thomson**, 2015. Treatment of manufactured gas plant residuals using alkaline activated persulfate: A pilot-scale trial. The Sixth International Symposium and Exhibition on the Redevelopment of Manufactured Gas Plant Sites (MGP 2015), November 8-10, Ghent, Belgium.
- Esmaeili, S., **Neil R. Thomson**, David L. Rudolph, 2015. Long term assessment of BMPs impact on nitrate load at the Thornton Well Field using RZWQM. IAH-CNC 2015, October 27-30, Waterloo, ON.
- Solano, F., **N.R. Thomson**, R. Aravena, 2015. Treatment of manufactured gas plant residuals using alkaline activated persulfate: A pilot-scale trial. IAH-CNC 2015, October 27-30, Waterloo, ON.
- Shayan, M., **Neil R. Thomson**, James F. Barker, 2015. Simulation of persulfate oxidation coupled with enhanced bioremediation as an emerging remediation strategy for petroleum impacted sites. IAH-CNC 2015, October 27-30, Waterloo, ON.
- Cho, Michelle S., **Neil R. Thomson**, 2015. Field trials of subsurface chaotic advection. IAH-CNC 2015, October 27-30, Waterloo, ON.
- Oliveira, F., I. Domingues, J. Freitas, S. Furquim, **N.R. Thomson**, 2015. Moving forward from P&T in tropical soils: How ISCO is affected by soil properties. 42nd IAH Congress, Rome, Italy, September 13-18.
- Cho, M.S., **N.R. Thomson**, 2015. Field trials of subsurface chaotic advection. 42nd IAH Congress, Rome, Italy, September 13-18.
- Shafieiyoun, S. **N.R. Thomson**, C.M. Gasinski, A.P. Brey, W. Pence, 2015. Long-term expectations for the treatment of MGP residuals by chemical oxidation. 42nd IAH Congress, Rome, Italy, September 13-18.
- Shayan, M., **N.R. Thomson**, J.F. Barker, R. Aravena, D. Hunkeler, E.L. Madsen, T. Buscheck, 2015. Application of environmental molecular diagnostic tools in the performance assessment of treatment train. 42nd IAH Congress, Rome, Italy, September 13-18.

- Solano, F., **N.R. Thomson**, R. Aravena, 2015. Treatment of manufactured gas plant residuals using alkaline activated persulfate: A pilot-scale trial. 42nd IAH Congress, Rome, Italy, September 13-18.
- Wei, Y., J.F. Barker, **N.R. Thomson**, R. Aravena, M. Marchesi, D. Hunkeler, D. Bouchard, E. Madsen, T. Buscheck, E. Daniels, D. Segal, R. Kolhatkar. 2015. Land application of sulfate for the treatment of a petroleum hydrocarbon source. Bioremediation and Sustainable Environmental Technologies: Third International Symposium, May 18-21, Miami, FL.
- Madsen, E., C. DeRito, M. Marchesi, Y. Wei, R. Aravena, J.F. Barker, **N.R. Thomson**, D. Hunkeler, D. Bouchard, T. Buscheck, E. Daniels, R. Kolhatkar, 2015. Development and application of an RT-qPCR assay targeting anaerobic benzene carboxylase (*abcA*) gene expression in hydrocarbon-contaminated groundwater. Bioremediation and Sustainable Environmental Technologies: Third International Symposium, May 18-21, Miami, FL.
- Buscheck, T., D. Hunkeler, D. Bouchard, R. Aravena, **N.R. Thomson**, J. Barker, M. Shayan, M. Marchesi, E. Madsen, R. Kolhatkar, E. Daniels, D. Segal, 2015. Two-dimensional compound-specific isotope analysis for remediation of petroleum hydrocarbons. Bioremediation and Sustainable Environmental Technologies: Third International Symposium, May 18-21, Miami, FL.
- Marchesi, M., Y. Wei, R. Aravena, J.F. Barker, **N.R. Thomson**, D. Hunkeler, D. Bouchard, E. Madsen, T. Buscheck, E. Daniels, D. Segal, R. Kolhatkar, 2015. Use of multi-isotope tracers to evaluate biodegradation of petroleum hydrocarbons enhanced by sulfate application. Bioremediation and Sustainable Environmental Technologies: Third International Symposium, May 18-21, Miami, FL.
- Leshuk, T., G. Bolourani, F. Solano, B. MacLachlan, A. Kong, F. Gu, **N.R. Thomson**, S. Fenton, G. Sabadell, E. Zuo, T. Hoelen, 2015. Targeted delivery of functional nanoparticles for soil remediation. Bioremediation and Sustainable Environmental Technologies: Third International Symposium, May 18-21, Miami, FL.
- Marchesi, M. R. Aravena, **N.R. Thomson**, D. Hunkeler, D. Bouchard, M. Shayan, F. Solano, J. Barker, T. Buscheck, 2015. Compound-specific isotope analysis (CSIA) for performance assessment of organic pollutants remediation by in-situ chemical oxidation (ISCO): a critical review. IAEA Isotope Hydrology Symposium, Vienna, May 11-15.
- Esmaili, S., **N.R. Thomson**, B.A. Tolson, B.J. Zebarth, S.H. Kuchta, D. Neilsen, 2014. Quantitative global sensitivity analysis of the RZWQM to warrant a robust and effective calibration. Journal of Hydrology, 511, 567–579. doi.org/10.1016/j.jhydrol.2014.01.051
- Gale, T., **N.R. Thomson**, J.F. Barker, 2014. An investigation of the pressure pulsing reagent delivery approach. Groundwater Monitoring & Remediation, 35 (2), 39-51. doi.org/10.1111/gwmr.12102
- Cho, M.S., M.G. Trefry, **N.R. Thomson**, D.R. Lester, G. Metcalfe, K. Regenauer-Lieb, 2014. Field trials of subsurface chaotic advection: Stirred reactive reservoirs, 19th Australasian Fluid Mechanics Conference, Melbourne, Australia, December 8-11.
- Shafieiyoun, S., **N.R. Thomson**, C.M. Gasinski, A.P. Brey, W. Pence, 2014. Long-term expectations for the treatment of MGP residuals by chemical oxidants, 21st Integrated Petroleum Environmental Consortium (IPEC) Conference, Houston, TX, Oct. 14-16.
- Al-Shamsi, M.A., **N.R. Thomson**, 2014. Using persulfate activated by an emplaced zone of iron nanoparticles to treat a trichloroethylene source zone. The Seventh International Conference on Environmental Science and Technology 2014 (ICEST2014), Houston, TX, June 9-13, 2014.
- Shayan, M., **N.R. Thomson**, J.F. Barker, R. Aravena, D. Hunkeler, E.L. Madsen, J. Molson, T. Buscheck, 2014. Integrated plume treatment with persulfate oxidation and sulfate reduction. 2014 RPIC Federal Contaminated Site National Workshop, April 14-16, Ottawa, ON.
- Bartlett, C., R. Slawson, **N.R. Thomson**, 2014. In situ chemical oxidation/bioremediation: The use of persulfate and sulfate-reducing bacteria in PHC remediation, 64th Canadian Society of Microbiologists (CSM) Annual Conference, Montréal, QC, July 27-Aug 1, 2014.

- Siegrist, R.L., M. Crimi, **N.R. Thomson**, W. Clayton, M. Marley, 2014. In situ chemical oxidation principles and lessons learned for chlorinated solvent source zone remediation. Remediation of Chlorinated and Recalcitrant Compounds: Ninth International Conference, May 19-22, Monterey, CA.
- Shayan, M., **N.R. Thomson**, J.F. Barker, R. Aravena, D. Hunkeler, E.L. Madsen, T. Buscheck, J. Molson, 2014. Integrated plume treatment with persulfate oxidation and sulfate reduction. Remediation of Chlorinated and Recalcitrant Compounds: Ninth International Conference, May 19-22, Monterey, CA.
- Bolourani, G., **Neil R. Thomson**, 2014. In situ chemical oxidation endpoints for weathered diesel-impacted sediments. Remediation of Chlorinated and Recalcitrant Compounds: Ninth International Conference, May 19-22, Monterey, CA.
- Freitas, J.G., S.A.C. Furquim, R.M. Rollo, H. Okabe Silva, M.L. Bossi, F.C. Oliveira, C.A.O. Nascimento, **N.R. Thomson**, 2014. Impact of persulfate on the properties of tropical soils and implications for remediation. Remediation of Chlorinated and Recalcitrant Compounds: Ninth International Conference, May 19-22, Monterey, CA.
- Sra, K., **N.R. Thomson**, J.F. Barker, 2014. Stability of activated persulfate in the presence of aquifer solids. *Soil Sed. Contam.*, 23, 820-837. doi.org/10.1080/15320383.2013.722142
- Shayan, M., **N.R. Thomson**, J.F. Barker, R. Aravena, D. Hunkeler, E.L. Madsen, J. Molson, T. Buscheck, 2014. Integrated plume treatment with persulfate oxidation and sulfate reduction. 2014 Federal Contaminated Site National Workshop, April 14-16, 2014, Ottawa, ON.
- Shayan, M., **N.R. Thomson**, J.F. Barker, 2013. Integrated plume treatment with persulfate ISCO and microbially mediated sulfate reduction: A field experiment. Accepted for presentation at the 20th International Petroleum Environmental Conference (IPEC), November 12-14, 2013, San Antonio, TX.
- Shayan, M., J.W. Molson, **N.R. Thomson**, I.S.P. Marin, J.F. Barker, 2013. Numerical simulation of a coupled persulfate ISCO/IBR treatment train. GeoMontreal, Sept 29 - Oct 3, 2013, Montréal, Québec.
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