

Technical Excellence Update



2012 calendar year
(sorted alphabetically by publication title)

I am pleased to present the *Technical Excellence Update* for the 2012 calendar year, which showcases the public domain publications and presentations available through SRC. This version is sorted alphabetically by the publication title.

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SRC technical specialties include, but are not limited to:

Natural Sciences

biology, chemistry, computing science, geology, math, physics, etc.

Engineering

chemical, civil, industrial, mechanical, metallurgical, petroleum, etc.

Management Sciences

business administration, business disruption/resumption management, commerce, facilities management, information technology, marketing and communications, law, risk management, safety, etc.

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*Laurier L. Schramm
President and CEO
September 2013*

- A Review of Rare Earth Mineral Processing Technology**, Published Paper, 44th Annual Canadian Mineral Processors Operators Conference, Ottawa, ON, *Zhang, J.*, 2012
- A Review of the Centre for Oil Sands Innovation at the University of Alberta, Alberta Innovates Energy and Environment Solutions**, COSI Review Panel Report, University of Alberta, Alberta Innovates Energy and Environment Solutions, Edmonton, AB, *Schramm L.L., W. Gunter, K. Putt, K. Smith, R. Chow, S. Shunlan Liu and K. Wilson*, April 2012
- A Tool for the Tools: A Guide Evaluating Water Shortage Adaptation Options Available for Ontario Agriculture**, Abstract, Prepared for the 2012 Canadian Drought Monitor Workshop, Guelph, ON; in R. Regier and T. Hadwen, Proceedings of the Advancing Drought, *Smeh, D., G. Koshida, E. Wheaton, V. Wittrock and E. Siemens*, January 29, 2012
- Adaptive Capacity Deficits and Adaptive Capacity of Economic Systems in Climate Change Vulnerability Assessment**, Journal Article, Forest Policy and Economics 15:160-166, *Williamson, T., H. Hesselin and M. Johnston*, 2012
- An Overview of Adaptation Planning in the Canadian Forest Sector**, Invited Presentation, Final Conference, BC Future Forest Ecosystem Initiative, *Johnston, M.*, June 10, 2012
- Assessment of Contaminated Soil in the Canadian Boreal Forest using Standardized Toxicity Tests**, Conference Presentation, 6th Society of Environmental Toxicology and Chemistry (SETAC) World Congress and SETAC Europe 22nd Annual Meeting, Berlin, Germany, *Moody, M., J. Princz and R. Scroggins*, May 2012, SRC Publication: 11627-4D12
- Athabasca Basin Community Meetings – CLEANS Update**, Presentation, Uranium City, Fond du Lac and Stony Rapids, SK, *Allen, D. and T. Yankovich*, January 25-26, 2012
- Balancing Risk: Site Remediation Outside the Environmental Assessment**, Presentation, Association of Professional Engineers and Geoscientists (APEGS) Professional Development Day, Moose Jaw, SK, *Yankovich, T., A. Klyashtorin, E. Gergely, S. Lysohirka, V. Roesler and J. Muldoon*, November 2, 2012
- Bio-physical and Socio-economic Vulnerabilities of Selected Prairie Communities in South Saskatchewan River Basin Facing Droughts**, Book Chapter, Chapter 9 in: *Neves, D.F. and J.D. Sanz* (eds.); Drought: New Research, Nova Science Publishers, Inc. New York, US, 349 pp., *Wittrock, V., S. Kulshreshtha and E. Wheaton*, Spring 2012, SRC Publication: 11228-4E12
- Carbon Sequestration in the Boreal Forests of Saskatchewan**, Invited Presentation, Energy Management Task Force Meeting, Saskatoon, SK, *Johnston, M.*, 2012
- Characterizing the Climates of the Swift Current Creek and Oldman River Watersheds**, Research Report, Prepared for the Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA) Project, 124 pp., *Wittrock, V.*, March 2012, SRC Publication: 13224-1E12
- Cleaning-up Abandoned Uranium Mines in Saskatchewan's North**, Invited Presentation and Journal Article, W.B. Lewis Lectureship for 2012, Canadian Nuclear Society (CNS) and Canadian Nuclear Association (CNA), CNS Annual Conference, Saskatoon, SK and Bulletin of the Canadian Nuclear Society, 33(2) 17-23, *Schramm, L.L.*, 2012
- Climate Change Adaptive Capacity of the Canadian Forest Sector**, Journal Article, Forest Policy and Economics 24: 29-34, *Johnston, M. and H. Hesselin*, 2012
- Climate Change and Canadian Agriculture: Some Knowledge Gaps**, Presentation/Journal Article, 4th International Conference on Climate Change: Impacts and Responses 2012, University of Washington, Seattle, WA; 22 slides; The International Journal of Climate Change: Impacts and Responses, Volume 4(2): 127-148, *Kulshreshtha, S. and E. Wheaton*, July 2012
- Climate Change and Canadian Forests: Impacts and Adaptation**, Invited Presentation, 4th Annual Beijing Forest Forum: Forest Management in a Changing Climate, *Johnston, M.*, September 25, 2012
- Climate Change and Prairie Forests: An Emerging Synthesis**, Invited Presentation, University of Saskatchewan (U of S) Dept(s): Plant Science Seminar Series; Lecture-Forest Ecology, Biology, Lecture-BIOL 410 and Lecture-Soil Science Department, Renewable Resource Management; Manitoba Section, Canadian Institute for Forestry Technical Session, Winnipeg, MB, *Johnston, M.*, 2012
- Climate Patterns of the Swift Current Creek and Oldman River Watersheds**, Invited Presentation, Prepared for the Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA) Project, Researcher Meeting, Regina, SK, 38 slides, *Wittrock, V. and E. Wheaton*, October 30, 2012, SRC Publication: 13224-4D12
- Climate Reference Station Saskatoon - Annual Summary 2011**, Research Report, Saskatchewan Research Council, Saskatoon, SK, *Beaulieu, C. and V. Wittrock*, March 2012, SRC Publication: 10440-1E12
- Climate Trends and Impact of Climate Change on Agriculture in an Arid Andean Valley**, Journal Article, Climate Change, 111(3):819-833 DOI: 10.1007/s10584-011-0200-z, *Fiebig-Wittmaack, M., O. Astudillo, E. Wheaton, V. Wittrock, C. Perez and A. Ibacach*, 2012, SRC Publication: 11228-3E12
- CO₂ EOR Research at SRC**, Presentation, U.K. Trade/Academic Mission to Canada on Carbon Capture and Storage (CCS); China National Petroleum Corporation, *Luo, P.*, 2012
- Combined Heat and Power for Greenhouses**, Invited Presentation, Northern Food Security Conference, Saskatoon, SK, *James, C.*, November 8, 2012
- Combined Heat and Power for Saskatchewan**, Invited Presentation, Energy Management Task Force, Saskatoon, SK; Regina Engineering Society, Regina, SK, *James, C.*, 2012
- Demonstration of a Micro Combined Heat and Power Plant in a Commercial Facility in Regina, SK**, Conference Paper Presentation, ASHRAE International Cold Climate Housing Conference, Calgary, AB, *James, C.*, November 14, 2012
- Design and Preparation of Ni-Co Bimetallic Nanocatalyst for Carbon Dioxide Reforming of Methane**, Book Chapter, Chapter 12, Nanocatalysis for Fuels and Chemicals, ACS Books, Washington DC, US, p.195-221, *Zhang, J., H. Wang, A.K. Dalai, Y. Hu, M. Shakouri and C. Xi*, 2012
- Development and Standardization of Plant Toxicity Methods for Assessment of Contaminated Soils using Upland and Wetland Boreal Species: (Year 3)**, Research Report, Environment Canada, *Moody, M.*, 2012, SRC Publication: 11627-1E12
- Development of Methods for Plant Eco-toxicity Testing at a Sub-arctic Site: An Investigation of Test Duration, Use of Fertilizer and Climate on Growth of Eleven Plant Species in Two Soils**, Research Report, Prepared for WorleyParsons, *Moody, M.*, 2012

- Developments in Heavy Oil Upgrading**, Conference Presentation, Saskatchewan Environmental Industry and Managers Association Home (SEIMA) EnerCan West Conference, Regina, SK, *Soveran, D.*, 2012
- Environmental Quality Committee – CLEANs Update**, Presentation, Uranium City and LaRonge, SK, *Allen, D. and T. Yankovich*, 2012
- Evaluation of a New Battery of Toxicity Tests for Boreal Forest Soils: Assessment of the Impact of Hydrocarbons and Salts**, Peer-Reviewed Journal Article, *Environmental Toxicology and Chemistry* 31: 766-777, *Princz, J., M. Moody, C. Fraser, L. Van der Vliet, H. Lemieux, R. Scroggins and S.D. Siciliano*, 2012
- Examining the Geochemical Potential for Using U-Th-Pb isotope Systems in the Basement Lithologies of the Athabasca Basin to Vector towards Mineralization**, Abstract and Presentation, Geological and Mineralogical Association of Canada (GAC-MAC) 2012, St. John's, NL, *Millar, R., I.R. Annesley and K. Ansdell*, 2012
- First Nations and Climate Change: Overview of Impacts and Adaptations**, Invited Presentation, Prepared for Saskatchewan Ministry of Environment, Saskatoon, SK, 6 slides, *Wheaton, E. and V. Wittrock*, December 4, 2012, SRC Publication: 11228-5D12
- Foams in Enhancing Petroleum Recovery**, Book Chapter, in *Foam Engineering: Fundamentals and Applications*, P. Stevenson, Ed., Wiley: Chichester, England, p. 283-306, *Schramm, L.L. and E.E. Isaacs*, 2012
- Froth Flotation of Oil Sand Bitumen**, Book Chapter, in *Foam Engineering: Fundamentals and Applications*, P. Stevenson, Ed., Wiley: Chichester, England, p. 251-282, *Schramm, L.L. and R. J. Mikula*, 2012
- Gravitational Effects in Heavy Oil Solution Gas Drive**, Journal Article, *Canadian Energy Technology & Innovation Journal (CETI)* 12-053, Volume 1, Number 2, *Tremblay, B., and K. Risper*, 2012
- Laboratory and Simulation Study of Optimized Water Additives for Improved Heavy Oil Recovery**, Research Paper, Society of Petroleum Engineers (SPE) International Heavy Oil Conference, Calgary, AB, SPE 146782, p.126, *Luo, P., X. Wang, S.S. Huang and Y. Zhang*, June 12-14, 2012
- Land of Extremes - Saskatchewan Style: Characterizations of Drought and Excessive Moisture in the Milk River, Moose Jaw River, Old Wives Lake and Upper Qu'Appelle River Watershed**, Research Report, Prepared for Saskatchewan Watershed Authority, 162 pp., *Wittrock, V.*, March 2012, SRC Publication: 13022-1E12
- Large 3D Physical Model at SRC: Realistic Results for Unconventional Hydrocarbon Reserves Solvent and Thermal Recovery Technology**, Conference Presentation, 33rd International Energy Agency Enhanced Oil Recovery Symposium (IEA-EOR) Symposium, Regina, SK, *Imran, M.*, August 26-30, 2012
- Li and B Isotopic Composition of Basement Rocks, Dawn Lake Area, Athabasca Basin, Saskatchewan**, Abstract and Presentation, Goldschmidt Conference 2012, Montreal, QC, *Millar, R., I.R. Annesley, R.L. Rudnick, X. Liu and K. Ansdell*, 2012
- Lipid Bilayer Properties Control Membrane Partitioning, Binding, and Transport of P-Glycoprotein Substrates**, Journal Article, DOI: 10.1021/bi301532c, *Biochemistry*, 2013, 52 (2), p. 343-354, *Clay, T.A. and F.J. Sharom*, December 26, 2012
- Mapping Quantitative Trait Loci Associated with Spot Blotch and Net Blotch Resistance in a Doubled-Haploid Barley Population**, Journal Article, *Molecular Breeding* 30 (1), p. 267-279, *Grewal, T.S., B.G. Rossmagel and G. J. Scoles*, 2012
- Mineral Decomposition and Leaching Processes for Treating Rare Earth Ore Concentrates for Treating Rare Earth Ore Concentrates**, Conference Presentation, 51st Annual Conference of Metallurgists, Niagara Falls, ON, *Zhang, J. and C. Edwards*, October 2012
- Moose Jaw Watershed. Drought and Excessive Moisture Preparedness Plan**, Research Report, Natural Resources Canada; Moose Jaw Watershed; Saskatchewan Watershed Authority, 43 pp., *Espeseth, D., J. Pittman, V. Wittrock and T. Myers*, March 2012, SRC Publication: 13022-3E12
- Multi-Disciplinary Mine Closure Planning and Implementation**, Presentation, Pre-Conference Workshop for the Mining Excellence in Saskatchewan Conference, Saskatoon, SK, *Yankovich, T. and C. Eggerman*, November 28, 2012
- NSERC CREATE: Collaborative Research and Training Experience Program**, Invited Panel Speaker, Research Services, University of Saskatchewan, Saskatoon, SK, *Schramm, L.L.*, February 8, 2012
- Old Wives Lake Watershed. Drought and Excessive Moisture Preparedness Plan**, Research Report, Natural Resources Canada; Old Wives Watershed Association; Saskatchewan Watershed Authority, 43 pp., *Espeseth, D., J. Pittman, V. Wittrock and L. Thomson*, March 2012, SRC Publication: 13022-2E12
- Optimizing the Capture of Oil Sand Fines in Sand Beach Area**, Conference Proceedings and Presentation, 3rd International Oil Sands Tailings Conference, Edmonton, AB, p. 311-320, *Sun, R., A. Goldszal, C. Li.; D. Segó, G.W. Wilson and N. Beier, Eds.*, December 2012
- Osmotic Repulsion Force Due to Adsorbed Surfactants**, Journal Publication, *Colloids and Surfaces B*, 91, 137-143, *Babchin, A.J. and L.L. Schramm*, 2012
- Outcome and Impacts: SRC's Impact Audit Process, A Case Study**, Conference Presentation, 3rd I-CAN Innovation School™, Toronto, ON, *Schramm, L.L. and W. Nyirfa*, 2012
- Patterns of Drought and Excessive Moisture: Work Planning for Oldman River and Swift Current Watersheds**, Invited Presentation, Prepared for the Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA) Project Theme 2A Work Planning Meeting, Regina SK, 8 slides, *Wheaton, E., B. Bonsal, V. Wittrock and D. Sauchyn*, October 30, 2012, SRC Publication: 13224-3D12
- Pipeline Transport of Thickened Oil Sand Tailings**, Conference Proceedings and Presentation, 3rd International Oil Sands Tailings Conference, Edmonton, AB, p. 301-310, *Gillies, R., R. Spelay, A. Goldszal and C. Li*, December 2012
- Potential of Improved Oil Recovery in Tight Formation Using Gas or Water Flooding**, Presentation, Tight Oil Canada Congress 2012 (organized by the Canadian Business Conferences), Calgary, AB, *Wang, V.*, February 28, 2012
- Project CLEANs: Gunnar Uranium Mine**, Invited Presentation, Facilities End-of-Life Pre-Conference Workshop Presentation, RemTech 2012, Banff, AB, *Miller, L., T. Yankovich and J. Kruczek*, 2012

- Propane-Enriched CO₂ Immiscible Flooding for Improved Heavy Oil Recovery**, Web Article, *Energy & Fuels*, 26 (4), p. 2124-2135, *Luo, P., Y. Zhang, X. Wang and S. Huang*, March 2012
- Research to Develop a Soil Toxicity Test using Species Native to the Canadian Boreal Wetlands**, Invited Conference Presentation, Petroleum Technology Alliance Canada (PTAC) Soil and Groundwater Forum, Calgary, AB, *Moody, M. and R. Scroggins*, 2012, SRC Publication: 11627-1D12
- Review of: Handbook on Theory and Practice of Bitumen Recovery from Athabasca Oil Sands, Volume 1: Theoretical Basis**, Journal Publication, *Canadian Journal of Chemical Engineering*, 90, p. 1070, *Schramm, L.L.*, 2012
- Risks to Mining of Climate Extremes: Project Update**, Invited Presentation, Saskatchewan Mining Association Meeting, Saskatoon, SK, 30 slides, *Greybiel K., V. Wittrock, T. Harrison and E. Wheaton*, December 6, 2012, SRC Publication: 13462-1D12
- Saskatchewan Net Metering Demonstration Program**, Conference Presentation, CanSIA Solar West, Edmonton, AB, *Winder, K.*, November 2012
- Saskatchewan Research Council Models High Temperature Reservoir Conditions**, Interview, Pipeline News, *Kristoff, B.*, May 2012
- Shale Oil Potential in Saskatchewan**, Journal Article, *Canadian Energy Technology & Innovation* 1(1), 22-28, *Schramm, L.L., D. Soveran, B. Schreiner and J.W. Kramers*, 2012
- Socio-Economic Indicators of Community Vulnerability: Preliminary Community Profiles - Statistical Appendix**, Research Report, Prepared for the Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA) Project, 392 pp., *Wittrock, V. and S. Kulshreshtha*, January 2012, SRC Publication: 13235-1E12
- Socio-Economic Indicators of Vulnerability, Adaptive Capacity and Risk Management: A Literature Review**, Research Report, Prepared for the Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA) Project, 40 pp., *Wittrock, V., S. Kulshreshtha and E. Wheaton*, 2012, SRC Publication: 13235-2E12
- Solvent Chamber Development in 3D Physical Model Experiments of Solvent Vapour Extraction Processes (SVX) with Various Permeabilities and Solvent Vapour Qualities**, Journal Article, *Journal of Canadian Petroleum Technology* Volume 5(6): 425-436, *Knorr, K. D. and M. Imran*, 2012
- Some Implications for Wheat Production of Climate Change**, Presentation, Canadian Wheat Improvement Workshop, National Research Council, Saskatoon, SK, 5 slides, *Wheaton, E. and V. Wittrock*, March 21-22, 2012, SRC Publication: 11228-2D12
- SRC's Agroforestry and Forestry Programs: An Overview**, Invited Presentation, SRC Lunch and Learn, Saskatoon, SK, *Johnston, M.*, August 15, 2012
- SRC's Pipe Flow Model for Slurry Pipeline Applications**, Invited Keynote Presentation, Pipeline Transport Processes Workshop, Edmonton, AB, *Gillies, R.*, June 5-6, 2012
- Surface Tension**, Encyclopedia Article, in *Encyclopedia of Science & Technology*, Electronic AccessScience Ed., McGraw-Hill, New York, 2 pp., *Schramm, L.L.*, 2012
- Swift Current Creek and Oldman River Watersheds: Climate Characterizations**, Invited Presentation, Prepared for the Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA) Project, Researcher Meeting, 34 slides, *Wittrock, V.*, March, 2012, SRC Publication: 13224-2D12
- Testing and Monitoring of Radiologicals in Drinking Water**, Abstract, 33rd Annual Conference of the Canadian Nuclear Society 36th Annual CNS/CNA Student Conference, Saskatoon, SK, *Stanek, B., W. Yuen and D. Chorney*, June 10, 2012
- The Decomposing and Leaching of Rare Earth Concentrate**, Conference Proceedings, 51st Conference of Metallurgists 2012, Niagara Falls, ON, p. 95-102, *Zhang, J. and C. Edwards*, 2012
- The Development of Rare Earth Processing Technologies**, Conference Proceedings, 44th Canadian Mineral Processer 2012 Conference, Ottawa, ON p. 79-102, *Zhang, J. and C. Edwards*, 2012
- The Impacts of Drought in 2001-2002**, Research Report, in H. Diaz and J. Warren (Editors). RCAD, Rural Communities Adaptation to Drought. Part II: 8-11; Canadian Plains Research Center, University of Regina, Regina, SK, *Wheaton, E. and S. Kulshreshtha*, August 2012
- The Realities of Climate Change and Global Warming**, Invited Presentation, Saskatchewan Econet, Saskatoon, SK, 32 slides, *Wheaton, E.*, August 3, 2012
- The Saskatchewan Research Council's Second Principal Climate Reference Station: Successful Expansion of SRC's Mesonet**, Research Report, Prepared for Saskatchewan Research Council's Innovation Fund Program, 104 pp., *Wittrock, V. and K. Young*, March 2012, SRC Publication: 13000-2E12
- Tracking Saskatchewan's Climate: From Idea to Trends**, Presentation, SRC Lunch and Learn, Saskatoon, SK, 27 slides, *Wittrock, V., D. Rohraff and K. Babich*, March 7, 2012, SRC Publication: 13000-1D12
- Upscaling Study of Vapour Extraction Process through Numerical Simulation**, Abstract and Presentation, *Transport in Porous Media*, Volume 95 (3): 697-715; Paper # SPE 157784, SPE Heavy Oil Conference, Calgary, AB, *Xu, S., F. Zeng, Y. Gu, and K. D. Knorr*, 2012
- Water-Assisted Pipeline Transport of Bitumen/Heavy Oils**, Invited Keynote Presentation, Pipeline Transport Processes Workshop, Edmonton, AB, *McKibben, M.J.*, June 5-6, 2012
- World Potash**, Presentation, CIM Saskatoon-Potash Night, Saskatoon Branch Canadian Institute of Mining and Metallurgy Night Meeting, Saskatoon, SK, *Zhang, J. and C. Perucca*, 2012
- Your Home's Carbon Footprint**, Magazine Article, *Saskatoon Home Magazine*, p. 36-37, *Wismer, M., S. MacWilliam, C. James and R. Gotto*, Summer Issue, 2012

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