

2023 RESUME

GORD MCKENNA PHD PENG PGEOL

GEOTECHNICAL ENGINEER & LANDFORM DESIGNER

Gord McKenna is a geotechnical engineer specializing in tailings and mine waste management, dam safety, landform design, and mine reclamation. He has 36 years of experience as a geotechnical engineer at a large oil sands mine and as a consulting engineer for mines, regulators, and local communities in Canada and internationally. Gord serves on a dozen geotechnical review boards and expert panels, has co-authored 110 papers and book chapters, and is the founding chair of the Landform Design Institute.



EDUCATION

- BASc Geological Engineering, University of British Columbia 1987
- PhD Geotechnical Engineering, University of Alberta 2002

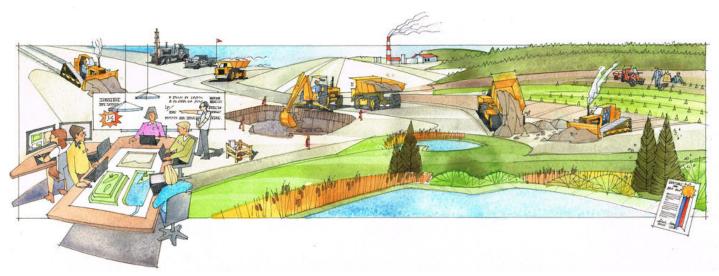
EXPERIENCE

- 2019 Present Chair, Founder, Landform Design Institute
- 2019 2022 Adjunct Professor, Department of Civil and Environmental Engineering, U of Alberta
- 2017 Present Geotechnical Engineer and Landform Designer, McKenna Geotechnical Inc
- 2014 2018 Adjunct Professor, Department of Renewable Resources, U of Alberta
- 2007 2017 Principal Geotechnical Engineer, BGC Engineering Inc
- 2004 2007 Senior Geotechnical Engineer, Norwest Corporation
- 2004 2009 Adjunct Professor, Department of Civil and Geological Engineering, U of Saskatchewan
- 1987 2004 Senior Geotechnical Engineer, Syncrude Canada
- 1984 1986 Summer Field Assistant, Terrain Sciences, Geological Survey of Canada

AFFILIATIONS

- Engineers and Geoscientists BC (PEng, PGeo)
- Engineers Yukon (PEng)
- Association of Professional Engineers and Geoscientists of Alberta (PEng, PGeol)
- Association of Professional Engineers and Geoscientists of Saskatchewan (PEng, PGeo)
- Professional Engineers Ontario (PEng)

- Canadian Dam Association
- Canadian Geotechnical Society
- Canadian Institute of Mining
- Canadian Land Reclamation Association
- Landform Design Institute



LANDFORM DESIGN

Building on oil sands experience and his 2002 PhD thesis in landform design, Gord has led design teams in the development of mine closure plans, landform and watershed designs, and technical guidance documents for end pit lakes, wetlands, covers and landforms. In Alberta, his efforts led to the first (and only) successful relinquishment of an oil sands landform to the Crown.

Gord has led the design and construction of 29 large mining landform projects totaling 5500 hectares (55 km²), including 38 wetlands and 120 km of watercourses. Ten of these projects were instrumented watersheds for reclamation research, each generating several **INSTITUTE**

post-graduate degrees. The information acquired from the design, construction, operation, and research has been synthesized and communicated to practitioners and regulators as part of novel tech-transfer programs. See the attached list of design, construction, and review projects.





Gord has helped lead several breakthroughs in mine closure planning and landform design, including the use of formal goal setting, design checklists, and GIS tools. He worked with other practitioners to devise various communication techniques that have become routine in oil sands closure planning, such as project design topographic surfaces, constraint maps, and landform design risk assessments. Gord's main messages are to work collaboratively with stakeholders, clearly define and obtain agreement on measurable goals, and work toward creating landforms that will be reclaimed reliably and efficiently and returned to users as quickly as practical. Gord is the founder and chair of the Landform Design Institute (see *www.landformdesign.com*).



GEOTECHNICAL INVESTIGATIONS AND DESIGNS

Gord carries out geotechnical site investigations and designs for a variety of mining foundations, dumps, dams, and borrow. Many of these site investigations involve characterizing large mine waste facilities for landform design. Major design / construction projects have included highwall dragline mining (1987-1991), refinery foundation designs (1991-1994), sulphur block burial (2002-2004), development of grouted piezometer technology (1991-1995), Questa Rockpile investigation and geotechnical risk assessment (2004-2007), Wolverine Tailings Dam design (2004-2006), Galore Creek Tailings Dam design (2007-2009), Suncor Pond 1 (2008-2010), Coal Valley waste rock dumps (2013-2014), Teck Coal mine rock stockpiles (2012-2015) and Kittilä NP3 tailings site investigation (2019-2022).

SCREENING AND ECONOMICS STUDIES

Gord has worked on more than a dozen screening studies for tailings, mining, and reclamation projects. Major projects include oil sands tailings technology evaluations, tailings capping projects, as well as mine waste rock physical / chemical stabilization projects. Gord uses holistic life-cycle design, simple and transparent decision analysis tools, simplified economics, and management / regulatory / stakeholder involvement to help teams make their best decisions. He often designs and facilitates engineering risk assessments for mining landforms.



TAILINGS R&D

Gord has been involved in oil sands tailings research and development for almost 30 years in dozens of projects ranging from bench scale, through piloting, prototyping, commercialization, operation, closure, and reclamation. Example projects include commercialization of Syncrude composite tailings, development of soft tailings capping technologies, and new reclamation techniques. Most of this work happens in the field, dealing with real-life conditions in large pilots and in start-ups. Recent work has focused on international capping and reclamation techniques and production of a 300-page design guide. Gord is a recognized expert in soft tailings characterization, stabilization, and capping.

REVIEW BOARDS AND EXPERT PANELS

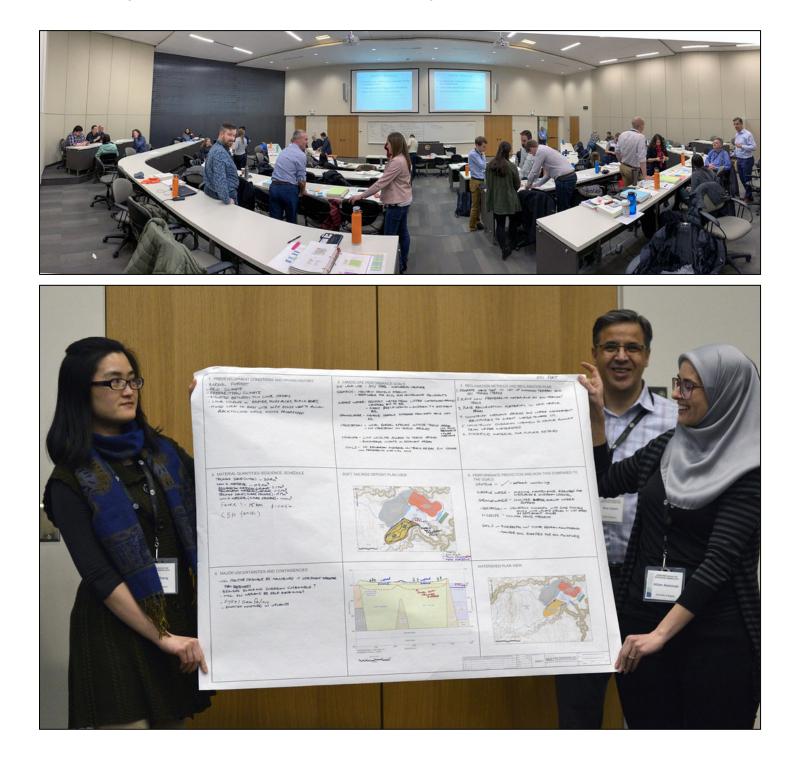
Gord sites on a number of review panels, guiding operations and landform design for large dams and dumps as well as advising colleagues on research and development programs. Belonging to such panels has given Gord a chance to collaborate with experts from many other disciplines. Gord's panel and review board experience is appended.

SUPPORT FOR REGULATORS AND LOCAL COMMUNITIES

Close collaboration of mines, regulators, and local communities is key to sustainable mining. Gord has provided expert advice to regulators and local communities (including First Nations communities) on several mining projects in Western Canada.

SUPPORT FOR ACADEMIC INSTITUTIONS AND STUDENTS

Gord has undertaken research at several universities and is has been an Adjunct Professor at the University of Alberta Civil & Environmental Engineering Department. He is also involved with the U of A Land Reclamation International Graduate School, has helped co-supervise several graduate students, participated in many mentorship programs, and supports professors with their research by sharing his mining geotechnique experience. He's been involved in several novel non-conventional laboratory research programs, applying soil mechanics to unusual geo and non-geo materials. Gord regularly provides lectures to graduate and undergraduate university classes at BCIT, UBC, and UofA, and Queens University. More recently, Gord has been providing podcasts and video lectures in landform design.



PROFESSIONAL AWARDS / RECOGNITION

- 2022. Inge Anderson Award of Merit. Canadian Dam Association
- 2020. Tom Peters Memorial Award for Detour Lake Mine Research and Progressive Reclamation Program (group award). Canadian Land Reclamation Association
- 2014. Towards Sustainable Mining Award for Environmental Excellence (group award) Syncrude Sandhill Fen. Mining Association of Canada
- 2005. Emerald Award Syncrude Reclamation Research (group award). Alberta Emerald Foundation



PERSONAL

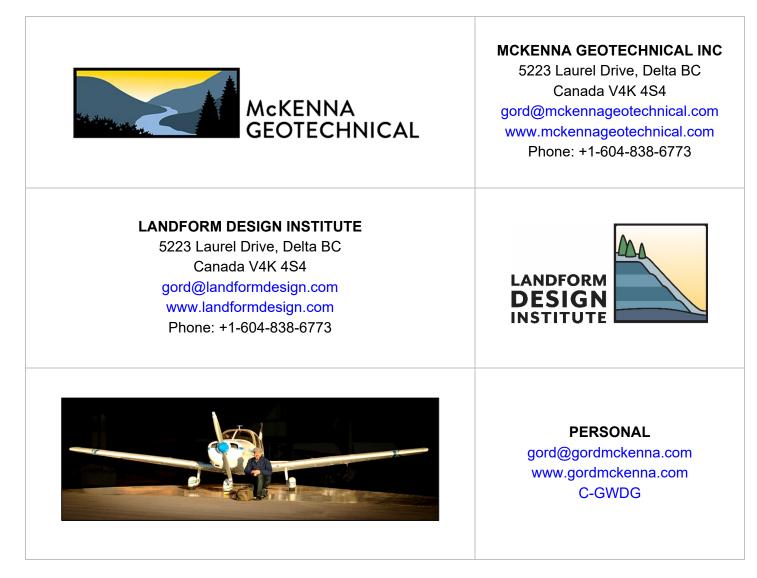
In his personal life, Gord has pursued a lifelong joy of photography, exercised the privileges of a private pilot's license, reads voraciously on topics ranging from geography to how-to manuals, and travels widely. Photography is one of Gord's most cherished activities and dovetails well with mine engineering. Panorama photography is his specialty, and he posts many photos on social media and his Flickr site. While the mechanics are straightforward, creating a panorama photo that is memorable and artistic is the challenge.

You will often find Gord out before dawn, waiting for the light. Gord has had a passion for flying ever since his first flight in a DC3 in the 1960s, which was complemented by three summers flying in helicopters in Labrador in the 1980s. He was hooked on flying after experiencing a flight across the country in 2009 from Vancouver to St Pierre et Miquelon at 2000 feet in a Cessna 182. He obtained his private pilot's license at Pacific Flying Club at CZBB a few years ago and went on to purchase a Piper Cherokee and recently returned from a 6200 km round trip Vancouver to Dawson City YT and recently circumnavigated Vancouver Island. Gord and his wife Yvonne, who together enjoy traveling widely, live near Vancouver, Canada and have two grown sons.



Gord at the reclaimed (and relinquished) Syncrude Gateway Hill / S4 Dump in 2017.

CONTACT



Artwork by Derrill Shuttleworth, Illustrator, Gabriola Island, BC, Canada. Since 1996, Derrill and Gord have worked together on over 2000 technical illustrations for dozens of clients around the world. Derrill also works with directly mines, consultants, regulators, and local communities on similar projects.

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SUPPLEMENTARY INFORMATION





Landform and watershed design / construction

Gord's passion is working with teams to design and build mining landforms with flair. Here is a list of our projects:

- Agnico Eagle Kittilä NP3 Tailings 2021 48 ha
- BHP Jansen Potash 2011 36 ha
- BHP Solitude Tailings 2022 26 ha
- CNRL Albian MRM ETF-SEA External Tailings Facility 2018 1420 ha
- CNRL Albian MRM Southwest Dump 2019 302 ha
- CNRL Albian NE Dump / Dump 2C 2018 298 ha
- Detour Gold Cover Field Trial 2018 10 ha
- Diavik PKC Facility (ext. review only) 205 ha
- Faro Rose Creek Tailings 2016 212 ha
- Faro Waste Rock Dump 2016 350 ha
- NWP Coal Crown Mountain 2022 793 ha
- Suncor MD2 Dump 2009 34 ha
- Suncor Nikanotee Fen and Watershed 2012 35 ha
- Suncor Pond 1 / Wapisiw Lookout 2010 225 ha
- Suncor Pond 5 and Pond 6 2011 1168 ha
- Syncrude Composite Tailings Prototype 2009 80 ha
- Syncrude Mildred Lake Settling Basin East Toe Berm 1999 182 ha
- Syncrude MLSB Coke Watershed 2001 11 ha
- Syncrude S4 Dump / Gateway Hill 2004 104 ha
- Syncrude S5 Dump 2001 74 ha
- Syncrude Sandhill Fen and Watershed 2012 52 ha
- Syncrude South Bison Hills Dump 2002 100 ha
- Syncrude SWSS Cell 32 2000 39 ha
- Syncrude W1/W2 Dumps 2004 244 ha
- Teck Coal Elkview Tailings 2000 159 ha
- TransAlta Keephills Ash Lagoon 2021 215 ha
- Teck Coal Elk Valley 2023 landform designs for 36 tailings facilities (in progress)





Review boards and expert panels

Completed

- CEMA Landform Design Checklist Working Group 2003-2004
- o Questa Rockpile Weathering ADTI Panel 2006-2009
- o Albian InPit Dyke Design and Construction Internal BGC Review Board 2008-2012
- Suncor Pond 5 Coke Capping Review Team 2008-2010
- CEMA End Pit Lakes Guidance Document 2010-2012
- CTMC Oil Sands Tailings Roadmap 2010-2012
- Strategic Advisory Panel on Selenium Management 2010-2011
- o MEND Cold Regions Cover System Design Technical Guidance Document 2011-2012
- o U of Alberta Land Reclamation International Graduate School Management Board 2012-2016
- o CEMA Guidelines for Wetlands Establishment on Reclaimed Oil Sands Leases 2012-2014
- o Delicensing of Oil Sands Tailings Dams: Technical Guidance Document 2012-2014
- Syncrude Base Mine Lake R&D Review Panel 2012-2014
- Syncrude EIP Landform Design Review Team 2012-2014
- Council of Canadian Academies Expert Panel on the Potential for New and Emerging Technologies to Reduce the Environmental Impacts of Oil Sands Development – 2013-2015
- INAP Cover Systems Guidance Document 2014-2017
- CanAus Coal Water Management Advisory Team 2015-2018
- Suncor PASS Technology Development Review Team 2015-2018
- o Shell Canada Tailings Technology Development Review 2015-2017
- COSIA Deep Deposit Design Guide 2018-2022
- Teck Coal Tailings Facility Decommissioning Team 2019-2020
- Oil sands closure client risk expert panel 2019
- CanAus / North Coal Technical Advisory Group 2015-2021
- Teck Coal Swift North Saturated Oxygen Zone Independent Review Panel 2023
- Ongoing
 - o Canadian Natural Albian Sands Mine Geotechnical Review Board 2013-
 - Teck Highland Valley Copper Tailings Review Board (appointed by and representing the Nlaka'pamux Nation Tribal Council) – 2018-
 - o Silvertip Tailings Independent Senior Reviewer 2018-
 - o Landform Design Institute Board of Directors 2019-
 - Faro Mine Independent Peer Review Panel 2021-
 - o Newmont Equity Silver Tailings Review Board 2021-
 - Newmont Golden Giant Tailings Review Board 2021-
 - Newmont Dona Lake Senior Independent Tailings Reviewer 2021-
 - Newmont Eleonore Tailings Review Board 2021-
 - o Teck Coal Early R&D Source Control Technical Advisory Committee 2022-
 - NWP Crown Mountain Coal Project Technical Committee 2022-
 - o Northback Grassy Mountain Coal Project Technical Steering Committee 2023-
 - o Newmont Marlin Senior Independent Tailings Reviewer 2023-



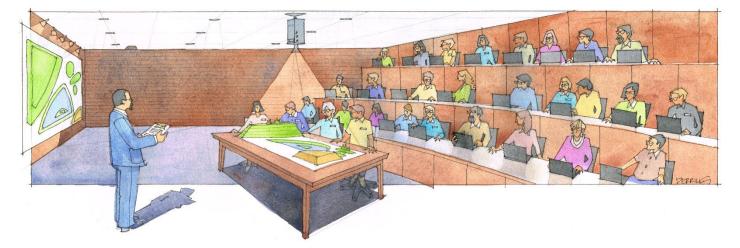
For more on review boards...

- McKenna G. 1998. Celebrating 25 Years: Syncrude's Geotechnical Review Board. Geotechnical News. pp34-41.
- Burnett A & McKenna G. 2022. Celebrating 50 years: the Syncrude Geotechnical Review Board. CDA Canadian Dam Association Conference, St John's.
- McKenna G. 2022. Building and operating a successful geotechnical review board. CDA Canadian Dam Association Annual Meeting. St John's. 29pp.
- Straker J & McKenna G. 2022. The case for a reclamation designer of record. BC Mine Reclamation Symposium. 15pp.

PhD thesis committees...

- Slingerland NM. 2019. Geomorphic landform design and long-term assessment of tailings storage facilities in the Athabasca oil sands. Department of Civil and Environmental Engineering University of Alberta.
- Schafer H. 2022. Risk management for tailings dam safety: considerations for long-term and post-closure timelines. Department of Civil and Environmental Engineering, University of Alberta.
- Daly CA. 2023. Exploring Co-Reclamation: Gesturing Towards Intercultural Collaboration and the Renewal of Indigenous Cultural Landscapes after Oil Sands Extraction in the Fort McKay First Nation Traditional Territory, Treaty 8, Alberta, Canada. School of Architecture, Planning, and Landscape. University of Calgary.

Short courses



Gord leads short courses for up to 80 people, often at international conferences, sometimes at a mine site, and even once wholly in the field. The courses focus on practical, hands-on learning and provide participants with the tools and case histories they need to complete landform designs and closure plans. Over the past 20 years, Gord has provided over 100 lectures and hosted almost four dozen courses and workshops, including:

- Successful reclamation CIM Calgary '99 Calgary 1999
- Landform design checklist CEMA Fort McMurray 2003
- Geostatistics for hydraulic conductivity Syncrude Canada Fort McMurray 2004
- Tailings dam closure and reclamation CDA Calgary 2005
- Landform design for oil sands tailings Canadian Geotechnical Society Calgary 2006
- Landform design Tailings and Mine Waste '08 Vail 2008
- Oil sands geotechnique BGC Engineering Vancouver 2008
- Landform design Tailings and Mine Waste '09 Banff 2009
- Landform design for oil sands oil sands client Calgary
- Landform design for oil sands Syncrude Canada Fort McMurray 2010
- Oil sands geotechnique BGC Engineering Vancouver 2010
- Landform design Tailings and Mine Waste '11 Vancouver 2011
- Landform design BGC Engineering Vancouver 2012
- Oil sands geotechnique BGC Engineering Kamloops 2012
- Landform design ICARD 2012 Ottawa 2012
- Sustainable Mining Now Mine Closure '12 Brisbane 2012
- Landform design and closure planning University of Alberta Mining Engineering Edmonton 2013
- Landform design University of Alberta, LRIGS Edmonton 2013
- Landform design and covers CLRA '13 Whitehorse 2013
- Landform design and covers Tailings and Mine Waste '13 Banff 2013
- Landform design for oil sands oil sands company client course Calgary 2013
- Mine closure seminar BGC Engineering Santiago 2013
- Oil sands geotechnique BGC Engineering Vancouver 2014

- Landform design and closure planning University of Alberta Mining Engineering Edmonton 2014
- Landform design and covers Cold Regions Cover Systems and Mine Closure Whistler 2014
- Landform design for oil sands oil sands company client course Calgary 2014
- Hot topics in oil sands tailings management Oil Sands Tailings Conference Lake Louise 2014
- Landform design and closure planning University of Alberta Mining Engineering Edmonton 2015
- Landform design for northern mines Northern Latitudes Mining Reclamation Juneau 2015
- Landform design for oil sands oil sands company client course Calgary 2016
- Landform design and closure planning University of Alberta Mining Engineering Edmonton 2016
- Landform design and land use Fort McMurray First Nation #468 Anzac 2017 (outdoor workshop)
- Landform design and closure planning University of Alberta Mining Engineering Edmonton 2018
- Landform design and closure planning Detour Gold Timmins 2018
- Landform design for oil sands oil sands company client course Calgary 2018
- Landform design international mining client Dominican Republic 2019
- Landform design and closure planning University of Alberta Mining Engineering Edmonton 2019
- Landform design for sustainable mining BC Mine Reclamation Symposium Kimberley 2019
- Landform design for sustainable mining University of Alberta Edmonton 2019
- Landform design for sustainable mining University of Alberta Mining Engineering Edmonton 2020
- Landform design for sustainable mining UBC Mining Department Vancouver 2020
- Landform design for sustainable mining University of Alberta Edmonton 2021
- Intro to closure planning and landform design Queens University MEERL Program Kingston 2021
- Landform design for sustainable mining University of Alberta Edmonton 2022
- Landform design short course Landform Design Institute Calgary 2022
- Landform design for coal tailings Teck Coal Sparwood 2022
- Introduction to closure planning and landform design -- University of Alberta Edmonton 2023
- Landform design for tailings Paste Thickened and Filtered Tailings Conference Banff 2023



Clients and mines

- Agnico Eagle Kittilä Mine (Finland)
- Alberta Energy Regulator (Edmonton AB)
- Alberta Environment and Sustainable Resource Development (Edmonton AB)
- Alberta Innovates (Edmonton AB)
- ALCES Landscape and Land-Use (Calgary AB)
- Barkerville Gold (Wells BC)
- Barrack Gold (Salt Lake City UT)
- Barrick Gold Pueblo Viejo Mine (Dominican Republic)
- BASF (Vancouver BC)
- BC Hydro Site C (Fort St John BC)
- BC Ministry of Energy, Mines and Petroleum Resources (Victoria BC)
- BGC Engineering Inc (Vancouver BC)
- Benga Mining (Calgary AB)
- BHP Potash (Jansen SK)
- BHP Solitude (Globe AZ)
- Borealis Environmental (North Vancouver BC)
- BP Yerington Mine (Yerington NV)
- Cabin Ridge Coal (Blairmore AB)
- Cameco (Saskatoon SK)
- Canadian Dam Association (Toronto ON)
- Cassiar Gold (Cassiar BC)
- CNRL Albian Muskeg River Mine, Jack Pine Mine, Horizon Mine (Fort McMurray AB)
- CNRL Council of Canadian Academies (Ottawa ON)
- Coal Valley Mine (Hinton AB)
- Coeur d'Alene Basin Remediation Program (Idaho)
- Coeur Silvertip Mine (Northern BC)
- Colorado School of Mines (Golden CO)
- COSIA Canadian Oil Sands Innovation Alliance (Calgary AB)
- CRE Stantec (Anzac AB)
- Crown-Indigenous Relations and Northern Affairs Canada (Ottawa ON)
- Cumulative Environmental Management Association
 (Fort McMurray AB)
- Detour Gold Mine (Cochrane ON)
- Diavik Diamond Mines (Yellowknife NT)
- El Volcan Gold (Ojo de Agua, Chile)
- Evolution Mining Red Lake (Red Lake ON)
- Golder Associates (Calgary AB)
- Graymont (Richmond BC)
- Hatch (Brisbane Australia)

- ICMM Global Tailings Initiative (London UK)
- Imperial Oil Kearl (Fort McMurray AB)
- Indigenous and Northern Affairs Canada (Ottawa ON)
- Integral Ecology Group (Duncan BC)
- Klohn Crippen Bergeron (Edmonton AB)
- Knight Piésold (Vancouver BC)
- Livingstone Landowners Group (Pincher Creek AB)
- Lorax Environmental (Vancouver BC)
- Lundin Candelaria Mine (Chile)
- Lundin Neves-Corvo Mine (Portugal)
- Lundin Zinkgruvan Mine (Sweden)
- Merit CESO (Mongolia)
- Millennium EMS (Calgary AB)
- Mount Nansen (Carmacks YT)
- NewGold New Afton Mine (Kamloops BC)
- Newmont Gold Dona Lake (Pickle Lake ON)
- Newmont Gold Eleonore (Eleonore PQ)
- Newmont Gold Equity Silver (Houston BC)
- Newmont Gold Golden Giant (Marathon ON)
- NNTC Nlaka'pamux Nation Tribal Council (Lytton BC)
- North Coal (Sparwood BC)
- Northback Coal (Blairmore AB)
- Norwest Corporation (Vancouver BC)
- NovaGold Galore Creek (Smithers BC)
- NWP Crown Mountain Coal (Sparwood BC)
- Okane Consultants (Saskatoon SK)
- Osisko Cariboo Gold (Wells BC)
- Petrocan Fort Hills UTS (Fort McMurray AB)
- Pimenta de Avila Consultoria (Brazil)
- Priscu Engineering Associates (West Vancouver BC)
- PTAR Agincourt Martabe Gold Mine (Sumatra)
- Rio Tinto / Ranger Uranium Mine (Australia)
- Riversdale Resources (Blairmore AB)
- Society for Mining, Metallurgy & Exploration (SME Englewood CO)
- Springbank Community Association (Springbank AB)
- SRK Consulting (Denver CO)
- Stantec (Calgary AB)
- Suncor Energy Tar Island, Steepbank, and Millennium Oil Sands Mines (Fort McMurray AB)
- Swanson Environmental (Fernie BC)
- Swedish Engineering Company SWECO (Sweden)

- Syncrude Canada Mildred Lake, Aurora North, Aurora South, and MLX Oil Sands Mines (Fort McMurray AB)
- Synenco Energy Northern Lights Oil Sands Project (Fort McMurray AB)
- Taseko Gibraltar Mine (Likely BC)
- Teck Coal Cardinal River and Cheviot mines (Hinton AB)
- Teck Coal Fording River, Greenhills, Line Creek, Elkview, Castle Mtn, and Coal Mountain mines (Sparwood BC)
- Teck Frontier Oil Sands Project (Fort McMurray AB)
- Teck Highland Valley Copper (Kamloops BC)
- Teck Metals (Trail BC)

- Texada Project (Texada Island BC)
- Thurber Engineering (Calgary AB)
- Total E&P Joslyn Ck Oil Sands (Fort McMurray AB)
- TransAlta Keephills Plant (Edmonton AB)
- Tsilhqot'in National Government (Williams Lake BC)
- University of British Columbia Mining (Vancouver)
- UTS Fort Hills (Fort McMurray AB)
- Vale Xavier Iron Ore (Brazil)
- Western Can Coal Wolverine (Tumbler Ridge BC)
- WHA Engineering (Calgary AB)
- YG / INAC Faro Mine (Faro YK)





Publications



Contact Gord for copies of any of these papers...

- Abbott RM & McKenna G. 2012. Sustainable mining now: turning ideas and ideals into reality. Mine Closure 2012. Brisbane. Australian Centre for Geomechanics. pp771-781.
- Ansah-Sam M, Hachey L, McKenna G & Mooder B. 2016. The DBM approach for setting engineering design criteria for an oil sands mine closure plan. Fifth International Oil Sands Tailings Conference, December 4-7. Lake Louise.
- Ansah-Sam M, McGreevy J & McKenna G. 2019. Processes for the closure design of greenfield and brownfield overburden dump sites. Tailings and Mine Waste Conference. Nov 17-20. Vancouver. 16pp.
- Ansah-Sam M, Olauson E, & McKenna G. 2017. Closure landform design for an oil sands external tailings facility. Tailings and Mine Waste 2017.
- Aubertin M & McKenna G. 2016. tailings disposal challenges and prospects for oil sands mining operations. Geo-Chicago 2016: Geotechnics for Sustainable Energy. Aug 14-18. Chicago. pp359-371.
- Barbour S & McKenna G. 2010. Engineering for wetland reclamation, reclamation and restoration of boreal peatland and forest ecosystems: toward a sustainable future. Edmonton. March 25-27. Paper 3-6.
- BGC Engineering Inc. 2010. Oil Sands Tailings Technology Review. OSRIN Report No. TR-1. BGC Engineering Inc. Vancouver. 136pp.
- BGC Engineering Inc. 2010. Review of reclamation options for oil sands tailings substrates. OSRIN Report No. TR-2. BGC Engineering. Vancouver. 59pp.
- Burnett A & McKenna G. 2022. Celebrating 50 years: the Syncrude Geotechnical Review Board. CDA Canadian Dam Association Conference, St Johns. 20pp.
- Cash AE, Mendoza CA, Straker J, Raizman V, Lyle K, & McKenna G. 2022. Mine rock stockpile reclamation trial, Detour Lake Mine: design, construction, and lessons learned. BC Mine Reclamation Symposium 2022. 13 pp.
- Cassie J & McKenna G. 2016. Mine closure planning, design, and implementation: from hand-waving to reality. Planning for Closure 2016: First International Congress on Planning for Closure of Mining Operations. Santiago, Chile. November 20-22. Gecamin. Santiago. 9pp.
- CCA. 2015. Technological Prospects for Reducing the Environmental Footprint of Canadian Oil Sands: The Expert Panel on the Potential for New and Emerging Technologies to Reduce the Environmental Impacts of Oil Sands Development. Council of Canadian Academies. Ottawa. 254pp.

- CEMA. 2005. Landscape Design Checklist, Revised RSDS Government Regulator Version. May 2005. Cumulative Environmental Management Association CEMA-RWG Landscape Design Subgroup. 8pp.
- CEMA. 2012. Oil Sands End Pit Lakes Guidance Document. Cumulative Environmental Management Association. Fort McMurray. 494pp.
- CEMA. 2014. Guidelines for Wetland Establishment on Reclaimed Oil Sands Leases (3rd Edition). Cumulative Environmental Management Association. Fort McMurray. 436pp.
- Chow R, McKenna G, Win SMK & Journault J. 2013. Recovery of bitumen from oil sands tailings streams and deposits: potential opportunities and benefits. Consultant's report for Alberta Innovates, Energy and Environment Solutions and the Canadian Oil Sands Innovation Alliance. Report dated Dec 18, 2013.
- COSIA. 2022. Deep Deposit Design Guide for Oil Sands Tailings. Canada's Oil Sands Innovation Alliance Deep Deposit Working Group. Calgary. July 2022. 260pp.
- Crossley C, Russell B, van Zyl D & McKenna G. 2011. Developing an operation, maintenance, and surveillance manual for the postclosure management of tailings facilities. Mine Closure 2011 Conference. September 18-21. Lake Louise, Alberta, Canada. Australian Centre for Geomechanics. Perth. 10pp.
- CTMC. 2012. Oil sands tailings technology deployment roadmap: Project Report Volume 2, Component 1 Results. Consortium of Tailings Management Consultants. Consultants report to Alberta Innovates Energy and Environment Solutions. June 22, 2012. 112pp.
- Daly C, Atkinson J, Birkham T, Chapman D, Ciborowski J, McKenna G, O'Kane M, Price J, Rochefort L & Russell B. 2010. Novel wetland reclamation design: The Suncor pilot fen and Wapisiw wetland. 37th Annual Aquatic Toxicity Workshop October 3-6. Toronto. Fisheries and Oceans Canada.
- Eaton BR, Fisher JT, McKenna G & Pollard J. 2014. An ecological framework for wildlife habitat design for oil sands mine reclamation. OSRIN Report No. TR-67. Oil Sands Research and Information Network, U of Alberta. Edmonton. 83pp.
- Fair JM, Pollard J & McKenna G. 2014. Reclaimed closure landscapes: the importance and benefits of operations maintenance and monitoring. 38th BCTRCR Annual British Columbia Mine Reclamation Symposium. Sep 22-25. Prince George, BC.
- Gilron G & McKenna G. 2021. Selenium management for Alberta coal mines: state of practice review. Consultant's report submitted to the Coal Policy Committee on behalf of Cabin Ridge Project. June 6. 62pp. olden A, McKenna G, Fan X & Biggar K. 2014. The



potential impact of different types of tailings on water quality and quantity reporting to oil sands end pit lakes: a preliminary modeling exercise. International Oil Sands Tailings Conference (IOSTC 2014). December 7-10. Lake Louise, Canada. University of Alberta Geotechnical Centre. Edmonton.

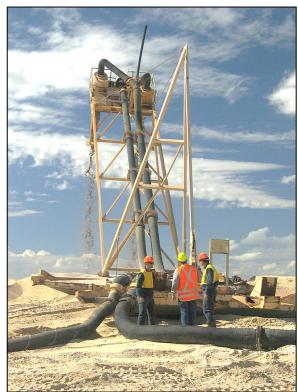
Holden A, Provost H, Pollard J, McKenna G, & Wells PS. 2019. Evolution of landforms in reclaimed landscapes in the surface mineable Athabasca oil sands. Tailings and Mine Waste Conference. Nov 17-20. Vancouver. 16pp.

Hyndman A, Sawatsky L, McKenna G, & Vandenburg J. 2018. Fluid fine tailings processes: disposal, capping, and closure alternatives. International Oil Sands Tailings Conference. December 9-12. Edmonton, AB. 110pp.

INAP. 2017. Global Cover Systems Design – Technical Guidance Document. International Network for Acid Prevention. Consultant's report by Okane Consultants. Saskatoon. 216pp.

ISO. 2021. Mine closure and reclamation planning – Part 1: requirements. ISO 21795-1:2021. International Standards Organization Technical Committee ISO/TC 82/SC7 Mine closure and reclamation. 16 pp.

ISO. 2021. Mine closure and reclamation planning – Part 2: guidance. ISO 21795-2:2021. International Standards Organization Technical Committee ISO/TC 82/SC7 Mine closure and reclamation. 71 pp.



Jakubick AT & McKenna G. 2001. Stabilization of soft tailings. practice and experience. Eighth International Conference on Radioactive Waste Management and Environmental Management (ICEM'01). Brugge Belgium. American Society of Mechanical Engineers.

Jakubick AT, McKenna G & Robertson AM. 2003. Stabilisation of tailings deposits: international experience. Sudbury 2003. Mining and the Environment. Sudbury.

Keys MJ, Ducharme J & McKenna G. 2000. Incorporating landscape design into closure planning at the Syncrude Mine Site. Global Land Reclamation/Remediation 2000 and Beyond. Proceedings of the Canadian Land Reclamation Association 25th Annual Meeting, Edmonton.

Keys MJ, McKenna G, Sawatsky L & Van Meer T. 1995. Natural analogs for sustainable reclamation landscape design at Syncrude. Environmental Management for Mining. Saskatoon.

Kostaschuk RA, Luternauer JL, McKenna G, & Moslow TF. 1990. Morphology and sediment transport in a submarine channel system; Fraser River delta British Columbia. Geological Association of Canada – Mineralogical Association of Canada annual meeting. Program with abstracts Waterloo. 15:71.

Kostaschuk RA, Luternauer JL, McKenna G, & Moslow TF. 1992. Sediment transport in a submarine channel system, Fraser River delta Canada. Journal of Sedimentary Petrology. Volume 62. pp273-282.

- Kupper AG, Hurndall B, Morgenstern N, Sobkowicz J, Abeda W, Baldwin G, Cameron R, Eenkooren N, Grapel C, Martens S, McKenna G, Mihiretu Y, Mimura W, Parson K, Paz S, Petersen T, Small A, Tan S, Wog K & Yazdanpanah S. 2013. De-licensing oil sands tailings dams – when is a dam no longer a dam? Tailings and Mine Waste '13. November 3-6, Banff. University of Alberta Geotechnical Centre. Edmonton.
- LDI. 2021. Mining with the end in mind: Landform design for sustainable mining. Position Paper 2021-01. March 2021. Landform Design Institute. Delta, BC, Canada. 78pp.
- List BR & McKenna G. 1990. Shallow translational failures along thin Marine Clay layers at the Syncrude Canada Ltd open pit mine. 43rd Canadian Geotechnical Conference. Quebec City. Canadian Geotechnical Society.
- Liu Y & McKenna G. 1999. Applications of wickdrains in Syncrude composite tailings. 52nd Canadian Geotechnical Conference, Regina. Canadian Geotechnical Society.
- McGreevy J, McKenna G, An R, & Scordo E. 2013. Regional mine closure plans the next improvement in closure planning. Tailings & Mine Waste 2013 Conference. Banff. Nov 3-6. University of Alberta Geotechnical Centre, Edmonton.
- McGreevy JTG, Mooder RB, & McKenna G. 2016. Integrated planning for mine closure supported by the use of digital elevation model surfaces. Fifth Canadian Young Geotechnical Engineers & Geoscientists Conference. Whistler, BC. pp47-48.
- McGreevy JTG, Mooder RB, McKenna GT, & Ansah-Sam M. 2018. From greenfields to the post-mining landscape: a planning approach to better mine closure. Resources for Future Generations. Vancouver. Jun 16-21.
- McKee WN & McKenna G. 1997. Closure planning. actions today to control cost and liability tomorrow. CIM District 5 Mining Conference. Fort McMurray. Canadian Institute of Mining. Paper 22.
- McKenna G & Cullen V. 2008. Landscape design for soft tailings deposit. Tailings & Mine Waste 08 Conference. Vail, Colorado.
- McKenna G & Dawson R. 1997. Landscape engineering for sustainable development. Geotechnical Society of Edmonton Third Annual Symposium. April 4. Edmonton. 12pp.
- McKenna G & Gilron G. 2021. Selenium management: A crucial consideration in coal policy development for Alberta, Canada. Integrated Environmental Assessment and Management. Volume 17(5). pp1083-1085.

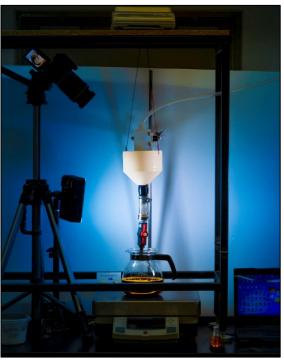
- McKenna G & Gilron G. 2022. From the bottom up: a proactive approach of landform design and source control. Canadian Mining Journal. June/July 2022. pp17-20.
- McKenna G & Kostaschuk RA. 1990. Submarine slope failures at the mouth of the Fraser River British Columbia. Geological Association of Canada – Mineralogical Association of Canada. Waterloo. Geological Association of Canada.
- McKenna G & Lewko R. 1995. 44 blockslides in the Athabasca Oil Sands. 48th Canadian Geotechnical Society Conference. Sep 25-27. Vancouver. pp909-916.
- McKenna G & List BR. 1990. Impact of Upper McMurray Formation marine oil sands on dragline mining at the Syncrude Canada Ltd open pit mine. Second International Symposium on Mine Planning. Calgary. Balkema. pp363-371.
- McKenna G & Luternauer JL. 1987. First documented large failure at the Fraser River delta front British Columbia. Current Research. Geological Survey of Canada Volume 87-1a. pp919-924.
- McKenna G & Shelbourn MB. 1995. Instrumentation of an advancing mine slope in the Athabasca Oil Sands. International Symposium on Mine Planning. Calgary.
- McKenna G & Van Zyl D. 2020. Closure & reclamation. Chapter VIII Management of Tailings: Past Present & Future. Towards Zero Harm: A Compendium of Papers Prepared for the Global Tailings Review. London: Global Tailings Review.
- McKenna G, An R, Scordo E, & McGreevy J. 2013. Toward effective closure planning: From progressive reclamation to sustainable mining. Tailings & Mine Waste '13. November 3-6, Banff. University of Alberta Geotechnical Center, Edmonton. pp615-625.
- McKenna G, Biggar K, Win SMK, Journault J, Eaton T, Sego D, & Morgenstern N. 2010. Oil sands tailings sand hydraulic conductivity. International Oil Sands Tailings Conference. December 5-8. University of Alberta Geotechnical Centre. Edmonton. pp21-29.
- McKenna G, Dawson R, Hyndman A, LeSueur P, & Sobkowicz J. 2012. The Oil Sands Tailings Roadmap & Action Plan Oil Sands Tailings State of Practice Overview. International Oil Sands Tailings Symposium, Edmonton. University of Alberta Geotechnical Centre, Edmonton.
- McKenna G, Ducharme J & Keys MJ. 2000. Landscape design. a new planning and assessment framework for mine reclamation. 24th Annual BC Mine Reclamation Symposium. Williams Lake. British Columbia Ministry of Mines. Abstract.
- McKenna G, Keys MJ, van Meer T, Roy L & Sawatsky L. 2000. The impact of beaver dams on the design and construction of reclaimed mine sites. 24th Annual BC Mine Reclamation Symposium. Williams Lake. British Columbia Ministry of Mines. Abstract.
- McKenna G, Livingstone G, & Lord T. 1994. Advances in slope-monitoring instrumentation at Syncrude Canada Ltd. Geotechnical News Volume 12. pp66-69.
- McKenna G, Luternauer JL, & Kostaschuk RA. 1990. Submarine landslides at the mouth of the Fraser River Canada. Fifth Circum-Pacific Energy and Mineral Resources Conference; Volume 74. AAPG Bulletin. American Association of Petroleum Geologists. Tulsa, 989.
- McKenna G, Luternauer JL, & Kostaschuk RA. 1992. Large-scale mass-wasting events on the Fraser River delta front near Sand Heads British Columbia. Canadian Geotechnical Journal. Volume 29. pp151-156.

McKenna G, Mann V, Fisseha B, Beier N, &



Olmedo N. 2016. The geotechnical vane strength of soft tailings compared to soft foods. Fifth International Oil Sands Tailings Conference, December 4-7. Lake Louise, Alberta. University of Alberta Geotechnical Group, Edmonton. 11pp.

- McKenna G, Mooder B, Burton B, & Jamieson A. 2016. Shear strength and density of oil sands fine tailings for reclamation to a boreal forest landscape. International Oil Sands Tailings Conference. Lake Louise. Dec 4 to 7. University of Alberta Geotechnical Group. Edmonton.
- McKenna G, O'Kane M, & Qualizza C. 2011. Tools for bringing mine reclamation research to commercial implementation. Tailings & Mine Waste 2011 Conference. Vancouver. Nov 6-9. 11pp.
- McKenna G, Scordo E, Shuttleworth D, Straker J, Purdy B, & Buchko J. 2011. Aesthetics for mine closure. Mine Closure 2011 Conference. Lake Louise, Canada. Australian Centre for Geomechanics. Perth. Volume 1. pp603-612.
- McKenna G, Straker J, & O'Kane M. 2016. Custodial transfer of reclaimed mines: barriers and opportunities. TRCR 40th Annual BC Mine Reclamation Symposium. Penticton, BC, Canada. Sept 2016. 12pp.
- McKenna G. 1987. Evidence of large-scale mass wasting on the Fraser River delta front at Sands Heads British Columbia. BSc These. Department of Applied Sciences. Geological Engineering Program. University of British Columbia, Vancouver.
- McKenna G. 1991. Grouted-in installation of piezometers in boreholes. 44th Canadian Geotechnical Society Conference. Calgary. Canadian Geotechnical Society. Paper 55. 12pp.
- McKenna G. 1995. Advances in slope-monitoring instrumentation at Syncrude a follow up. Geot News. Volume 13. pp42-44.
- McKenna G. 1995. Grouted-in installation of piezometers in boreholes. Canadian Geotechnical Journal. Volume 32. pp355-363.
- McKenna G. 1996. Concepts in lease-closure landscapes. CIM Bulletin Volume 89. pp89-95.
- McKenna G. 1996. Planning geotechnical tests and investigations for analysis and presentation Part 1. Geotechnical News Volume 14. pp37-45.
- McKenna G. 1997. Injecting science into geotechnical research field programs. Geotechnical News. Volume 15. pp49-56.
- McKenna G. 1997. Planning geotechnical tests and investigations for analysis and presentation- part 2. Geotechnical News. Volume 15. pp40-44.
- McKenna G. 1998. Celebrating 25 Years: Syncrude's Geotechnical Review Board. Geotechnical News. Volume 16. pp34-41.
- McKenna G. 1998. Overview of the CT process (Syncrude Canada Ltd.). Terrestrial reclamation of challenging materials in the Oil Sands Industry. Proceedings of the TERRE workshop, Jan 29-30. University of Alberta Edmonton, AB.
- McKenna G. 2020. Syncrude's experience with capping and trafficking composite tailings. Consultants report prepared by McKenna Geotechnical for Syncrude Canada Ltd. Submitted to the Alberta Energy Regulator Sep 2. 64pp.
- McKenna G. 1999. 1999 Soft Tailings Workshop. Canadian Institute of Mining. Edmonton.
- McKenna G. 1999. An era passes at Syncrude farewell to Dragline No. 2 "Discovery". Geotechnical News. p37.
- McKenna G. 1999. Elements of successful reclamation. CIM Workshop, Calgary.1v
- McKenna G. 2002. Landscape engineering and sustainable mine reclamation. PhD Thesis. Department of Civil and Environmental Engineering. University of Alberta. Edmonton. 660pp.
- McKenna G. 2004. Geoenvironmental characterization of a large sulphur block at Syncrude: results from 2003 field investigation. Syncrude Canada Ltd. for University of Calgary, Department of Chemistry, Alberta Sulphur Research Ltd.



- McKenna G. 2005. Erroneous readings from a vibrating wire piezometer with a broken signal wire. Geotechnical News Volume 23. pp35-36.
- McKenna G. 2005. Posting security for reclamation obligations. Offsetting Environmental Clean-Up Costs and Liabilities. Vancouver. Canadian Institute.
- McKenna G. 2006. How to build your own instrumentation quad. Geotechnical News.
- McKenna G. 2006. Rules of thumb for geotechnical instrumentation costs. Geotechnical News.
- McKenna G. 2007. Celebrating 50 issues of Geotechnical Instrumentation News. Geotechnical News.
- McKenna G. 2008. Landscape design for oil sands tailings. International Oil Sands Tailings Conference, Edmonton. Dec 7-10.
- McKenna G. 2009. Exploring Closing options: taking a life-cycle approach to planning to achieve optimal reclamation. Best Practices in Tailings Management and Reclamation. Sep 17-18, Calgary. Canadian Institute.
- McKenna G. 2009. Techniques for creating mining landforms with natural appearance. Tailings & Mine Waste 2009 Conference. Banff. University of Alberta Geotechnical Centre, Edmonton.
- McKenna G. 2012. Mine Closure 2011 Conference Lessons Learned. Canadian Reclamation. Volume 12:1. pp38-43.



- McKenna G. 2012. Sustainable mining and landform design. David C Sego Symposium. April 26-27. University of Alberta. Edmonton.
- McKenna G. 2020. Engineering review of the EIA design, operation, and reclamation plans for the proposed Grassy Mountain Coal Project. Consultant's report for the Livingstone Landowners Group for submission to the Joint Review Panel for the Grassy Mountain Coal Project. Reference Number 80101. 50pp.
- McKenna G. 2022. Building and operating a successful geotechnical review board. CDA Canadian Dam Association Annual Meeting. St John's. 29pp.
- McKenna G. 2022. What do we mean by "safe closure" for oil sands tailings facilities? International Oil Sands Tailings Conference. Edmonton. 13pp.
- McKenna G. 2023. How to compact filtered tailings. Paste and Filtered Tailings 2023 Conference. Banff.
- MEND. 2012. Cold regions cover system design technical guidance document. MEND Report 1.61.5c. Consultant's report prepared by O'Kane Consultants for Mine Environment Neutral Drainage Program. July 2012. 177pp.
- Oil Sands Tailings Dam Committee. 2014. De-licensing of oil sands tailings dams. Technical guidance document. March 2014.Oil Sands Research Information Network (OSRIN). University of Alberta, Edmonton. 46pp.
- Pollard J & McKenna G. 2018. Design of landform elements for mine reclamation. BC Mine Reclamation Symposium. Williams Lake. 9pp.
- Pollard J & McKenna G. 2021. Mining with the end in mind. Canadian Mining Journal. June-July 2021. pp24-26.
- Pollard J, McKenna G, Fair J, Daly C, Wytrykush, C & Clark J. 2012. Design aspects of two fen wetlands constructed for reclamation research in the Athabasca oil sands. Mine Closure 2012 Symposium. Brisbane. Australian Centre for Geomechanics. pp815-829.
- Pollock GW, McRoberts EC, Livingstone G, McKenna G, Matthews JG, & Nelson JD. 2000. Consolidation behaviour and modelling of oil sands composite tailings in the Syncrude CT Prototype. Tailings & Mine Waste pp121-130.
- Powter CB, Biggar KW, Silva MJ, McKenna G, & Scordo EB. 2010. Review of oil sands tailings technology options. Tailings & Mine Waste '10. October 17-20. Vail, Colorado. CRC Press London UK.pp381-391.

- Rains RB & McKenna G. 1995. Fluvial geomorphology of natural rivers and creeks and its impact on lease-closure designs at Syncrude Canada Ltd. 7th Annual Canadian Dam Safety Conference. Banff. Canadian Dam Safety Association. pp279-293.
- Russell B, McKenna G, Leblanc M, Wells PS, & Anderson HB. 2010. Design and construction of the reclamation surface for the first oil sands tailings pond. Mine Closure 2010, Vina del Mar, Chile. 13pp.
- Sawatsky L, McKenna G, Keys MJ, & Long D. Towards minimising the long-term liability of reclaimed mine sites. *Book chapter in* Haigh MJ. 2000. Reclaimed land: erosion control, soils, and ecology. Balkema. Rotterdam. pp21-36.
- Singhal RK & McKenna G. 1998. Environmental management in tailings and solid waste disposal at oil sands mines. Environment and Innovation in Mining and Mineral Technology Symposium. University of Concepcion, Chile.
- Smith W, Olauson E, Set J, Schoonmaker A, Nik R, Freeman G, & McKenna G. 2018. Evaluation of strength enhancement and dewatering technologies or a soft oil sands deposit. International Oil Sands Tailings Conference (IOSTC 2018). University of Alberta Geotechnical Centre. Edmonton.
- Straker J & McKenna G. 2022. The case for a reclamation designer of record. BC Mine Reclamation Symposium. 15pp.
- Strategic Advisory Panel on Selenium Management. 2010. The Way Forward: Strategic Plan for the Management of Selenium at Teck Coal Operations. Swanson Environmental Strategies Ltd. Calgary. 233pp.
- Strategic Advisory Panel on Selenium Management. 2012. Alternative Futures: collective action to manage selenium in the Elk and McLeod Watersheds. Swanson Environmental Strategies Ltd. Calgary. 80pp.
- Swanson S, Abbott R, Funk W, Kirk L, McKenna G, Ohlendorf H, & Sandy T. 2011. Building stakeholder engagement in sustainable solutions- the strategic Advisory Panel on Selenium Management. Mine Closure 2011 Symposium. Lake Louise, Canada. Australian Centre for Geomechanics. Volume 2. pp189-196.
- Wytrykush C, Vitt DH, McKenna G, & Vassov R. 2012. Designing landscapes to support peatland development on soft tailings deposits: Syncrude Canada Ltd's Sandhill Fen Research Watershed initiative. Restoration and reclamation of boreal ecosystems: Attaining sustainable development. Cambridge University Press New York New York. pp161-178.

