

APPENDIX V

CDF AND DIKE DESIGNS

- V-1 Co-disposal Facility (CDF) Pre-Feasibility Study Design Report Update
- V-2 Pre-Feasibility Design of Dikes
- V-3 Independent Geotechnical and Tailings Review Board (IGTRB) Supporting Documents
 - V-3.1 Community and Agency Letters regarding IGTRB
 - V-3.2 IGTRB CVs**
 - V-3.3 IGTRB Report No. 1
 - V-3.4 IGTRB Report No. 2 – Review of CDF Design Report
 - WSP Response to IGTRB Review of CDF Design Report
 - IGTRB letter response to WSP responses

Peter Lighthall, P.Eng.

Consulting Geotechnical Engineer

Professional summary

Peter Lighthall is an independent geotechnical consultant with 45 years of experience, specializing in tailings dams and tailings impoundments, mine waste and mine water management. He has a broad understanding of geotechnical aspects of mining projects, having participated in scoping studies, due diligence assessments, pre-feasibility and feasibility studies, detailed engineering, project development, operation and closure planning. Peter has worked throughout the world, including South and North America, Eastern and Western Europe, Russia and former Soviet Union states, China, the Middle East and Australia, as well as extensively within Canada and USA. He has worked on development and implementation of leading edge technologies for tailings management, including thickened and paste tailings and filtered dry stack tailings. He is well experienced in tailings dam design in high earthquake risk areas. He has been active in recent years on review and/or technical advisory roles on numerous major mine developments.

Professional qualifications

Professional Engineer: British Columbia

Education

University of London, U.K., M.Sc., Civil Engineering, 1979

Imperial College of Science and Technology, Diploma of Imperial College, 1979

University of British Columbia, B.A.Sc., Civil Engineering, 1971

Memberships and Awards

Canadian Geotechnical Society (Vice-President, Technical 1991-1992)

Canadian Institute of Mining and Metallurgy (Awarded Fellowship, 1992)

Vancouver Geotechnical Society (Chairman 1984 -1985)

Consulting Engineers of British Columbia (Director, 1999 -2003)

Awarded Fellowship of the Engineering Institute of Canada 2005

Awarded Engineering Institute of Canada Canadian Pacific Railway Engineering Medal 2007

Awarded Vancouver Geotechnical Society Award 2008

Awarded Canadian Geotechnical Society A.G. Stermac Award, 2009

Employment history

2008 – 2016 Independent Geotechnical Consultant

2003 - 2007 Vice President, Mining, AMEC Earth & Environmental

1998 - 2002 Vice President, Manager of Vancouver and Edmonton Geotechnical Units,
AMEC Earth & Environmental

1995 - 1998 Director, Mining Services, AMEC Earth and Environmental

1973 – 1995 Klohn-Crippen Consultants Ltd., Staff Engineer rising to Regional Manager

1971 – 1973 Civil Engineer, Environmental Controls, Gibraltar Mines Ltd.

Selected mining project experience, International

- Lundin Gold Inc., Fruta del Norte Project, Ecuador, peer review of tailings and water management facilities, 2016
- Tintina Resources Inc., Black Butte Project, Montana, member of Independent Tailings Review Panel for new tailings storage facility, 2016
- Antofagasta Minerals SA, Pelambres Copper Mine, Chile, Specialist Consultant on Tranque Mauro cycloned sand tailings dam, 2015
- Barrick Gold, Golden Sunlight Mine, Montana, member of Expert Review Panel for new tailings storage facility, 2015
- Sherritt Metals, Independent Tailings Reviewer for Moa Nickel, Cuba, 2015-present
- Eldorado Gold, tailings dam audit of Efemçukuru Gold Mine, Turkey, 2015
- Eldorado Gold, tailings dam audits of Jinfeng, White Mountain and Tianjanshan Gold Mines, China, 2014
- Sherritt International, Ambatovy Nickel Project, Madagascar, Geotechnical and Tailings Review Board, 2013-present
- Eldorado Gold, Skouries Copper/Gold Project, northern Greece, Technical Advisor for tailings dams, 2013-15
- Freeport McMoran Copper and Gold, Candelaria Copper Mine, Los Diques Tailings Impoundment, Member of Geotechnical Review Board, Chile, 2012-16
- Rio Alto, La Arena Sulphide Copper Project, Peru, Technical Advisor for tailings dams, 2012-13
- Xstrata Copper, El Pachon Project TSF, Technical Reviewer, Chile, 2012
- Yanacocha Gold Mine, Peru, Closure Planning Technical Advisory Panel, 2012
- Teck Resources Inc., Quebrada Blanca 2 Project, Chile, Tailings Impoundment Independent Review, 2011-2012 and 2015
- Barrick Gold, Cerro Casale Project, Geotechnical Review of plant foundations, 2011
- Teck Resources Inc., Relincho Project, Tailings Impoundment Review, Chile, 2011
- Candente Copper Corp., Cañiaraco Project, Peru, Technical Advisor for tailings dams, 2011-2012
- Frontera Copper, Piedras Verdes Copper Flotation Project, Mexico, Technical Advisor for tailings storage facility, 2011-2012
- Inmet Mining, Cobre Panama Project, Panama, Feasibility Study Manager, 2010-2011
- Newmont Mining, Minas Conga Project, Peru, Member Tailings and Geotechnical Review Board, 2011-2012
- Pebble Partnership, Pebble Copper Project, Alaska, Independent review of tailings storage facility, 2009 and 2013
- Sherritt, Ambatovy Nickel Project, Madagascar, Technical advisor for tailings and water storage dams, 2009
- Minera Chinalco Perú SA, Toromocho Copper Project, Peru, Geotechnical Consulting Services Manager, 2008-2011
- Breakwater Resources, El Mochito Mine, Honduras, failure review panel, 2007-2008
- Teck Resources/Aur Resources, Andacollo Hypogene Project, Chile, Technical Auditor, 2004-2008
- Teck Cominco Limited, Morales Gold Mine, Mexico, 2006-2007
- Macquarie Bank, Jinshan heap leach gold mine, Inner Mongolia, China, 2006
- Bema Gold, Kupol Gold Project, Chukotka, Far East Russia, 2003-2007
- Bema Gold, Julietta Gold Mine, Magadan Oblast, Far East Russia, 2001-2007

- Canadian Imperial Bank of Commerce/Canico, Onça Puma Nickel Project, Brazil, 2004
- Deutsche Bank, TVX Gold Olympias Project, Greece, 1999-2000
- Mundoro Mining Inc., Maoling Gold Project, Liaoning Province, China, 2004-2005
- Los Pelambres, Tranque Mauro Tailings System, Chile, 2004
- Inco Limited, Goro Nickel Project, New Caledonia, 2002-2003
- Wheaton River Minerals, Luismin Division, San Martin Mine, Mexico, 2002-2003
- Compañía Minera Doña Inés de Collahuasi SCM, Collahuasi Copper Mine, Chile, 2001
- MK Gold Company, Las Cruces Project, Spain, 2000
- Teck Corporation, Pogo Gold Project, Alaska, USA, 1999-2006
- Compañía Minera del Sur (COMSUR), Porco lead-zinc mine, Bolivia, 1997
- Pan American Silver Corporation, Dukat Silver Mine, Magadan Region, Russia, 1996
- Overseas Private Investment Corporation, Aginskoe Project, Kamchatka, Russia, 1996
- Compañía Minera Mantos de Oro, La Coipa Gold/Silver Mine, Chile, 1996-1998
- Kennecott Utah Copper, Bingham Canyon Copper Mine, Utah, USA, 1987-1992
- Teck Corporation, Lobo-Marte gold project Chile, 1996
- MK Gold Company, Jerooy Gold Project, Kyrgyzstan, 1993-1995
- Titania A/S, Titania ilmenite mine, Norway, 1987-1995
- Pegasus Resources, Montana Tunnels Gold Mine, Montana, USA, 1987-1988
- Placer Dome Inc., Misima Gold Project Papua New Guinea, 1985
- Placer Dome Inc., Porgera Gold Project Papua New Guinea, 1984-1988
- Southern Peru Copper Corporation, Toquepala and Cuajone mines, Peru, 1990-1991

Selected mining project experience, Canada

- Stk'emlupsemc Te Secwepemc Nation, Expert review of tailings management facility for Ajax Mine Project, British Columbia
- Mining Association of Canada, 2015. Member of the Toward Sustainable Mining Tailings Review Task Force appointed in response to the Mt. Polley Mine TSF failure.
- Teck Coal Limited, member of Tailings Dam Review Board for Elkview, Fording River and Greenhills Mines, 2015-present
- Lower Nicola Indian Band, expert geotechnical review of Highland valley Copper Bethlehem Expansion, 2015
- Williams Lake Indian Band, BC. Expert review of Mt. Polley Mine tailings impoundment and member of the Mt. Polley Independent Engineering Review Panel, 2015-2106
- Copper Mountain Mine, BC, Independent Tailings Review Panel, 2015-present
- Western Copper and Gold, Casino Project, Yukon, Independent Engineering Review Panel, 2015-present
- Independent 3rd party reviews of Dam Safety Inspections for eleven tailings impoundments in British Columbia, 2014
- Avanti Kitsault Mine Limited, Kitsault Mine Project, Alice Arm, BC, Independent Engineering Review Panel, 2014
- BC Ministry of Energy and Mines, Geotechnical Reviewer, 2010-2012
- Yukon Government, Geotechnical Reviewer, Minto Copper and Bellekeno Silver Mines 2006-2012
- Mining project advisor, Nunavut Resources Corporation, 2009-2010
- Breakwater Mining, Myra Falls Mine, Vancouver Island, BC, 2006-2007
- Sabina Silver Corporation, Hackett River Project, Nunavut, 2007.

Peter Lighthall CV

- Huckleberry Mines Limited, Huckleberry Copper Mine, BC, 1996-2007
- Northgate Resources, Kemess South Copper-Gold Mine, BC, 1996-2007
- Barrick Gold, Eskay Creek Silver Mine, BC, 2007
- Teck Cominco, Elkview Coal Mine Tailings Impoundment, 2005-6
- Inco Limited, Thompson Nickel Complex, Thompson, MB, 2002
- Highland Valley Copper Mine, BC, 1985-1995
- Inco Limited, R4 Tailings Area Development Project, Copper Cliff, ON 1992-1995
- Rea Gold Corporation, San Antonio gold mine, MB, 1995-1996
- Placer Dome Inc., Endako Mines Division, Endako Molybdenum Mine, BC, 1987-1996
- Princeton Mining Corp/Copper Mountain Mining, Similco Copper Mine, BC, 1988-2007
- Syncrude Canada Limited, Syncrude Oil Sands Mine, Ft. McMurray, AB 1988-1990
- Teck-Corona Operating Corporation, David Bell Gold Mine, Hemlo, ON 1984-1986
- Rio Algom Limited, East Kemptville Tin Mine, NS, 1984-1986
- Cominco Limited Valley Copper Mine, BC, 1985
- Teck Corporation, Bullmoose Coal Mine, BC, 1982-1987
- Cassiar Asbestos Corporation, Clinton Creek Asbestos Mine, Yukon, 1980-1985
- Amax of Canada Limited, Kitsault Molybdenum Mine, BC, 1982-1983
- Teck Corporation, Afton Copper Mine, BC, 1975-1985
- Bethlehem Copper Corporation, Bethlehem Copper Mine BC 1981-1985
- Teck Corporation, Highmont molybdenum/copper mine, BC, 1979-1984
- Placer Dome, Equity Silver Limited, British Columbia, 1977-1984
- Gibraltar Mines Limited, Gibraltar Copper Mine, BC, 1971-1973

Mayhem Creek, LLC.



John F. Lupo, Ph.D., P.E.

Chief Managing Director / Principal Engineer



Education

Colorado School of Mines, USA
1996 – Ph.D. Geological Engineering (Mining)

University of Utah, USA
1987 – M. S. Civil Engineering

University of Utah, USA
1982 – B.S. Geological Engineering

Professional Registrations

Alaska, Arizona, Colorado, Idaho, Montana, South Carolina, Wyoming

Specialization

Mine waste management (tailings and waste rock), geomechanics (surface and underground), heap leach facilities, water management, Corporate Governance, Standards and Policies.

Expertise

Dr. Lupo is the Founder and Chief Managing Director of Mayhem Creek Consulting, LLC. He has over 38 years of experience in the field of geotechnical engineering and geomechanics within the mining industry. He has worked on mining projects in over 30 countries including: US, Canada, Africa (Ghana, Liberia, Guinea, South Africa, DRC), Australia, South America (Peru, Chile, Argentina, Ecuador, Colombia, Venezuela, Suriname, Bolivia, Brazil, French Guiana, Guyana), Latin America (Mexico, Honduras, Panama, Guatemala, Dominican Republic, Nicaragua), Europe (Sweden, Turkey, Mongolia, Kazakhstan), Indonesia, New Zealand, Myanmar, China, and the Philippines.

Dr. Lupo's experience includes copper, gold, uranium, silver, nickel, iron ore, and coal projects. He has also worked extensively on the remediation and stabilization of historic mine workings (surface and underground), ranging from deep (+1,200 ft) shafts in unstable ground to mine waste facilities. He is the author of over 65 technical articles in the fields of mine waste, geomechanics, and risk mitigation strategies.

Employment History

Newmont Mining

2011 – 2022

Sr. Director Geotechnical &
Hydrology

AMEC Earth & Environment (now
Wood)

2008 – 2011

Technical Director

Smith Williams Consultants (now
Wood)

2007 – 2008

Principal Engineer

Golder Associates

1999 – 2007

Project Manager

Westec

1993 – 1999

Project Manager

Titan Corp.

1990 – 1993

Project Manager

SAIC

1987 – 1990

Project Manager

Terra Tek

1985 – 1987

Geomechanics Project Engineer

Experience Highlights

- Lead designer and technical reviewer of over 90 slurry, thickened, paste, filtered, and comingled tailings facilities (gold, copper, silver, lead, and uranium), ranging from a few million tonnes capacity to over 3 billion tonnes capacity. Responsibilities included overseeing the geotechnical investigations and laboratory testing, tailings rheology testing, seismicity evaluations, stability, liquefaction assessments, water management programs, and deposition planning. This work also included conducting in-situ sampling, CPT testing programs, filtration studies, geochemical evaluations, water balance modelling, inundation studies, liner/foundation studies, and decant system designs. This work has led to the development of several unique testing and analysis methods to help predict the behaviour of tailings under various placement and loading conditions. Experience includes areas high rainfall (+3 m/ year), high seismicity (PGA's exceeding 1 g), and glacial environments.
- Lead designer of over 65 heap leach pads (conventional, valley fill, on/off, and hybrid) for gold, copper, nickel, and uranium operations. Leach projects included run-of-mine, crushed, and agglomerated ores. This work included design and construction of the world's largest valley fill leach pad, with ore stacked at over 800 feet over the liner system. This work led to the development of new methods to evaluate geomembranes and solution collection pipes under very high loads. Design and review work included seismic performance, water balance and solution management studies, leach recovery enhancements, and development of ore stacking strategies. Designer of several in-situ leach facilities for uranium recovery.
- Lead technical reviewer of over 80 open pit slope designs, with experience in laterite, saprolite, alluvium/colluvium, weak altered rock, and hard rock materials. This work included open pits with depths up to 2 kilometers. Review work also included back-analyses and forensics of large slope failures (+100 million tonnes), numerical analyses of pits in high stress environments, structural and kinematics analyses, open pit water management, and open pit risk assessments.
- Lead technical reviewer of ground control support on over 35 underground mines in both hard and soft rock environments. This work included backfill designs using paste, cemented rockfill, and rockfill; ground support bolt designs; stope

dimensioning; caving assessments; and underground water management.

- Conducted geohazard/risk assessment studies at sites with avalanche, debris flow, volcanic, seismic, subsidence, karst, and flooding hazards.
- Led the development of technical design guidelines for tailings facilities, leach pads, open pits, underground mines, waste rock facilities, water storage facilities, seismic design criteria, and backfilling.
- Managed a group of over 90 geotechnical engineers and hydrologists at 17 operating mines, with a successful record of safe, sustainable operations.

CURRICULUM VITAE

Dr. G. Ward Wilson P. Eng., P.Geol., FCAE, FEIC
Professor (Geotechnical & Geoenvironmental)
NSERC/COSIA Industrial Research Chair in Oil Sands Tailings Geotechnique
University of Alberta
Dept. of Civil & Environmental Engineering

Dr. G. Ward Wilson, Professor of Geotechnical and GeoEnvironmental Engineering at the University of Alberta, brings more than 35 years of industrial experience to his practice in advanced mine waste management. Having extensive work experience as a consulting engineer, he has maintained an exceptionally strong industrial focus through his research programs both at the University of Alberta and the University of British Columbia. Dr. Wilson is involved in mine waste management systems at numerous mine sites worldwide. He has also served as a specialist review consultant for many large international mining projects such as:

- i) Antamina Commingling Waste Rock and Tailings Study - Peru,
- ii) Canadian Malartic Independent Geotechnical Review Board for Thickened Tailings and Waste Rock deposits,
- iii) Raglan Mine Steering for the Filtered Tailings Stack and Mine Waste Management Systems,
- iv) Canadian Malartic Reclamation Steering Committee for Thickened Tailings and Waste Rock,
- v) Geotechnical Dump Review Board for Rio Tinto/Kennecott Utah Copper - USA,
- vi) Integrated Geotechnical Systems Review for the Ban Houayxai and Phu Kham Mine Sites for PanAust Asia - Laos,
- vii) Geotechnical Performance of Dredge Sand Storage Facility for OkTedi - PNG,
- viii) Geotechnical Review Board for Tailings and Waste Rock Expansion at the Barrick Porgera Mine - PNG,
- ix) Frieda River Prefeasibility Study Peer Review for Xstrata Copper - PNG, and
- x) Global ARD Risk Review Team for Rio Tinto.

Most recently Professor Wilson was a member of the “Expert Panel” that provided an assessment of the technical causes of the rupture of Dam I in Brumadinho, Minas Gerais.

Dr. Wilson was the lead author responsible for Chapter 6 on Prevention and Mitigation in the Global Acid Rock Drainage Guide prepared for the International Network for Acid Prevention. He also worked with a team of writers commissioned by CSIRO to prepare the new manual for Large Open Pit Projects

titled, “Geotechnical Guidelines for Mine Waste and Stockpile Designs”. Dr. Wilson has been engaged in the large scale-up experiments for waste rock deposits at the Grasberg Mine in Indonesia and the Antamina Mine in Peru. Professor Wilson was also a principal investigator for the landslide waste rock stabilization and long-term weathering study for the waste rock piles at Questa Mine, New Mexico.

Professor Wilson recently implemented a new teaching initiative, “The Design and Assessment of Mine Waste Structures”, at the University of Alberta. In addition, Dr. Wilson is keenly interested in new technologies that improve the physical and chemical stability of tailings and waste rock systems. These methods generally focus on the de-watering of tailings to produce thickened, paste and filtered tailings to eliminate the need for conventional tailings ponds and allow the construction of dry stacks that can be integrated with co-disposal schemes. He is involved in several new and innovative research programs for the commingling (or blending) of tailings and waste rock to produce a new high strength sealing material that improves physical stability as well as chemical stability for the control ARD/ML in mine waste systems.

Professor Wilson is currently the NSERC/COSIA Industrial Research Chair in Oil Sands Tailings Geotechnique at the University of Alberta.

ACADEMIC CREDENTIALS

Ph.D., University of Saskatchewan, 1990, College of Engineering

M.Sc., University of Saskatchewan, 1982, College of Engineering

B.E., University of Manitoba, 1978, College of Engineering, Civil Engineering

OTHER CREDENTIALS

Registered Professional Engineer, Alberta, British Columbia and Saskatchewan

Registered Professional Geoscientist, Alberta and Saskatchewan

AWARDS

2019 - NSERC Senior Industrial Research Chair in Oil Sands Tailings Geotechnique (Renewal).

2018 - NRC Press/Canadian Geotechnical Journal Editor's Choice Award.

2014 - Thomas C. Keefer Medal, Canadian Society for Civil Engineering.

2014 - Elected Fellow Engineering Institute of Canada.

2007 - Distinguished Lecturer Award, Canadian Institute of Mining, Metallurgy and Petroleum.

2005 - R.A. McLachlan Memorial Award, Professional Engineers and Geoscientists of BC.

2005 - Elected Fellow Canadian Academy of Engineers.

2002 - Canadian Geotechnical Society Prix Geoenvironmental Award.

2000 - Saskatoon Engineer of the Year.

1999 - Canadian Geotechnical Society Colloquium.

APPOINTMENTS

NSERC/COSIA Industry Research Chair in Oil Sands Geotechnique (2013) University of Alberta.

Professor, Geotechnical and GeoEnvironmental Engineering (2010) University of Alberta.

Professor and Chair, Mining and the Environment (2000),

Department of Mining and Mineral Process Engineering, UBC.

Professor (1999) Department of Civil Engineering, U of S.

President (1996 – present) Unsaturated Soils Engineering Ltd.

Associate Professor (1993) Department of Civil Engineering, U of S.

Assistant Professor (1991) Department of Civil Engineering, U of S.

Assistant Professor in Geological Engineering (1990-1991) University of Manitoba.

Consulting Engineer (1979-1986) Clifton Associates Ltd., Sask.

KEY CONSULTING EXPERIENCE

<i>Project</i>	<i>Location</i>	<i>Description</i>
Argyle Mine	<u>Australia</u> , WA	ARD Risk Review
Cadia Mine	<u>Australia</u> , NSW	Waste Rock Dump Design and Reclamation Plan
Savage River	<u>Australia</u> , TAS	Review Historic Waste Rock Dumps and Mine Expansion
Kidston Gold Mine	<u>Australia</u> , QLD	Cover Design and Instrumentation for Tailings and Waste Rock
Syncrude	<u>Canada</u> , AB	De-watering MFT by Surface Deposition
Total	<u>Canada</u> , AB	Thickened Tailings Deposition
Imperial	<u>Canada</u> , AB	Tailings Deposition Design
Diavik	<u>Canada</u> , NWT	ARD Risk Review
Con Mine	<u>Canada</u> , NWT	Cover Systems for Tailings Reclamation
Brewery Creek	<u>Canada</u> , Yukon	Waste Rock Characterization and Cover System Design
Equity Silver Mine	<u>Canada</u> , BC	Characterization of Waste Rock Cover Systems
Mt. Milligan	<u>Canada</u> , BC	Characterization of Hydraulic Performance for Tailing Impoundment
Cluff Lake	<u>Canada</u> , SK	Uranium Tailings and Waste Rock Decommissioning
Key Lake	<u>Canada</u> , SK	Cover System for Decommissioning of Heap Leach Pile.
Detour Mine	<u>Canada</u> , ON	Decommissioning of Tailings using Depyritized Tailings
Raglan	<u>Canada</u> , QC	Steering Committee for Tailings and Waste Rock Management
Escondida	<u>Chile</u>	Cover Design and Review
Pascua Lama	<u>Chile</u>	Waste Rock Dump Design Review
Cerro Casale	<u>Chile</u>	Waste Rock Dump Hydrology Review
Grasberg	<u>Indonesia</u>	Waste Rock Dump Mitigation Design
Gosowong	<u>Indonesia</u>	Waste Rock Dump and Decommissioning Design
Sardinia Gold Mine	<u>Italy</u>	Waste Rock Dump Design
Cerro Corona	<u>Peru</u>	Waste Rock and Tailings System Design
OKTedi	<u>Papa New Guinea</u>	Hydraulic Performance of Dredge Sand Storage Facility
Porgera	<u>Papa New Guinea</u>	Co-disposal Investigation for CIP Tailings and Waste Rock
Hidden Valley	<u>Papa New Guinea</u>	Waste Rock Dump Design Review
Freida River	<u>Papa New Guinea</u>	Prefeasibility Study Peer Review
Palabora	<u>South Africa</u>	ARD Risk Review
Chernobyl	<u>Ukraine</u>	Cover/Encapsulation for Nuclear Waste Disposal
KUCC	<u>USA</u> , Utah	Dump Stability Review Board & ARD Risk Review
Resolution	<u>USA</u> , Arizona	ARD Risk Review
Golden Sunlight	<u>USA</u> , Montana	Waste Rock Cover System Evaluation
Greens Creek	<u>USA</u> , Alaska	Waste Rock Cover System Design
Red Dog	<u>USA</u> , Alaska	Waste Rock Cover System Design
Ridgeway	<u>USA</u> , SC	Cover System & Decommissioning Design for Tailings Impoundment

SELECTED KEYNOTE LECTURES AND INVITED PAPERS

- 2021 “The New Expertise Required for Designing Safe Tailings Storage Facilities”, Keynote address presented at the 3rd Pan-American Conference on Unsaturated Soils, Rio de Janeiro: July 26-28.
- 2021 “Design Considerations for Managing AMD with Dry Stacked Filtered Tailings”, Keynote address presented at Australian Acid and Metalliferous Drainage Workshop, Brisbane: June 22-25.
- 2021 “Technical Causes of the Feijão Tailings Dam I Failure Brumadinho, Brazil”, Keynote address presented at CIM Symposium 2021 Mines and the Environment, Rouyn-Noranda, QC, 14-16 June.
- 2019 “Innovations in Tailings and Mine Waste Management”, Towards Environmentally Responsible Resource Extraction Strategic Network (TERRE-NET) Annual General Meeting, Edmonton, Canada.
- 2016 “The Need for Designer Wastes”. Minexpo 2016, Las Vegas, United States.
- 2015 “The Value of Failure”, Invited Plenary Paper with A. Robertson for the Mt. Polley Failure presented at Tailings and Mine Waste 2015, Vancouver, Canada, 26-28 October.
- 2012 “Paste Rock - Designing Mine Waste Streams for Closure”, Invited Keynote presented at the International Congress on the Management of Mining Risk and Environmental Impact, Marrakech, Morocco, 3-6 April.
- 2011 “Rock Dump Hydrology: An Overview of Full-Scale Excavations and Scale-up Experiments Conducted During the Last Two Decades”, Invited Keynote presented at the 7th Australian Workshop on Acid and Metalliferous Drainage, Darwin Australia, Canada, 21-24 June.
- 2011 “Mine Waste Cover Systems for Mine Closure - Meeting Expectations”, Invited Plenary Address presented at the 6th International Mine Closure Conference, Lake Louise, AB, Canada, 18-21 September 2011.
- 2009 “Design and Performance of Cover Systems for Mine Rock and Tailings – A Global Prospective”, Keynote Address presented at Tailings and Mine Waste 09, Banff, Canada, 1-4 November.
- 2008 “Why are We Still Battling ARD”, Sixth Australian Workshop on Acid and Metalliferous Drainage, 15-18 April, Bernierie Tasmania.
- 2007 “Paste Rock for Mine Waste Management”, CIM Distinguished Lectures Cross Canada.
- 2006 “The Application of Cover Systems for Mine Closure – Are We doing it Right”, Invited Keynote. Proceedings of the First International Seminar on Mine Closure, Perth, Australia, 13 – 15 September.
2005. “The Application of Cover Systems for Long Term Closure of Waste Rock and Tailings”, Invited Keynote Address, presented to XXVI Mining Convention, Arequipa, Peru, September.
- 2000 “Appropriate Concepts for the Design of Cover Systems”, Selected Best Paper Australian Centre for Mining Environmental Research Conference, Townsville, Australia, February.

RECENT ARTICLES PUBLISHED IN REFEREED JOURNALS

1. Zabolotnii, E., Morgenstern, N.R. and Wilson, G.W. (Accepted 2022). “Mechanism of Failure of the Mount Polley Tailings Storage Facility”. Canadian Geotechnical Journal.
2. Zabolotnii, E., Morgenstern, N.R. and Wilson, G.W. (In Press). “Asynchronous Mobilization of Shear Resistance in Slope Failures”. ISSMGE International Journal of Geoenvironmental Case Histories (submission no. IJGCH-S286).

-
-
3. Zabolotnii, E., Morgenstern, N.R., and Wilson G.W. (2021). "Mesh Sensitivity in Numerical Models of Strain-Weakening Systems". *Computers and Geotechnics* 136.
 4. Kabwe, L.K., Wilson, G.W., Beier, N.A., and Scott, J.D. (2021). "Effect of Flyash and Freezing and Thawing Treatment on Consolidation of Oil Sands Fluid Fine Tailings". *Canadian Geotechnical Journal*.
 5. Abdulnabi, A. and Wilson, G.W. (2020). "Flume-Scale Laboratory Study of Rainfall-Runoff Responses in Devon Silt and Capillary Barrier Profiles". *Canadian Geotechnical Journal*. 58(2).
 6. McNeill, B., Pakostova, E., Bain, J., Gould, W.D., Amos, R.T., Wilson, G.W., Ptacek, C.J. and Blowes, D.W. (2020). "Microbial Community Structure within a Weathered Waste-Rock Pile Overlain by a Monolayer Soil Cover". *Applied Chemistry*, 114.
 7. Olmedo, N.A., Barczyka, M., Zhang, H., Wilson, G.W. and Lipsett, M.G. (2020). "A UGV-Based Modular Robotic Manipulator for Soil Sampling and Terramechanics Investigations". *Journal of Unmanned Vehicle Systems*. 8(4): 364-381.
 8. Entezari, I., Rivard, B., Vajihinejad, V., Wilson, G.W., Soares, J., Fisseha, B., and Beier, N. (2019). "Monitoring Tailings Flocculation Performance Using Hyperspectral Imagery". *Canadian Journal of Chemical Engineering*.
 9. Slingerland, N., Beier, N.A. and Wilson, G.W. (2019). "Oil Sands Tailings Dams: Design Considerations for Ease of Closure". *Canadian Institute of Mining, Metallurgy and Petroleum Journal*. Vol. 10(2).
 10. Kabwe, L.K., Wilson, G.W., Beier N.A., and Scott, J.D. (2018). "Effects of Atmospheric Drying and Consolidation of Flocculated Thickened Tailings and Centrifuged Cake on Near-Surface Shear Strength". Special article of The Second Pan-Am Conference on Unsaturated Soils, Dallas, 2017, Published in the *Journal of ASCE* June 20, 2018.

BOOKS, CHAPTERS IN BOOKS, EXPOSITORY AND REVIEW ARTICLES

1. Bussière, B. and Wilson, G.W. (2021). "Store-and-Release Covers" in *Hard Rock Mine Reclamation: From Prediction to Management of Acid Mine Drainage*. Bruno Bussière and Marie Guittonny (Eds). pp. 115-134.
2. Wilson, G.W. (2017). "Chapter 14: Management of Acid Rock Drainage" in *Guidelines for Mine Waste Dump and Stockpile Design*. Mark Hawley and John Cunning (Eds). pp. 259-268.
3. Wilson, G.W. (2017). "Chapter 15: Emerging Technologies" in *Guidelines for Mine Waste Dump and Stockpile Design*. Mark Hawley and John Cunning (Eds). pp. 269-278.
4. Beier, N., Sorta, A.R., Wilson, G.W. and Sego, D.C. (2012). "Challenges with Meeting Regulatory Compliance in the Oil Sands Industry". *Geotechnical News*, 30(1): 36-39.
5. Wilson, G.W. and Wickland B. (2009). Chapter 6 for "Prevention and Control", *Global Acid Rock Drainage Guide for the International Network for Acid Prevention*.
6. Wilson, G.W., Brussiere B. and Guerrero, J. (2006). "Guide to Designing Covers for Mine Waste Deposits", Sector Reform Project for Mineral Resources of Peru, PERCAN Project.
7. Wilson, G.W. (2000). "Embankment Hydrology and Unsaturated Flow in Waste Rock", *Slope Stability in Surface Mining*, Chapter 33, W.A. Hustrulik, M.C. McCarter and D.J.A. van Zyl (eds.), p. 305.

-
-
8. Clifton, A.W., Wilson, G.W. and Barbour, S.L. (eds.) (1999). "The Emergence of Unsaturated Soil Mechanics: Fredlund Volume". NRC Research Press, Ottawa, ON, Canada.
 9. Fredlund, D.G., Wilson, G.W. and Barbour, S.L. (1998). "Unsaturated Soil Mechanics and Property Assessment", Geotechnical and Geoenvironmental Engineering Handbook. Chapter 5, R.K. Rowe (ed.), Chapman and Hall, 35 p.

SELECTED PAPERS ON COMMINGLING OF TAILINGS & WASTE ROCK

1. Burden, R.N. and Wilson, G.W. (2021). "Filtered Tailings and Waste Rock Blends: A Way to Build Better Dry Stacks". Tailings & Mine Waste Conference, Banff.
2. Burden, R.N. and Wilson, G.W. (2019). "Filtered Tailings and Waste Rock Blends: Improving the Stability of Tailings Deposits". CDA 2019 Annual Conference, Calgary.
3. Wilson, G.W., Wickland, B., Weeks, B. (2015). "Designing Tailings and Waste Rock Systems for Closure" Tailings and Mine Waste Conference, Keystone.
4. Khalili, A.D., Wijewickreme, D., and Wilson, G.W. (2010). "Mechanical Response of Highly Gap-Graded Mixtures of Waste Rock and Tailings. Part I: Monotonic Shear Response". Canadian Geotechnical Journal, 47(5):552-565.
5. Khalili, A.D., Wijewickreme, D., and Wilson, G.W. (2010). "Mechanical Response of Highly Gap-Graded Mixtures of Waste Rock and Tailings. Part II: Undrained Cyclic and Post-Cyclic Response", Canadian Geotechnical Journal, 47(5):566-582.
6. Wickland, B.E., Wilson, G.W., and Wijewickreme, D. (2010). "Hydraulic Conductivity and Consolidation Response of Mixtures of Waste Rock and Tailings", Canadian Geotechnical Journal, 47(4):472-485.
7. Wilson, G.W., Wickland, B., Miskolczi (2008). "Design and Performance of Paste Rock Systems for Mine Waste Management". In Proceedings of Rock Dumps Stockpiles and Heap Leach Pads, Australian Center of Geomechanics, Perth, Australia, March 5 - 7.
8. Wickland, B.E., Wilson, G.W., Wijewickreme, D., and Klein, B. (2006). "Design and Evaluation of Mixtures of Mine Waste Rock and Tailings." Canadian Geotechnical Journal. Vol 43(9) pp. 928-945.
9. Wickland, B.E. and Wilson, G.W. (2005). "Self-Weight Consolidation of Mixtures of Mine Waste Rock and Tailings." Canadian Geotechnical Journal, 42(2): pp. 327-339.
10. Wickland, B.E., Wilson, G.W., and Wijewickreme, D. (2004). "Compressibility of Mixtures of Mine Waste Rock and Tailings." in: Proceedings of the 57th Canadian Geotechnical Conference, Quebec City, PQ.

SELECTED ICARD PAPERS

1. Andrina, J., Wilson, G.W., and Miller, S.D. (2012). "Waste Rock Kinetic Testing Program: Assessment of the Scale up Factor for Sulphate and Metal Release Rates", 9th International Conference on Acid Rock Drainage, Ottawa, Canada. 20-26 May 2012.
2. Andrina, J., Wilson W., and Miller S. (2009). "Behavior of Water Flow and Geochemical Mixing in Layered Waste Rock Stockpiles : A Meso-Scale Experiment", 8th International Conference on Acid Rock Drainage, Skelleftea, Sweden.

-
-
3. Junqueira, F., Wilson G.W., and Oliveira, M., (2009). "Estimation of Tailings Desaturation Process and Implications on ARD Generation in the Neves Corvo Mine in Portugal", 8th International Conference on Acid Rock Drainage, Skelleftea, Sweden.
 4. Andrina, J., Wilson, G.W., Miller, S., and Neale, A., (2006). "Performance of the Acid Rock Drainage Mitigation Waste Rock Trial Dump at Grasberg Mine", 7th International Conference on Acid Rock Drainage, St. Louis, Missouri, March 26-30.
 5. Junqueira, F.F., Wilson, G.W., Nichol, C., and Dunlap, S., (2006). "The Influence of Climate, Vegetation, Layer Thickness, and Material Properties for Performance of the Cover Systems at the Golden Sunlight Mine", 7th International Conference on Acid Rock Drainage, St. Louis, Missouri, March 26-30.
 6. Kabwe, L.K., Wilson, G.W., and Hendry, J.M., (2006). "Field Measurements of Surface Gas Fluxes and Surface Water Conditions for Mine Waste Rock Management", 7th International Conference on Acid Rock Drainage, St. Louis, Missouri, March 26-30.
 7. Richards, D.G., Borden, R.K., Bennett, J.W., Blowes, D.W., Logsdon, M.J., Miller, S.D., Slater, S., Smith, L. and Wilson, G.W., (2006). "Design and Implementation of a Strategic Review of ARD Risk in Rio Tinto", 7th International Conference on Acid Rock Drainage, St. Louis, Missouri, March 26-30.
 8. Wilson, G.W., Williams, D.J., and Rykaart, E.M., (2003). "The Integrity of Cover Systems – An Update", Sixth International Conference Acid Rock Drainage, 14 – 17 July 2003.
 9. Weeks, B., and Wilson, G.W., (2003). "The Influence of Solar Radiation on Evaporation for Three-Dimensional Flux Boundary Modelling of Soil Cover Systems on Waste Rock Dumps", Sixth International Conference Acid Rock Drainage, 14 – 17 July 2003.
 10. Sjoberg Dobchuk, B., Wilson, G.W., and Aubertin, M., (2003). "Evaluation of a Single-Layer Desulfurised Tailings Cover", Sixth International Conference Acid Rock Drainage, 14 – 17 July 2003.