

## RANDY J. MIKULA

Kalium Research Inc., Edmonton, Alberta

tel: 780-974-6181

email: [randy.mikula@oilsandsresearch.com](mailto:randy.mikula@oilsandsresearch.com)

website: [www.oilsandsresearch.com](http://www.oilsandsresearch.com)

### EDUCATION/HONOURS

- 1975 B.Sc. in Chemistry, (Magna Cum Laude) University of Saskatchewan
- 1976 Honours Certificate (High Honours) University of Saskatchewan
- 1981 Ph.D. in Chemistry, University of British Columbia
- 2003 Elected as a Fellow of the Canadian Institute of Chemistry
- 2013 Alberta Science and Technology (ASTech) Award winner for Innovation in Oil Sands Research

### WORK HISTORY

- 1976 to 80 – Teaching Assistant at University of British Columbia Chemistry Department.
- 1981 – Research Associate/PhD pending at UBC's TRIUMF Cyclotron (6mo).
- 1981 – Joined CANMET's Coal Research Centre in Clover Bar (Edmonton) as a junior research scientist studying coal processing and low rank coal upgrading.
- 1983 – Promoted to research scientist 2, expanding research areas to heavy oil emulsions and oil sands extraction and tailings behaviour.
- 1987 – Section head for the Extraction and Tailings research activity, expanding research activity to emphasize properties of oil sands tailings.
- 1989 – Promoted to team leader, responsible for a research team and budget (3 people).
- 1990 – Promoted to research scientist 3(4).
- 1995 – Grew the research team program to include 10 people and approximately \$1M.
- 1999 – Promoted to research scientist 5 with continued research team responsibilities.
- 2000 to 2011 – Team Leader/Manager of the Extraction and Tailings team, leading the Natural Resources Canada research effort in oil sands tailings management and extraction fundamentals. Expanded the Extraction and Tailings team to 16 people and a >\$2M budget.
- 2012 – Started Kalium Research Inc., a company devoted to mitigating the environmental impact of oilsands development.

### AREAS OF EXPERIENCE

Randy Mikula is the former team lead of the Canadian federal government's department of Natural Resources research effort on oil sands tailings, located at the CanmetENERGY laboratory in Devon, Alberta. With over 25 years in oil sands research, spanning the development of more efficient extraction processes, to more recently focusing on mitigating the environmental impact of oil sands development, Dr. Mikula led one of the key activities in the 130 person CanmetENERGY oil sands research facility.

Projects have included fundamental scientific support for pilot and commercial scale demonstrations of a wide variety of dry stackable tailings processes designed to dewater fluid fine tailings from surface mined oil sands operations. These include the gypsum consolidated tailings (CT) process as well as understanding the process aids required for optimization of dewatering performance in thin lift, rim ditch, and centrifugation processes. This research involves investigation of the fundamental chemistry of the additive-clay interactions, including CT formation mechanisms, optimizing dewatering rates by controlling the morphology of flocculated structures and the optimization of release or recycle water quality by control of the tailings treatment process. In 1998, Dr. Mikula led the technical program for a 20 ton per hour

demonstration of Canadian hot water extraction technology for the recovery of bitumen from Utah's Asphalt ridge tar sands. This program was the beginning of a serious investigation of centrifugation as a dry stackable tailings option for the Athabasca oil sands tailings, a technology that is currently being commercialized by Syncrude.

The link between tailings management and extraction recycle water means that Dr. Mikula also has significant experience in oil sands extraction. He has worked on oil sands extraction process chemistry for the slurry tank, hydrotransport, Clark, OSLO, Bitmin, and other novel extraction processes, one of which was patented and briefly commercially implemented by Suncor.

Dr. Mikula's expertise in microscopy and fine particle characterization is widely recognized and has resulted in significant technical contributions to a variety of research projects outside of his extensive expertise in oil sands and heavy oil. He has served at various times on the executive of the local and national sections of the Microscopical Society of Canada and is currently treasurer of the Alberta section, president for the national society, and served as scientific chair for the 2007 MSC conference. In 2003, Randy was elected as a Fellow of the Canadian Institute of Chemistry, and he is currently principal scientist at Kalium Research, a new company devoted to responsible development of Canada's oil sands resource.

## **PUBLICATIONS**

- Over 60 Refereed papers and conference proceedings
- 10 Book contributions
- 4 Patents
- Over 300 Divisional/Client Reports

## **CAREER HIGHLIGHTS**

Dr. Mikula established CANMET's Advanced Separation Technologies Laboratory as the centre for oil sands tailings research. As the lead scientist in oil sands tailings, Dr. Mikula is frequently consulted by Suncor, Syncrude, Shell, and CNRL on all aspects of oil sands tailings fundamentals. His work on mature fine tailings and the consolidated tailings process helped to solve a major oil sands environmental liability. Definition of a solution to the problem of accumulation of fine tailings is the major factor in the environmentally responsible development of the oil sands in Alberta. More recently Dr. Mikula has led the technical development of centrifugation technology for the treatment of oil sands tailings. In conjunction with Syncrude, Dr. Mikula has also been extensively involved in research programs in thin lift and rim ditch technologies. All of these technologies rely on the use of flocculants to treat the tailings and build on much of the fundamentals established in the Fine tailings fundamentals consortium. Dr. Mikula was the technical chairman of the FTFC in 1991, helping the transition from a fundamental focus to a more practical development of tailings management options emphasis.

The research program led by Dr. Mikula in emulsions technology established CANMET's reputation as a centre of excellence for extraction fundamentals research and has led to involvement in every major oil sands development project in the last 10 years. A highlight of the activity was quantification of the relationship between extraction process chemistry and tailings behaviour. Six commercially available oil sands extraction processes were evaluated (participants in the program included Suncor, Imperial, OSLO, Syncrude, Geosol, and Shell), and the extraction recoveries weighed against benefits in tailings behaviour. This allowed for comparison of long term environmental reclamation for a variety of extraction processes.

Dr. Mikula's expertise in microscopy and fine particle characterization is widely recognized and has resulted in significant technical contributions to a variety of research projects outside of his nominal expertise in oil sands and heavy oil. Examples include contributions to research into lead exposure in the inner city, co-supervision of a Ph.D. thesis in sol-gel synthesis of metal sulphides (University of Alberta department of mining and mineral engineering), and co-supervision of a Ph.D. thesis on stabilization of hazardous wastes in cement. The microscopy facility he established almost 15 years ago remains the focal point for the research programs in emulsions and tailings that he oversees.

Dr. Mikula is consulted extensively on a variety of oilsands issues related to tailings management and extraction processes. He is often invited as a speaker in public, industry, and academic forums, and has given invited talks to many oil sands industry technical meetings and workshop. A highlight in the many invited talks was in 2007 when Dr. Mikula made a presentation on oil sands tailings technology to Members of Parliament as part of the Bacon and Eggheads lecture series.

## **MAJOR ACHIEVEMENTS**

1. Acted as the 1991 technical chairman of the Fine Tailings Fundamentals Consortium, (a \$5M/year, five-year research collaboration between CANMET, Environment Canada, NRC, ARC, AOSTRA, OSLO, Syncrude, and Suncor). Dr. Mikula helped to change the direction of the research from an academic orientation to a program focussed on development of technologically sound solutions to the accumulation of oil sands fine tailings. At the same time, he established CWRC's reputation and expertise in the field of oil sands tailings. This consortium formed the basis of the current CONRAD (Canadian Oilsands Network for Research and Development) group which coordinates research activities in the industry. Dr. Mikula's reputation in oil sands extraction and tailings makes him a key member of the technical advisory groups in the Extraction and Tailings, and Environmental CONRAD working groups.

2. Dr. Mikula was instrumental in the commercialization of the Consolidated Tailings (CT) process at Suncor. Dr. Mikula's research on the role of water chemistry in controlling tailings clay behaviour and the resulting impact on the recycle water system were critical to the progression of the Consolidated Tailings project from the laboratory scale to full scale. The CT process has subsequently been adopted by Syncrude to dispose of their accumulated inventory of fine tailings and it forms a key part of the tailings handling strategy at the Shell/BHP Muskeg River oil sands development. Dr. Mikula continues to be consulted frequently by Suncor on all aspects of CT implementation. Shell and Syncrude also rely on his opinion and research results in implementation of similar tailings handling strategies at their operations. The availability of a technically sound and commercially viable tailings reclamation option played a large role in further development of the oil sands resource. Since 1998, Dr. Mikula has led the technical effort to establish centrifugation as a viable tailings treatment alternative in surface mined oil sands. Since 2005, commercialization of this technology has been led by Syncrude, with full scale commercial implementation scheduled for 2015.
3. The emulsions research program developed by Dr. Mikula has established CANMET as a centre of excellence in oil field emulsions research. Along with an extensive in house research effort, collaborations were established with other research organizations in emulsions fundamentals. The collaboration established in 1990 with the Saskatchewan Research Council's emulsions group continues to be active, most recently with a joint project on emulsion technology with a consortium of companies from PTAC (Petroleum Technology Advisory Committee). In addition, joint projects established with PRI (the Petroleum Recovery Institute) contributed to the international reputation of CWRC. Dr. Mikula's contributions to PRI's emulsion fundamentals training course were presented in China, Trinidad, and Venezuela.
4. The novel demulsification process used at the Underground Test Facility (UTF, formerly operated by AOSTRA) was demonstrated by Dr. Mikula's research work. Although the principles behind the process are not new, Dr. Mikula recognized that, under the right circumstances, the process might be commercially viable. His fundamental understanding and the small scale demonstration which he undertook led to the piloting and ultimate full-scale demonstration of the process. The process involves separation of the emulsion at temperatures greater than 200°C and pressures around 300 psi. Under these conditions the hydrocarbon product is removed as the heavy phase, in contrast to conventional separation methods where the hydrocarbon is floated above the water component. This process was successfully developed to commercial scale at the UTF. Expertise developed by Dr. Mikula will have applications with future SAGD (steam assisted gravity drainage) exploitation of the oil sands where fluids are brought to the surface in a similar temperature and pressure regime.
5. Dr. Mikula's expertise in both extraction and tailings (since they are linked via a common process water) has positioned Natural Resources Canada and CWRC at the centre of new extraction and tailings handling technology development being undertaken by the oil sands industry. These include new low-temperature extraction processes and tailings handling options which promise to significantly reduce greenhouse gas emissions. Suncor has implemented a low-temperature extraction process with slurry tank conditioning and it is proposed to be a part of Shell's new Muskeg River Mine. The fundamental understanding of this process developed through Dr. Mikula's work contributed to the confidence with which the industry has adopted this new technology.

## **LIST A: PUBLICATIONS**

- 1) Jean, Y.C., Brewer, J.H. Fleming, D.G., Garner, D.M., **Mikula, R.J.**, Vaz, L.C., and Walker, “Reactivity of Mu Atoms in Aqueous Solution”, Chem Phys Letts, 57, 293-297, 1978.
- 2) **Mikula, R.J.**, Garner, D.M., Fleming, D.G., Marshall, G.M., and Brewer, J.H., “Muonium Formation in Gases”, Hyperfine Interactions, 6, 379-383, 1979.
- 3) Fleming, D.G., Garner, D.M., Brewer, J.H., and **Mikula, R.J.**, “Reaction Dynamics of the Mu Atom Using Surface  $\mu +$  in the Gash Phase”, Hyperfine Interactions 6, 405-408, 1979.
- 4) Fleming, D.G., **Mikula, R.J.**, and Garner, D.M., “Muonium Spin Exchange on Low Pressure Gases:  $\mu + O_2$  and  $\mu + NO$ ”, J Chem Phys, 73, (6), 2751-2759, 1980.
- 5) Suzuki, T., **Mikula, R.J.**, Garner, D.M., Fleming, D.G., Measday, D.F., “Muon Capture in Oxides Using the Lifetime Method”, Chem Phys Letts, 95B, (2), 202-206, 1980.
- 6) Fleming, D.G., **Mikula, R.J.**, and Garner, D.M., “ $\mu +$  Hyperfine Interactions and Muonium Spin Exchange in Low Pressure Gases”, Hyperfine Interactions, 9, 207-211, 1981.
- 7) **Mikula, R.J.**, Garner, D.M., and Fleming, D.G., “Temperature Dependence of Muonium Reaction Rates in the Gas Phase”, Hyperfine Interactions, 8, 337-346, 1981.
- 8) **Mikula, R.J.**, Garner, D.M., and Fleming, D.G., “ $\mu +$  Thermalization and Muonium Formation in Noble Gases, Hyperfine Interactions, 8, 307-314, 1981.
- 9) **Mikula, R.J.**, Garner, D.M., and Fleming, D.G., “A Temperature Dependent Study of the Spin Exchange Reactions of Muonium with  $O_2$  and  $NO$  in the Range 295 to 478K”, J Chem Phys, 75, (11), 5362-5367, 1981.
- 10) Fleming, D.G., **Mikula, R.J.**, and Garner, D.M., “ $\mu +$  Charge Exchange and Muonium Formation in Low Pressure Gases”, Phys Rev A, 26 (5), 2527-2544, 1982.
- 11) Fleming, D.G., **Mikula, R.J.**, Senba, M., Garner, D.M., and Arseneau, D.J., “The Formation and Reactivity of the  $\mu +$  Molecular Ion in  $NeMu^+$ ”, Chem Physics, 82, 75-86, 1983.
- 12) Mikhail, M.W. and **Mikula, R.J.**, “A Mobile Plant for Fine Coal Cleaning”, CIM Bulletin, 41-43, May 1984.
- 13) Fleming, D.G., Arseneau, D.J., Garner, D.M., Senba, M. and **Mikula, R.J.**, “Muonium Formation and the Missing Fraction in Vapours”, Hyperfine Interactions, 17, 665-678, 1984.
- 14) **Mikula, R.J.**, “Relaxation and Formation Processes of the Muon and Muonium in the Gas Phase”, Ph.D. Thesis, University of British Columbia, Vancouver, 227 pgs, 1981, reprinted in 1985.
- 15) Salama, A.I.A., Mikhail, M.W., and **Mikula, R.J.**, “Coal Preparation Process Control”, CIM Bulletin, 59-64, September 1985
- 16) Garner, D.M., Fleming, D.G. and **Mikula, R.J.**, “Kinetics of the  $\mu + H_2$  and  $\mu + D_2$  Reactions from 610 to 850 K”, Chemical Physics Letters, 121, (1,2), 80-88, 1985.

- 17) **Mikula, R.J.**, and Mikhail, M.W., "A Delta P Technique for the Prediction of Coal Oxidation", *The International Journal of Coal Preparation*, Vol. 5, 57-69, 1987.
- 18) **Mikula, R.J.**, "Application of X-ray Microanalysis to Tar Sands Emulsions", *Colloids and Surfaces*, Vol. 23, 267-271, 1987.
- 19) **Mikula, R.J.**, "Chemical Characterization of an Oil/Water Emulsion Interface via Electron Microscope Observation of a Frozen Hydrated Sample", *Colloids and Surfaces*, Vol. 23, 267-271, 1987.
- 20) Friesen, W.I. and **Mikula, R.J.**, "Fractal Dimension of Coal Particles", *J. Colloid and Surface Science*, 120, 263-271, 1987.
- 21) Friesen, W.I. and **Mikula, R.J.**, "Mercury Porosimetry of Coals: Pore Volume Distribution and Compressibility", *Fuel*, 67, 1516-1520, 1988.
- 22) Mikhail, M.W. and **Mikula, R.J.**, "Development of an Automated Delta P Instrument and its Application to Mining, Handling and Preparation Problems", *Coal Preparation*, 6, 133-149, 1989.
- 23) **Mikula, R.J.**, Munoz, V.A., and Lam, W.W., "Microscopic Characterization of Oil Sands Processing Emulsions", *Fuel Science and Technology International*, 7, (5-6), 727-749, 1989.
- 24) Axelson, D.E., **Mikula, R.J.**, and Potoczny, M., "Characterization of Oil Sands Mineral Components and Clay-Organic Complexes", *Fuel Science and Technology International*, 7, (5-6), 659-673, 1989.
- 25) **Mikula, R.J.**, Munoz, V.A., and Lam, W.W., "Correlations Between Oil Sands Minerals and Processing Characteristics", *J Can Pet Tech*, 28 (6), Nov.-Dec., 1989.
- 26) Stanic V., Etsell, T.H., Pierre, A.C., and **Mikula, R.J.**, "Determination of Sulphur Compounds in the Sol-Gel Processing of GeS<sub>2</sub> by Potentiometric Titration", *Electrochimica Acta Journal*, Vol. 43, No. 18, p. 2639-2647, 1998.
- 27) Stanic, V., Pierre, A.C., Etsell, T.H. and **Mikula, R.J.**, "Preparation of Tungsten Sulfides by Sol-Gel Processing", *Journal of Non-Crystalline Solids*, Vol. 220, No. 1, p. 58-62, 1997.
- 28) **Mikula, R.J.** and Parson, I.S., "Coal Dustiness: Characterization and Control", *Coal Preparation*, 1991, Vol. 9, p. 199-212.
- 29) Neuwirth, M., **Mikula, R.J.** and Hannak, P., "Comparative Studies of Metal Containment in Solidified Matrices by Scanning and Transmission Electron Microscopy", *Environmental Aspects of Stabilization and Solidification and Solidification of Hazardous and Radioactive Wastes*, ASTM STLP 1033, P.L. Côté and T.M. Gilliam, Eds., American Society for Testing and Materials, Philadelphia, 1989, p. 201-213.
- 30) Heimann, R.B., Conrad, D., Florence, L.Z., Neuwirth, M., Ivey, D.G., **Mikula, R.J.** and Lam, W.W., "Leaching of Simulated Heavy Metal Waste Stabilized/Solidified in Different Cement Matrices", *Journal of Hazardous Materials*, 31, (1992) 39-57.
- 31) Ogunsola, O.I. and **Mikula R.J.**, "Thermal Upgrading Effect on the Spontaneous Combustion Characteristics of Western Canadian Low Rank Coals", *Fuel*: Vol. 71, 1992.
- 32) Ogunsola, O.I. and **Mikula R.J.**, "Application of Delta P Technique to Monitor Oxidation of Nigerian Coals", *Energy Sources Journal*, Vol. 14, 1992.

- 33) Ogunsola, O.I. and **Mikula R.J.**, "A study on the Spontaneous Combustion Characteristics of Nigerian Coals", *Fuel* 70: p. 258, 1991.
- 34) Lam, W.W., Tyerman W.J.R., Payette, C., **Mikula, R.J.**, and Sanford, E.C., "Physical Structure of the Primary Froth From Athabasca Sand Extraction: Cryogenic Sampling and Microscopic Observation of Pilot Plant Froths", *Fuel Science and Technology International*, Vol. 13, No. 4, p. 483-508, 1995.
- 35) Mahaffy, P.G., Martin, N.I., Newman, K.E., Hohn, B., **Mikula, R.J.** and Munoz, V.A., "Laundry Dryer Lint: A Novel Matrix for Nonintrusive Environmental Lead Screening", *Environmental Scientific Technology*, Vol. 32, No., 16, 1998
- 36) Omotoso, O.E., Ivey, D.G. and **Mikula, R.J.**, "Containment Mechanism of Trivalent Chromium in Tricalcium Silicate", *Journal of Hazardous Materials* 60 (1998) 1-28.
- 37) Omotoso, O.E., Ivey, D.G. and **Mikula, R.J.**, "Characterization of Chromium Doped Tricalcium Silicate Using SEM/EDS, XRD and FTIR", *Journal of Hazardous Materials* 42, (1995) 87-102.
- 38) Munoz, V.A. and **Mikula, R.J.**, "Characterization of Petroleum Industry Emulsions and Suspensions Using Microscopy", *Journal of Canadian Petroleum Technology*, Vol. 36, No. 10, November 1997.
- 39) Stantic, V., Etsell, T.H., Pierre, A.C. and **Mikula, R.J.**, "Sol-Gel Processing of ZnS", *Materials Letters Journal*, Vol. 31, No. 1-2, p. 35-38, 1997.
- 40) Stantic, V., Etsell, T.H., Pierre, A.C. and **Mikula, R.J.**, "Metal Sulfide Preparation From a Sol-Gel Product and Sulphur", *Journal of Materials Chemistry*, Vol. 7, No. 1, p. 105-107, 1997.
- 41) Omotoso, O.E., Ivey, D.G., and **Mikula, R.J.**, "Hexavalent Chromium in Tricalcium Silicate, Part I: Quantitative X-ray Diffraction Analysis of Crystalline Hydration Products", *Journal of Materials Science*, Vol.33, No. 2 (1998) 507-513.
- 42) Omotoso, O.E., Ivey, D.G. and **Mikula, R.J.**, "Hexavalent Chromium in Tricalcium Silicate, Part II: Effects of Hexavalent Chromium on the Hydration of Tricalcium Silicate", *Journal of Materials Science*, Vol. 33, No. 2 (1998) 515-522.
- 43) Omotoso, O.E., Ivey, D.G. and **Mikula, R.J.**, "Quantitative X-Ray Diffraction Analysis of Trivalent Chromium Doped Tricalcium Silicate", *Cement and Concrete Research*, Vol. 26, No. 9 (1996) 1369-1379.
- 44) **Mikula, R.J.**, Axelson, D.E. and Sheeran, D. "Mineral Matter and Clay-Organic Complexes in Oil Sands Extraction Processes" *Fuel Science and Technology International*, 11 (12), 1695, 1993.
- 45) Schramm, L.L., Kutay, S.M., **Mikula, R.J.**, Munoz, V.A., "The morphology of non-equilibrium foam and gelled foam lamellae in porous media", *Petroleum Science & Engineering*, **23**, pp. 117-132, 1999.
- 46) B. Fourie, B. A. Hofmann, **R. J. Mikula**, E. R. F. Lord, P. K. Robertson, Partially saturated tailings sand below the phreatic surface, *GeoTechnique*, Volume GE51, Issue7, 2001
- 47) N. Wang and **R. J. Mikula**, "Small Scale Simulation of Pipeline or Stirred Tank conditions of Oil Sands: Temperature and Mechanical Energy", *Journal of Canadian Petroleum Technology*, Vol. 41, No. 1, 8-10 (2001)
- 48) O.Omotoso, V.A.Munoz, & **R.J.Mikula**, "Mechanisms of Crude Oil-Mineral Interactions", *Spill Science & Technology Bulletin*, Vol.8, No.1, pp.45-54, 2002.

- 49) K.L. Kasperski and **R.J. Mikula**, "Water and Tailings in Surface Mined Oil Sands", in Elements, and International Magazine of Mineralogy, Geochemistry, and Petrology, Vol. 7. Number 6, 2011.
- 50) **Mikula R.J.**, Munoz V.A., Omotoso O (2009) Centrifuge options for production of "dry stackable tailings" in surface mined oil sands tailings management. Journal of Canadian Petroleum Technology 48: 19-23.
- 51) Demoz, A., & **Mikula, R. J.** (2011) Role of mixing energy in the flocculation of mature fine tailings. Journal of Environmental Engineering, 138(1), 129-136.
- 52) **R.J. Mikula**, O.Omotoso, and W.I Friesen, Interpretation of Bitumen Recovery Data from Batch Extraction Tests, *The Canadian Journal of Chemical Engineering*, October 2007, Vol. 85, No.6

*Conference Publications (International Conferences)*

- 53) **Mikula, R.J.** and Kasperski, K.L., and Burns, R.D., "Consolidated Tailings Release Water Chemistry", Proceedings, Tailings and Mine Waste 96, Fort Collins, Colorado, January 16-19, 1996.
- 54) Zrobok, R, **Mikula, R.J.**, "Oil sands tailings reclamation via manipulation of clay behaviour: The role of Rheology", Rheology in the Minerals Industry, 1999.
- 55) **R.J. Mikula** and R. Zrobok, "Oil Sands Tailings Reclamation Via Manipulation of Clay Behaviour: The role of Rheology" Rheology in the Minerals Industry II, Hawaii, March 1999.
- 56) Payette, C., Lam, W.W., Angle, C.W. and **Mikula, R.J.**, "Evaluation of Improved Lime Neutralization Processes - Part 2 - Sludge Characterization", Proceedings, International Conference on Acidic Drainage Treatment Techniques, Paper No. 93, September 1991.
- 57) Kuyucak, N., Wheeland, K.G., Noranda Technology Centre, Pointe-Clarie, Quebec, Canada and **Mikula, R.J.**, "Evaluation of Improved Lime Neutralization Processes - Part 3 - Interpretation of Properties of Lime Sludge Generated by Different Processes", Proceedings, International Conference on Acidic Drainage Treatment Techniques, Paper No. 94, September 1991.
- 58) **Mikula, R.J.**, Munoz, V.A., Kasperski, K.L. and Omotoso, O.E., "Commercial Implementation of a Dry Landscape Oil Sands Tailings Reclamation Option: Consolidated Tailings", 7<sup>th</sup> Unitar International Conference on Heavy Crude And Tar Sands, No. 1998.096, p. 907-921.
- 59) Burns, R, Suncor Energy, Fort McMurray, AB, Canada; Tipman, R. and Firmin, K., Shell Canada, Calgary, AB, Canada; and **Mikula, R.J.**, Munoz, V.A., Kasperski, K.L. and Omotoso, O.E., "Bitumen Release Mechanisms and New Process Development", 7<sup>th</sup> Unitar International Conference on Heavy Crude And Tar Sands, No. 1998.266, p. 2091-2103.
- 60) Omotoso, O.E., Ivey, D.G. and **Mikula, R.J.**, "Electron Microscopic and 29 Si NMR Studies of Chromium Doped Tricalcium Silicate", Proceedings of the International Symposium, on Treatment and Minimization of Heavy Metal Containing Wastes, Las Vegas, February 1995, 129-141.
- 61) Friesen, W.I., Ogunsola, O.I., Munoz, V.A., **Mikula, R.J.** and Brown, T.D. "Upgrading of Low-Rank Western Canadian Coal", Int. Conf. Coal Science, Newcastle Upon-Tyne, U.K, 1991.



- 62) **Mikula, R.J.**, Munoz, V.M, Kasperski, K.L, and O.I. Ogunsola, “Thermal Laboratory Techniques for the Study of Spontaneous Combustion: Ninth Annual International Pittsburgh Coal Conference Proceedings. Coal-Energy and the Environment. Pittsburgh, PA., October 1992.
- 63) **Mikula, R.J.**, Munoz, V.M, Kasperski, K.L, “Laboratory Techniques for Assessing Susceptibility to Spontaneous Combustion”, Ninth Annual International Pittsburgh Coal Conference Proceedings. Coal-Energy and the Environment. Pittsburgh, PA., October 1992.
- 64) Zrobok, R., **Mikula, R.J.**, “Oil sands tailings reclamation via manipulation of clay behaviour: The role of Rheology”, *Rheology in the Minerals Industry*, 1999.
- 65) **R.J.Mikula**, and O.Omotoso, “Predicting Oil Sands Tailings behaviour from Clay Content and Water Chemistry”, *Canadian International Petroleum Conference 2002* Calgary, June 11-13/02.
- 66) V.A.Munoz & **R.J.Mikula**, “Microscale Morphology and MicroFluorescence of Oil Sands Extraction Froth from Poorly Processing Ores”, Presented and Published at *Microscopy & Microanalysis 2002 Conference*, August 4-8, Quebec City
- 67) **R.J.Mikula**, V.A.Munoz & N.Wang, “Characterization of Bitumen properties using Microscopy and Near Infrared Spectroscopy: Processability of Oxidized or Degraded Ores”, *Canadian International Petroleum Conference 2002*, Calgary
- 68) **Mikula, R.J.**, Munoz, V.A., Omotoso, O., Water Use in Bitumen Production, Tailings Management Options in Surface Mined Oil Sands; *Proceedings of the Canadian International Petroleum Society, paper 08-97, Calgary, June 2008.*
- 69) **Mikula, R.J.**, Munoz, V.A., Omotoso, O., Laboratory and pilot experience in the development of a conventional water based extraction process for the Utah Asphalt Ridge tar sands; *Proceedings of the Canadian International Petroleum Society, paper 06-131, Calgary, June 2006.*
- 70) **Mikula, R.J.**, Munoz, V.A., Omotoso, O., Centrifuge Options for the Production of Dry Stackable Tailings in Surface Mined Oil Sands Tailings Management, *Proceedings of the Canadian International Petroleum Society, paper 08-96, Calgary, June 2008.*
- 71) **Mikula, R.J.**, Munoz, V.A., Omotoso, O., and Kasperski, K.L., The Chemistry of Oil Sands Tailings: Production to Treatment, *Proceedings of the International Oil Sands Tailings Conference, Edmonton, December 9, 2008*
- 72) Afara, M, Munoz, V.A., and **Mikula, R.J.**, Naphtha Interaction with Bitumen and Clays: a Preliminary Study, *Proceedings of the 2<sup>nd</sup> International Conference on Oil Sands Tailings, Edmonton, December, 2010.*
- 73) Kasperski, K, Munoz, V.A., and **Mikula, R.J.**, Naphtha Evaporation from Oil Sands Tailings Ponds, *Proceedings of the 2<sup>nd</sup> International Conference on Oil Sands Tailings, Edmonton, December, 2010.*
- 74) Kasperski, K.L. and **Mikula, R.J.**, Modeling the effect of gypsum addition on Suncor plant water chemistry: interim report. WRC 95-13 (CF) Natural Resources Canada, Devon, Alberta, 1995.
- 75) **Mikula, R.J.**, Afara, M, Namsechi, B., Demko, B., Wong, P., Carbon Dioxide Sequestration in Oil Sands Tailings Streams, *Proceedings of the 2<sup>nd</sup> International Conference on Oil Sands Tailings, Edmonton, December, 2010.*

- 76) Demoz, A., Munoz, V.A., and **Mikula, R.J.**, Thin Lift Dewatering of Oil Sand Tailings: Optimizing Dewatering of Fluid Fine Tailings by Controlling Polymer Mixing, Proceedings of the 2011 World Heavy Oil Congress, Edmonton, March 2011, paper 586.
- 77) Demoz, A., Munoz, V.A., and **Mikula, R.J.**, Optimizing MFT Dewatering by Controlling Polymer Mixing, Proceedings of the 2<sup>nd</sup> International Conference on Oil Sands Tailings, Edmonton, December, 2010.
- 78) **Mikula, R.J.**, Demoz, A., and Lahaie, R., Laboratory and Field Experience with Rim Ditch Dewatering of MFT, Proceedings of the 2<sup>nd</sup> International Conference on Oil Sands Tailings, Edmonton, December, 2010.
- 79) **Mikula, R.J.**, Munoz, V.A., Omotoso, O., Laboratory and pilot experience in the development of a conventional water based extraction process for the Utah Asphalt Ridge tar sands; Proceedings of the Canadian International Petroleum Society, paper 06-131, Calgary, June 2006.
- 80) Munoz, V.A., Elliott, G.R.D., Demoz, A. and **Mikula R.J.** (2010) Flocculation behavior of mature fine tailings: decreasing water use in oil sands extraction, Extended abstract of a paper presented at Microscopy and Microanalysis 2010 in Portland, Oregon, USA, August 1 – August 5, 2010

#### **LIST B: BOOKS (CHAPTERS AUTHORED)**

- 81) **Mikula, R.J.**, "Characterization of Emulsions in Emulsions: Fundamentals & Applications in the Petroleum Industry", Advances in Chemistry Series 231, Edited by L.L. Schramm, American Chemical Society, 1992.
- 82) Salama, A.I.A., and **Mikula, R.J.**, "Particle and Suspension Characterization in Suspensions: Fundamentals and Applications in the Petroleum Industry", Editor L.L. Schramm, Advances in Chemistry Series 251, American Chemical Society, 1996.
- 83) **Mikula, R.J.**, Kasperski, K.L., Burns, R.D. and MacKinnon, M.D., "The Nature and Fate of Oil Sands Tailings", Editor L.L. Schramm, Advances in Chemistry Series 251, American Chemical Society, 1996.
- 84) Ivey, D.G., **Mikula, R.J.**, Lam, W.W., Neuwirth, M., Conrad, D.J. and Heimann, R.B., "Chemistry and Microstructure of Solid Waste Forms, Ed. R.D. Spence, Lewis Publishers, 123, 1993.
- 85) **Mikula, R.J.**, "Cleaning Low-Rank Coal", In Topics of Special Interest, Coal Preparation, 5<sup>nd</sup> Edition, Editor J.W. Leonard, Chapter 14, p. 957-965, 1991.
- 86) **Mikula, R.J.** and Munoz, V.A., "Demulsifier characterization" in Surfactants: Fundamentals and Application in the Petroleum Industry, Editor L.L. Schramm, Cambridge University Press, 2000
- 87) **Mikula, R.J.** and Munoz, V.A., "Demulsifier characterization" in Surfactants: Fundamentals and Application in the Petroleum Industry, Editor L.L. Schramm, Cambridge University Press, 2000
- 88) Schramm, L.L., and **Mikula, R.J.**, "Flotation of Oil Sands Bitumen" in "Foam Engineering: Fundamentals and Applications" edited by Paul Stevenson, Wiley, February 2012.
- 89) **Mikula, R.J.**, Advances in Oilsands Tailings Handling: Building the Base for Reclamation", in Restoration and Reclamation of Boreal Ecosystems; Attaining Sustainable Development, edited by D.H. Vitt and J.H. Bhatti, Cambridge University Press, 2012.

- 90) **Mikula, R.J.**, “Trading Water for Oil, Tailings Management and Water Use In Surface Mined Oil Sands”, in Heavy-oil and oil-sand petroleum systems in Alberta and beyond: AAPG Studies in Geology 64, edited by F. J. Hein, D. Leckie, S. Larter, and J. Suter, American Association of Petroleum Geologists, 2012.

#### **LIST C: PUBLISHED CONSORTIA REPORTS, REVIEWED AND EQUIVALENT TO REFEREED PUBLICATIONS**

These are major reports and are referenced in the AOSTRA Library. The three contributions to the Fine Tailings Fundamental Consortium “Silver Bullet” are listed here. Dr. Mikula was the senior technical reviewer for these contributions. These could be considered to be equivalent to refereed conference proceedings and or book chapters.

- 91) Payette, C., Lam, W.W., Munoz, V.A., and **Mikula, R.J.**, "Characterization of Separated Sludge Solids by Electron Microscopy", Research Report, AOSTRA/Government/Industry Fine Tailings Fundamentals Consortium, September 1990.
- 92) **Mikula, R.J.**, Lam, W.W. and Munoz, V.A., "Sludge Structure Investigations: Part 1", Research Report, AOSTRA/Government/Industry Fine Tailings Fundamentals Consortium, September 1990.
- 93) **Mikula, R.J.**, MacConnachie, C.A., Payette, C., Lam, W.W. and Munoz, V.A., "Observation of Structure in Oil Sands Sludge", Research Report, AOSTRA/Government/Industry Fine Tailings Fundamentals Consortium, 1991.
- 94) **Mikula, R. J.**, Hamza, H.A., Angle, C.W., Kan J., Munoz, V.A., Xu, Y. and Zrobok, R., Volume 1, Chapter 4, "Fundamental Properties of Fine Tails" in “Advances in Oil Sands Tailings Research”, published by Alberta Department of Energy, Oil Sands and Research Division, ISBN 0-7732-1691-X, 1995.
- 95) **Mikula, R. J.** and Munoz, V.A., Volume 3, Chapter 2, "Fundamental Basis for Control of Fine Tailings Behaviour" in “Advances in Oil Sands Tailings Research”, published by Alberta Department of Energy, Oil Sands and Research Division, ISBN 0-7732-1691-X, 1995.
- 96) **Mikula, R. J.** and Kasperski, K.L., Volume 3, Chapter 5, 'The Use of NST Release Water for Recycle to Extraction' in “Advances in Oil Sands Tailings Research”, published by Alberta Department of Energy, Oil Sands and Research Division, ISBN 0-7732-1691-X, 1995.
- 97) **Mikula, R.J.**, Lam, W.W., Payette, C., Munoz, V.A., MacConnachie, C.A., “Relating Morphology and Drying Behaviour of Oil Sands Sludges and Model Systems: Preliminary Report”. Research Reports AOSTRA/Government/Industry Fine Tailings Fundamentals Consortium, December 1992.
- 98) **Mikula, R.J.**, Lam, W.W., Payette, C., Munoz, V.A., “Mineral and Organic Morphology of separated Sludge Fractions and Whole Sludges: : Preliminary Report”, Research Reports AOSTRA/Government/Industry Fine Tailings Fundamentals Consortium. Volume 1, December 1992.
- 99) Scoular, R.J., Kurucz, L., Verkoczy, B., **Mikula, R.J.**, MacConnachie C.A., Payette, C. and Munoz, V.A., “Emulsions Research – Final Technical Report for April 1, 1990 – March 31, 1991”, Saskatchewan Research Council, p. 110-186 C-91, March 1991.

#### **LIST D: PUBLISHED CONFERENCE PROCEEDINGS (VARIABLE DEGREE OF REFEREEING)**

- 100) **Mikula, R.J.**, Payette, C., Lam, W.W. and Munoz, V., “Correlated Optical and Electron Microscopy for Characterization of Coke and Catalyst”, Electron Microscopy Society of America Annual Meeting, San Jose, August 4-9, 1991.

- 101) **Mikula, R.J.**, Lam, W.W. and Munoz, V. "Applications of Microscopy in the Oil Industry", Microscopical Society of Canada, Annual Meeting, Calgary, June 1991.
- 102) **Mikula, R.J.**, Lam, W.W. and Munoz, V. "Correlation of Optical and Electron Microscopy for the Characterization of Carbonaceous Solids", 40<sup>th</sup> Canadian Chemical Engineering Conference, Halifax, July 1990.
- 103) **Mikula, R.J.**, Lam, W.W. and Munoz, V. "OM/SEM Correlations during Investigations of Coke Formation and Catalysts Deactivation", presented at the Colloid and Surface Science Lectures and Workshops, Kananaskis, April 1990.
- 104) **Mikula, R.J.**, Munoz, V.A. and Ogunsole, O.I. "Low Rank Coal Properties and Thermal Upgrading Potential", Proceedings of the Western Canada Coal Geosciences Forum, p. 123, Edmonton, 1989.
- 105) **Mikula, R.J.**, Payette, C., Munox, V. and Lam, W.W., "Microscopic Observation of Structure in Oil Sands Sludge" Paper No. CIM/AOSTRA 91-120, The Petroleum Society of CIM and AOSTRA 1991 Technical Conference, Banff, Alberta, 1991.
- 106) **Mikula R.J.**, Munox, V. and Lam, W.W., "Applications of Microscopy in the Oil Industry", 18<sup>th</sup> Microscopical Society of Canada Conference, Calgary, 1991.
- 107) **Mikula, R.J.**, Payette, C., Munox, V. and Lam, W.W., "Correlated Optical and Electron Microscopy for Characterization of Coke and Catalysts", 49<sup>th</sup> Electron Microscopy Society of America and 25<sup>th</sup> Microbeam Analysis Society Conference, Microbeam Analysis, p. 171-176 San Jose, 1991.
- 108) Ogunsole, O.I. and **Mikula, R.J.**, "Spontaneous Combustion Characteristics of Thermally Upgraded Western Canadian low Rank Coals", Presented at the Canadian/Western States Sections Joint Technical meeting of the Combustion Institute, Banff, April 29 – May 2, 1990.
- 109) Lam, W.W., Payette, C., **Mikula, R.J.**, Munoz, V.A., and Tyerman, W.J.R., "Flotation of Athabasca Oil Sands Microscopical Determination of Structure of Bituminous Froth", Joint EMSA-MS Meeting, August 16-21, Boston Proceedings of EMSA, MAS and MSC Joint Meetings, 1992.
- 110) **Mikula, R.J.**, Lam, W.W., Payette, C., Munoz, V.A., "Observation of Frozen Hydrated Oil Sands Fine Tailings Freezing Effects and Interparticle Forces", Joint EMSA-MS Meeting, August 16-21, Boston Proceedings of EMSA, MAS and MSC Joint Meetings, 1992.
- 111) Munoz, V.A., **Mikula, R.J.**, Payette, C. and Lam. W.W., "Microscopic Versus Process Parameters in Heavy Oil Upgrading", Joint EMSA-MS Meeting, August 16-21, Boston Proceedings of EMSA, MAS and MSC Joint Meetings, p. 336, 1992.
- 112) **Mikula, R.J.**, MacConnachie, C.A., Munoz, V.A., Payette, C. and Lam, W.W., "Relating Morphology and Drying Behaviour of Oil Sands Sludges and Model Systems: Preliminary Report", Research Reports AOSTRA/Government/Industry Fine Tailings Fundamentals Consortium, Volume 1, December 1992.
- 113) Lam, W.W., **Mikula, R.J.**, Munoz, V.A. and Payette, C. "Characterization of Fine Particulate Suspensions: Correlated Confocal and Cryo-SEM Observation of Oil Sands Tailings", Proc. 28<sup>th</sup> Microbeam Analysis Society Conference, Los Angeles, 1994.
- 114) Munoz, V.A. and **Mikula, R.J.**, "Confocal and Cryo-Sem Characterization of Petroleum Industry Emulsions and Suspensions", Microscopic Society of Canada Conference, Toronto, ON, June 1995.

- 115) K.L. Kasperski and **R.J. Mikula**, "Consolidated Tailings Release Water Chemistry", Petroleum Society CIM, 47<sup>th</sup> Ann. Tech. Meeting, Calgary, AB, June 10-12, 1996.
- 116) **R.J. Mikula** and K.L. Kasperski, M.D. MacKinnon and M.E. Roger, and R.D. Burns, "Consolidated Tailings Release Water Chemistry", Proceedings, International Water Conference, Pittsburgh, Pennsylvania, Oct. 21-23, 1996.
- 117) MacConnachie, C.A., **Mikula, R.J.**, Kurucz, L. and Scoular, R.J., "Correlation of Demulsifier Performance and Demulsifier Chemistry", Petroleum Society of CIM and CANMET, Paper No. 38 (Presented at the Fifth Petroleum Conference of the South Saskatchewan Section, October 18-20, 1993).
- 118) Omotoso, O.E., Ivey, D.G. and **Mikula, R.J.**, "Stabilization and Solidification of Chromium Wastes in Cement", Presented at the 21<sup>st</sup> Annual Meeting of the Microscopical Society of Canada, Montreal, Quebec, June 12-15, 1994.
- 119) **Mikula, R.J.**, Munoz, V.A., Lam, W.W. and Payette C., "Structure in Oil Sands Fine Tailings, Oil Sands, Our Petroleum Future Conference, April 4-7, 1993.
- 120) **Mikula, R.J.** and Munoz, V.A., "Characterization of Petroleum Industry Emulsions and Suspensions Using Microscopy", The Petroleum Society 47<sup>th</sup> Annual Technical Meeting, Vol. 2, June 10-12, 1996.
- 121) **Mikula, R.J.** and Munoz, V.A., "From Tar Sands to Synthetic Crude: Applications of Microscopy", G.W. Bailey, Ed., Proceedings of the 46<sup>th</sup> Annual Meeting of the Electron Microscopy Society of America, 1988.
- 122) Kasperski, K.L. & **Mikula, R.J.**, "Water Treatment in Oil Sands: Novel Approaches to Calcium Control", Proceedings of the 2003 NACE conference on water treatment, San Diego, May, 2003.

## CANMET REPORTS

### List Ab: Divisional Reports

The 57 Divisional reports prior to 1990 are listed in Appendix A

- Ab 58.** - 90-01 Primary Separation Vessel Control: Applications of Image Analysis on Clay-Organic Complexes  
**R.J. Mikula**, W.I. Friesen & V.A. Munoz (21 pages)
- Ab 59.** - 90-14 Particle Size Distribution of Solids from Plant 15  
W.W. Lam & **R.J. Mikula** (19 pages)
- Ab 60.** - 90-15 Microscopic Evaluation of Steam Flooded Oil Sand Core Samples  
V.A. Munoz, W.W. Lam & **R.J. Mikula** (45 pages)
- Ab 61.** - 90-16 Microscopic Evaluation of Cold Lake Core Samples  
**R.J. Mikula** & W.W. Lam (43 pages)
- Ab 62.** - 90-17 Particulate Characterization and Sizing Part 2: Optical Microscopy  
V.A. Munoz, **R.J. Mikula** & W.W. Lam (41 pages)
- Ab 63.** 90-19 Primary Separation Vessel Control: Applications of Image Analysis  
**R.J. Mikula**, W.I. Friesen & V.A. Munoz (56 pages)
- Ab 64.** - 90-25 Characterization of Bienfait Chars  
**R.J. Mikula**, W.M. Leung, V.A. Munoz & D.E. Axelson (35 pages)
- Ab 65.** - 90-29 Characterization of Solids from Unit Operations: Plants 8, 14, 15, and 22  
W.W. Lam, V.A. Munoz & **R.J. Mikula** (67 pages)
- Ab 66.** - 90-30 High Temperature Settling of Bitumen from Aostra's Underground Test Facility  
**R.J. Mikula**, I.S. Parsons, V.A. Munoz, W.W. Lam, C. Payette & K.C. McAuley (35 pages)
- Ab 67.** - 90-31 Characterization of Separated Solids by Electron Microscopy  
C. Payette, W.W. Lam, V.A. Munoz & **R.J. Mikula** (27 pages)
- Ab 68.** - 90-32 Sludge Structure Investigations: Part 1  
**R.J. Mikula**, W.W. Lam & V.A. Munoz (32 pages)
- Ab 69.** - 90-33 Quench Water Emulsions Stability as a Function of DMDS Addition  
**R.J. Mikula**, W.W. Lam, V.A. Munoz, C.W. Angle, & K.H. Michaelian (77 pages)
- Ab 70.** - 90-34 Feasibility Study for the Determination of Bitumen Size Distribution  
V.A. Munoz, W.W. Lam & **R.J. Mikula** (22 pages)
- Ab 71.** - 91-17 Fundamentals of Low-Rank Coal Thermal Upgrading Via Evaporative Drying  
**R.J. Mikula**, W.I. Friesen, K.H. Michaelian, W.W. Lam, C. Payette & O.I. Ogunsola (67 pages)
- Ab 72.** - 91-24 Electron Microscopy of Lime-Neutralized Noranda Sludges - Part 1

- C. Payette, W.W. Lam & **R.J. Mikula** (54 pages)
- Ab 73.** - 91-25 Electron Microscopic Examination of Lim-Neutralized Noranda Sludges - Part 2  
W.W. Lam, C. Payette & **R.J. Mikula** (34 pages)
- Ab 74.** - 91-42 Chemical Effects of Obed Coal Drying: Preliminary Study (15 pages)  
K.L. Kasperski, W.W. Lam, K.H. Michaelian, K. Kar & **R.J. Mikula**
- Ab 75.** - 91-43 Analysis of Clay Fractions by X-Ray Diffraction and Electron Microscopy  
C. Payette, W.W. Lam & **R.J. Mikula** (17 pages)
- Ab 76.** - 92-01 Study of the Properties of Petro-Canada Pipeline Emulsions  
V.A. Munoz, W.W. Lam, R. Zrobok, C.A. Macconnachie, C. Payette, **R.J. Mikula** (49 pages)
- Ab 77.** - 92-02 The Oslo Cold Water Process Part 1: High-and Low-Grade Oil Sands  
V.A. Munoz, W.W. Lam, **R.J. Mikula** & C. Payette (70 pages)
- Ab 78.** - 92-05 The Oslo Cold Water Process Part 4: A Preliminary Study of Froth Structure and the Factors Affecting Processability  
**R.J. Mikula**, V.A. Munoz, W.W. Lam & C. Payette (31 pages)
- Ab 79.** - 92-09 Dragon Resources Inc.: Characterization of a Water in Gasoline Emulsifier  
**R.J. Mikula**, C.A. Macconnachie & V.A. Munoz (14 pages)
- Ab 80.** - 92-12 Flotation of Oil Sands Part 1: Process Parameters and Characteristics  
W.W. Lam, C. Payette, C.A. MacConnachie, V.A. Munoz & **R. J. Mikula** (76 pages)
- Ab 81.** - 92-13 Flotation of Oil Sands Part 2: Wettability of Solids  
V. A. Munoz, W.W. Lam, C. Payette & **R.J. Mikula** (45 pages)
- Ab 82.** - 92-14 Flotation of Oil Sands Part 3: Gel Formation (42 pages)  
V.A. Munoz, C.A. MacConnachie, W.W. Lam, C. Payette & **R.J. Mikula**
- Ab 83.** - 92-15 The Oslo Cold Water Process Part 3: Study of Tails (24 pages)  
V.A. Munoz, W.W. Lam, **R.J. Mikula**, C. Payette & K.H. Michaelian
- Ab 84.** - 92-18 Particle Wettability in the Flotation of Oil Sands  
V.A. Munoz, W.W. Lam, K.L. Kasperski & **R.J. Mikula** (27 pages)
- Ab 85.** - 92-31 Characterization of Kidd Creek Sludges  
C. Payette, R. Zrobok & **R.J. Mikula** (62 pages)
- Ab 86.** - 92-32 Microscopic Study of Coke Formation and Catalyst Deactivation: Part 1  
V.A. Munoz, C. Payette & **R.J. Mikula** (47 pages)
- Ab 87.** - 92-46 The Use of Charged Colloid Particles to Prove the Charge Distribution on Particles in Model Systems and Whole Sludges: Preliminary Report  
W.W. Lam, **R.J. Mikula** & C. Payette (21 pages)

- Ab 88.** - 92-47 Mineral and Organic Morphology of Separated Sludge Fractions and Whole Sludges: Preliminary Report  
W.W. Lam, **R.J. Mikula**, V.A. Munoz & C. Payette (42 pages)
- Ab 89.** - 92-48 Relations between Morphology and Drying Behaviour of Oil Sands Sludges and Model Systems: Preliminary Report (38 pages)  
W.W. Lam, C.A. MacConnachie, **R.J. Mikula**, V.A. Munoz & C. Payette
- Ab 90.** - 92-54 Cryogenic Sampling Procedure  
W.W. Lam, **R.J. Mikula**, V.A. Munoz & C. Payette (16 pages)
- Ab 91.** - 92-57 Evaluation of an Upgraded Low Rank Coal  
K. Kasperski, C.A. MacConnachie, K.H. Michaelian, **R.J. Mikula**, V.A. Munoz & C.K. Preston (56 pages)
- Ab 92.** - 92-64 Froth Sampling from Extraction Plants  
K. Flint, W.W. Lam, **R.J. Mikula**, V.A. Munoz & C. Payette (19 pages)
- Ab 93.** - 92-65 Microscopy of Diluted Bitumen from Syncrude Plant 6  
W.W. Lam & **R.J. Mikula** (18 pages)
- Ab 94.** - 92-69 O'Connor and Associates Filterability of Tailings Sludges  
G.S. Hundal, **R.J. Mikula**, V.A. Munoz & D.K. Sengupta (32 pages)
- Ab 95.** - 92-71 Froth Handling Technologies Part 1: Froth Washing and the Partition of Solids and Water  
K. Flint, K.L. Kasperski, W.W. Lam, **R.J. Mikula**, V.A. Munoz & C. Payette (38 pages)
- Ab 96.** - 92-72 Froth Handling Technologies Part 2: Froth Structure  
W.W. Lam, **R.J. Mikula** & C., Payette (64 pages)
- Ab 97.** - 93-06 Heavy Minerals from Tailings Pond Black Sand Cores  
K. Flint, **R.J. Mikula** & C. Payette (19 pages)
- Ab 98.** - 93-07 Flyash Characterization for Tailing Treatment  
K.L. Kasperski, W.W. Lam, **R.J. Mikula** & S. Thind (24 pages)
- Ab 99.** - 93-08 Progress Data Report on Interfacial Properties of Membranes Used for Produced Waste Water Filtration  
C.W. Angle, **R.J. Mikula** & Y. Xu (25 pages)
- Ab 100.** - 93-09 Preliminary Microscopical Observation of SRC Wellhead Emulsions  
W.W. Lam & **R.J. Mikula** (18 pages)
- Ab 101.** - 93-12 Treatment of Settling Tank Sludges: Preliminary Report  
C.W. Angle Y. Xu & **R.J. Mikula** (19 pages)
- Ab 102.** - 93-16 Characterization of Catalysts Dispersion In Oils Using Cryogenic Scanning Electron Microscopy  
**R.J. Mikula** & W.W. Lam (9 pages)



- Ab 103.** - 93-17 Ash Characterization For Tailings Treatment (21 pages)  
K.L. Kasperski, W.W. Lam, **R.J. Mikula**, C. Payette, K. Flint & J. Leman
- Ab 104.** - 93-26 Investigation of the Factors that Determine Emulsion Stabilization in Diluted Bitumen  
W.W. Lam, V.A. Munoz & **R.J. Mikula** (42 pages)
- Ab 105.** - 93-29 Froth Handling Technologies: The Partitioning of Water and Structure of Froths For the Suncor Extraction Plant  
W.W. Lam, C. Payette & **R.J. Mikula** (53 pages)
- Ab 106.** - 93-31 The Morphology of Oslo and Clark Mature Fine Tailings (22 pages)  
V.A. Munoz, R. Zrobok, W.W. Lam, C. Payette, Y. Xu & **R.J. Mikula**
- Ab 107.** - 93-34 Water Chemistry Modelling for Tailings Treatment with Fly Ash  
**R.J. Mikula**, K.L. Kasperski & W.W. Lam (31 pages)
- Ab 108.** - 93-37 The Filterability and Surface Tension of Mature Fine Tailings: The Effect of pH and Calcium Ions  
Y. Xu & **R.J. Mikula** (43 pages)
- Ab 109.** - 93-40 Factors that Determine Fine Tailings Properties  
**R.J. Mikula**, Y. Xu, R. Zrobok, J. Kan & C.A. Angle (36 pages)
- Ab 110.** - 93-45 Chemical Characterization of Nonionic Emulsifiers MacConnachie and **R.J. Mikula** (30 pages)
- Ab 111.** - 93-46 Microscopic Quality of Dust Components: Part 1  
V.A. Munoz, C. Payette & **R.J. Mikula** (66 pages)
- Ab 112.** - 93-47 Froth Handling Technologies: The Structure of Froths for the Syncrude Extraction Plant  
W.W. Lam, C. Payette & **R.J. Mikula** (44 pages)
- Ab 113.** - 94-03 Single-Stage Upgrading of Bitumen Froth Elevated Temperature Pressure Processing: Part 1  
V.A. Munoz, **R.J. Mikula** & K.C. McAuley (38 pages)
- Ab 114.** - 94-07 Identification and Evaluation of process Aids for Soil Clean-up  
**R.J. Mikula**, C. Payette & K. Flint (22 pages)
- Ab 115.** - 94-08 Analysis of LiCoO<sub>2</sub>  
K.L. Kasperski, **R.J. Mikula** & L. Saffa (24 pages)
- Ab 116.** - 94-16 Bitumen Froth Processing Without Diluent at Elevated Temperature  
**R.J. Mikula**, V.A. Munoz, K.L. Kasperski, Y. Xu & C. MacConnachie (79 pages)
- Ab 117.** - 94-40 Effect of Addition of Flue Gas Desulphurization Slurry on Tailings Water Chemistry  
K.L. Kasperski & **R.J. Mikula** (51 pages)
- Ab 118.** - 94-43 Evaluation of Value 100 and MV100 as Process Aides for the Clean-up of Oily Solids: Part I  
**R.J. Mikula** & V.A. Munoz (37 pages)

- Ab 119.** - 94-44 Evaluation of DCsperse 1000 for the Clean-up of Oils Solids  
**R.J. Mikula & V.A. Munoz** (26 pages)
- Ab 120.** - 94-51 The Particle Size Distribution and Sedimentation of Fine OHWE and CHWE Tailings  
J. Kan & **R.J. Mikula** (52 pages)
- Ab 121.** - 94-55 The Filterability of Oil Sands Tailings  
Y. Xu & **R.J. Mikula** (22 pages)
- Ab 122.** - 94-58 Toxicity of OHWE and CHWE Beach Run Off Samples  
K.L. Kasperski & **R.J. Mikula** (14 pages)
- Ab 123.** - 95-06 Flocculation and Aggregate Structure in Fine Tailings  
V.A. Munoz & **R.J. Mikula** (75 pages)
- Ab 124.** - 95-07 Evaluation of the Propensity for Spontaneous Combustion of Stockpiled Syncrude Coke  
K.L. Kasperski & **R.J. Mikula** (17 pages)
- Ab 125.** - 95-09 Evaluation of Omnisperse and Dcsperser 1000 as Process Aids for the clean-up of Oily Solids: Final Report  
**R.J. Mikula & V.A. Munoz** (50 pages)
- Ab 126.** - 95-11 Tailings Release Water Chemistry and Toxicity: Comparison of Tailings Treatments  
K.L. Kasperski & **R.J. Mikula** (50 pages)
- Ab 127.** - 95-13 Modelling the Effect of Gypsum Addition on Suncor Plant Water Chemistry: Interim Report  
**R.J. Mikula & K.L. Kasperski** (24 pages)
- Ab 128.** - 95-26 Nonsegregating Tailings Release Water Chemistry: Preliminary Report  
**R.J. Mikula & K.L. Kasperski** (42 pages)
- Ab 129.** - 95-43 Bitumen Recovery from Suncor Tailings - Phase II: Pilot-Scale Testing  
Y.H. Cheng, M.W. Mikhail, **R.J. Mikula**, A.I.A. Salama, K. Hashmi & D. Woo (110 pages)
- Ab 130.** - 95-44 Characterization of Coke Formed in Stainless Steel Furnace Tubes  
V.A. Munoz & **R.J. Mikula** (33 pages)
- Ab 131.** - 95-50 Bitumen Froth Processing without Diluent: Continuous Demonstration  
**R.J. Mikula & V.A. Munoz** (15 pages)
- Ab 132.** - 96-16 Modelling Suncor Recycle Water Chemistry: Impact of Consolidated Tails  
K.L. Kasperski & **R.J. Mikula** (38 pages)
- Ab 133.** - 96-20 Separation of Bitumen from Pond Oil: Feasibility Study  
**R.J. Mikula & Scoular** (17 pages)
- Ab 134.** - 96-23 Characterization of Coke Formed in Stainless Steel Furnace Tubes: Part 2  
V.A. Munoz & **R.J. Mikula** (27 pages)
- Ab 135.** - 96-24 Suncor Pond Survey 1995  
**R.J. Mikula** (48 pages)

- Ab 136.** - 96-37 Gas Entrained in Tailings Deposits  
**R.J. Mikula**, V.A. Munoz & K.L. Kasperski (11 pages)
- Ab 137.** - 97-04 Enhanced Settling of Cyclone Overflow Using CT Release Water: The Potential for Decreasing the Recycle Water Containment Area  
**R.J. Mikula** & A.I.A. Salama (32 pages)
- Ab 138.** - 97-05 Suncor CT Trial: Water Chemistry Monitoring program (1995-1996)  
J.J.Kot, **R.J. Mikula** & K.L. Kasperski (28 pages)
- Ab 139.** - 97-07 Development of a Simple Method to Quantify the Degree of Clay Oil Flocculation  
O.E. Omotoso & **R.J. Mikula** (28 pages)
- Ab 140.** - 97-12 Assessment of the Morphology of conditioned oil Sand Slurries  
V.A. Munoz & **R.J. Mikula** (27 pages)
- Ab 141.** - 97-13 Consolidated Tailings: Technical support for the Suncor Commercial Trial  
**R.J. Mikula**, K.L. Kasperski & O.E. Omotoso (45 pages)
- Ab 142.** - 97-14 Modelling Suncor Recycle Water Chemistry: Impact of Consolidated Tails Part 2  
K.L. Kasperski & **R.J. Mikula** (24 pages)
- Ab 143.** - 97-20 Centrifuge Performance Evaluation: Preliminary Report  
**R.J. Mikula** (38 pages)
- Ab 144.** - 97-21 Evaluation of the Geosol Oil Sands Extraction Process  
**R.J. Mikula**, O.E. Omotoso & V.A. Munoz (35 pages)
- Ab 145.** - 97-23 Increasing Centrifuge Plant Throughput by Changing Diluent Composition  
**R.J. Mikula**, Y. Xu, K.L. Kasperski & R. Zrobok (34 pages)
- Ab 146.** - 97-28 Froth Treatment Separator Rag Layer Formation: Part 1  
V.A. Munoz, K.L. Kasperski & **R.J. Mikula** (24 pages)
- Ab 147.** - 97-36 MFT Spiked Tailings: Microscopic Characterization  
V.A. Munoz & **R.J. Mikula** (17 pages)
- Ab 148.** - 97-37 Impact of Froth Morphology and Composition on Froth Treatment Plant Performance (38 pages)  
V.A. Munoz, **R.J. Mikula**, O.E. Omotoso, K.L. Kasperski & J. Kan
- Ab 149.** - 97-38 Rheology of mature Fine Tailings: Gas Release and Gypsum Addition  
**R.J. Mikula**, V.A. Munoz, R. Zrobok & S. Thind (32 pages)
- Ab 150.** - 97-41 Paste Technology: Impact of Thickener Overflow on Extraction  
O.E. Omotoso, **R.J. Mikula** & V.A. Munoz (52 pages)
- Ab 151.** - 97-44 Slurry Tank Conditioning of Oil Sands: Tailings Behaviour (68 pages)  
**R.J. Mikula**, O.E. Omotoso, R. Zrobok, K.L. Kasperski & Y. Xu

- Ab 152.** - 98-05      Paste Project Fundamentals January Project Meeting (19 pages)  
**R.J. Mikula**, Y. Xu, J. Kot, O.E. Omotoso, K.L. Kasperski & R. Zrobok
- Ab 153.** - 98-08      Paste Technology Program - Phase 3 Field Demonstration at CT Prototype and Stream 73  
(77 pages)  
Y. Xu, **R.J. Mikula**, H. Hamza, T. Wong, G. Cymerman & T. Lord
- Ab 154.**      - 98-17      Noncaustic Consolidating Tailings: Preliminary Report  
**R.J. Mikula** & O.E. Omotoso (19 pages)
- Ab 155.** - 98-20      Suncor Water Chemistry: Analysis of Field Samples and Development of mathematical  
Model  
K.L. Kasperski, J.J. Kot & **R.J. Mikula** (5 pages)
- Ab 156.** - 98-21      On-Line Clay Quantification for Consolidated Tailings Process Monitoring and Control  
**R.J. Mikula** (26 pages)
- Ab 157.** - 98-22      Paste Fundamentals: Clay Behaviour in the Paste Process  
**R.J. Mikula**, O.E. Omotoso & Y. Xu (34 pages)
- Ab 158.** - 98-25      Water Chemistry Modeling at Suncor - October 1997 to October 1998  
K.L. Kasperski & **R.J. Mikula** (21 pages)
- Ab 159.** - 98-27      Slurry Tank Conditioning of Oil Sands: Evaluation of Extraction Recovery for Oxidized and  
Problem Ores  
O.E. Omotoso & **R.J. Mikula** (34 pages)
- Ab 160.**      - 98-35      Solvent Recovery Unit Tailings: Preliminary Report  
**R.J. Mikula**, V.A. Munoz, O.E. Omotoso & K.L. Kasperski (26 pages)
- Ab 161.** - 98-38      Flocculant aided Noncaustic Consolidated Tailings  
O.E. Omotoso & **R.J. Mikula** (15 pages)
- Ab 162.** - 98-41      1995 - 1997 Pond Surveys: Verification of the Methylene Blue method as a Measure of Clay  
Content  
O.E. Omotoso & **R.J. Mikula** (24 pages)
- Ab 163.** - 98-42      Evaluation of the Potential for Reducing Gypsum Dosage Required for Consolidated  
Tailings  
O.E. Omotoso & **R.J. Mikula** (12 pages)
- Ab 164.** - 98-43      Co-Disposal of Coke and CT Mixtures: Phase 1  
**R.J. Mikula** & O.E. Omotoso (25 pages)
- Ab 165.** - 99-15      Tailings Properties and Processability assessment of Core Samples from Lease 13  
**R.J. Mikula** & V.A. Munoz
- Ab 166.** - 99-16      Properties of Caustic and Noncaustic Thickened Tailings: Some Comments  
**R.J. Mikula** & O.E. Omotoso

- Ab 167.** - 99-18 Assessment of Dust Generation During Taciuk Extraction of Treated and Untreated Oil Shale  
K.L. Kasperski, V.A. Munoz, **R.J. Mikula**, & O.E. Omotoso
- Ab 168.** - 99-19 Steepbank Ore Survey  
K.L. Kasperski, V.A. Munoz, & **R.J. Mikula**
- Ab 169.** - 99-21 Flocculation of Shell/BHP Oil Sand Tailings: Pilot Tests  
Y. Xu, **R.J. Mikula**, & H.A. Hamza
- Ab 170.** - 99-23 Alternative Consolidated Tailings Chemicals  
O.E. Omotoso & **R.J. Mikula**
- Ab 171.** - 99-25 Suncor Line 6 High Density Froth Evaluation  
**R.J. Mikula**, V.A. Munoz, & O.E. Omotoso
- Ab 172.** - 99-28 Chemical Control of Soft Tailings Behaviour  
**R.J. Mikula**
- Ab 173.** - 99-29 Foster Creek Emulsions Part 2: Image Analysis  
V.A. Munoz & **R.J. Mikula**
- Ab 174.** - 99-33 Water Chemistry Modeling for Shell Muskeg River Mine Project  
K.L. Kasperski & **R.J. Mikula**
- Ab 175.** - 99-38 Mineral Characterization and Water Chemistry of ODA 300 Feeds  
O.E. Omotoso & **R.J. Mikula**
- Ab 176.** - 99-39 Shell Froth Fundamentals: Viscosity Differences in Froth from Various Sources  
O.E. Omotoso, V.A. Munoz, **R.J. Mikula**, R. Zrobok, & K.L. Kasperski
- Ab 177.** - 99-66 IPS Performance Evaluation  
K.L. Kasperski, **R.J. Mikula**, V.A. Munoz, & O.E. Omotoso
- Ab 178.** - 00-01 Consolidated Tailings with Carbon Dioxide Gas  
O.E. Omotoso, R. Zrobok, & **R.J. Mikula**
- Ab 179.** - 00-05 Evaluation of the Emulsion Forming Propensity of Suncor and Cold Lake Dilbit Blends  
**R.J. Mikula**, V.A. Munoz, K.L. Kasperski, & O.E. Omotoso
- Ab 180.** - 99-30 Characterization of Emulsions and Suspensions in the Petroleum Industry Using Cryo-Sem and CLSM  
**R.J. Mikula** and V.A. Munoz
- Ab 181.** - 00-16 South Tank Farm Emulsions: Interim Report  
**R.J. Mikula** & V.A. Munoz
- Ab 182.** - 00-18 Tall column Tests to Determine the Effects of Sand-to-Fines Ratio and Gypsum Addition on Segregation of Composition Tailings – Muskeg River Mine  
O.E. Omotoso, **R.J. Mikula**, & R. Zrobok

- Ab 183.** - 00-30      TSRU Tailings Deposition Dynamics: Testing at the Devon Facility  
O. Omotoso, **R.J. Mikula**, & Y. Xu
- Ab 184.** - 00-43      Boiler Ash Disposal Options  
K.L. Kasperski & **R.J. Mikula**
- Ab 185.** - 00-45      Fundamental Studies on Bitumen Extraction from MFT by Flotation  
N. Wang & **R.J. Mikula**
- Ab 186.** - 00-46      Utah Oilsands Extraction Preliminary Report  
**R.J. Mikula**, V. Munoz, R. Zrobok, D. Omotoso, & K. L. Kasperski
- Ab 187.** 01-07      Extraction Survey for TrueNorth Oilsand Ores: Scoping Study  
O.E. Omotoso, V.A. Munoz, K.L. Kasperski, & **R.J. Mikula**
- Ab 188.** - 00-31      Mechanisms of Oil- Mineral Interactions in Oiled Shorelines  
O.E. Omotoso, V.A. Munoz, & **R.J. Mikula**
- Ab 189.**      - 00-51      The CANMET Experience with Poorly Processing Ores  
K.L. Kasperski, V.A. Munoz, O.E. Omotoso, & **R.J. Mikula**
- Ab 190.** - 01-22      Coke Leachate Analysis and Plant Effects for Dyke 10 Planning  
K.L. Kasperski and **R.J. Mikula**
- Ab 191.** - 01-27      Steepbank Ore Preparation Plant Hydro-transport Conditioning: Preliminary Report  
**R.J. Mikula**
- Ab 192.** - 01-28      “Muncher” Performance Analysis  
**R.J. Mikula**
- Ab 193.** - 01-33      Processability of Selected Synenco Oilsands.  
**R.J. Mikula**, O.E. Omotoso, V.A. Munoz
- Ab 194.** - 01-52      Characterization of solids and their Role in Heavy Oil Processing Emulsion Stability  
V.A. Munoz, K.L. Kasperski, O.E. Omotoso & **R.J. Mikula**
- Ab 195.** - 01-53      Tall Column Settling Tests TSRU and Thickened Tailings  
O.E. Omotoso and **R.J. Mikula**
- Ab 196.**      - 02-06      Evaluation of CNRL Bitumen Extraction Technology Part 4. Processability of CNRL  
Oil Sands  
**R.J. Mikula**, V.A. Munoz & O.E. Omotoso & K.L. Kasperski
- Ab 197.** - 02-13      Tailings Properties of Selected CNRL Oilsands  
O.E. Omotoso, **R.J. Mikula**, V.A. Munoz & K.L. Kasperski
- Ab 198.** - 01-15      The Canadian Light Source: Activities Initiated at CWRC in 99/00  
**R.J.Mikula**, O.E. Omotoso and C. Fairbridge
- Ab 199.** - 01-18      Clay Mineralogy of Athabasca Oil Sands  
O.E.Omotoso and **R.J.Mikula**

- Ab 200.** - 01-42 Microscopic Study of Process Products from Problem Oil Sand Ores  
V.A. Munoz, K.L. Kasperski, O.E. Omotoso, and **R. J. Mikula**
- Ab 201.** - 02-11 The Use of Microscopic Bitumen Froth Morphology for the Identification of Problem Oil Sand Ores  
V.A. Munoz, K.L. Kasperski, O.E. Omotoso, & **R.J. Mikula**
- Ab 202.** - 02-25 Suncor Pond 1 – Stabilization Chemicals  
O.Omotoso & **R.J.Mikula**
- Ab 203.** - 02-32 Defoamer Impact on Oil Sands Recovery: Data Memo  
**R.J.Mikula**, O.Omotoso, V.A.Munoz & K.L.Kasperski
- Ab 204.** - 02-36 Defoamer Impact on Oil Sands Recovery  
**R.J.Mikula**, O.Omotoso, V.A.Munoz & K.L.Kasperski
- Ab 205.** - 02-38 Determination of Solids Composition in Selected Batttrum Samples  
V.A.Munoz, K.L.Kasperski & **R.J.Mikula**
- Ab 206.** - 02-48 Bench Tests on the Use of Oleophilic Beads to Extract Bitumen  
K.L.Kasperski, V.Munoz & **R.J.Mikula**
- Ab 207.** - 02-50 Setting Behaviour and CT Properties of Gypsum – Ash Mixtures  
O.Omotoso & **R.J.Mikula**
- Ab 208.** - 02-52 Processability of Selected Horizon Project Oil Sands  
O.Omotoso, **R.J.Mikula**, V.A.Munoz, B.Namsechi & K.L.Kasperski
- Ab 209.** - 02-66 Bench Tests on the Use of Oleophilic Beads to Extract Bitumen – Part 2: Test of Recycled Beads  
**R.J.Mikula**, K.L.Kasperski, V.A.Munoz & O.Omotoso
- Ab 210.** - 02-68 Suncor Pond 1 Stabilization and Infilling  
O.Omotoso & **R.J.Mikula**
- Ab 211.** - 03-03 Bench Tests on the Use of Oleophilic Beads to Extract Bitumen – Part 2: Test of Recycled Beads: Illustrations from Experimental Setup  
K.L.Kasperski, L.Lam & **R.J.Mikula**
- Ab 212.** - 02-22 Predicting Oil Sands Tailings Behaviour from Clay Content and Water Chemistry  
**R.J.Mikula** & O.Omotoso
- Ab 213.** - 02-23 Characterization of Bitumen properties using Microscopy and Near Infrared Spectroscopy: Processability of Oxidized or Degraded Ores  
**R.J.Mikula**, V.A.Munoz & N.Wang
- Ab 214.** - 02-34 Microscale Morphology and Micro-Fluorescence of Oil Sands Extraction Froth from Poorly Processing Ores  
V.A.Munoz & **R.J.Mikula**
- Ab 215.** -02-59 Characterization of True North TSRU Tailings.

**R.J. Mikula**, O.E. Omotoso, and V.A. Munoz

- Ab 216.** 02-60. Project Support for Extraction Tailings Flocculation Behaviour  
**R.J. Mikula**, O.E. Omotoso, and V.A. Munoz.
- Ab 217.** 03-03 Bench Test on the use of Oleophilic Beads to Extract Bitumen – Part 2: Test of Recycled Beads.  
**R.J. Mikula**, K.L. Kasperski, O.E. Omotoso, and V.A. Munoz
- Ab 218.** - 02-57 Water Treatment in Oil Sands: Novel Approaches to Calcium Control  
K.L.Kasperski & **R.J.Mikula**
- Ab 219.** Fairbridge C, Du H, Galuszka J, Lee WS, Lo J, Malis T, Mikula RJ, Scepanovic B, and Wronski S. 2003. *Nanotechnology and New Energy Technologies*. Natural Resources Canada, CanmetENERGY-Devon 03-07 (OP).
- Ab 220.** Mikula RJ and Omotoso OE. 2003. *The Potential for Carbon Dioxide Sequestration in Oil Sands Processing Streams*. Natural Resources Canada, CanmetENERGY-Devon 03-12 (OP, J).
- Ab 221.** Munoz VA and Mikula RJ. 2003. *Effect of Pumping in Husky Emulsion*. Natural Resources Canada, CanmetENERGY-Devon 03-17 (CF).
- Ab 222.** Mikula RJ, Long Y, Kasperski KL, and Munoz VA. 2003. *Naphtha Removal Potential of Oleophilic Beads*. Natural Resources Canada, CanmetENERGY-Devon 03-21 (CF).
- Ab 223.** Mikula RJ. 2003. *Carbon Dioxide NST: Water Chemistry–Preliminary report*. Natural Resources Canada, CanmetENERGY-Devon 03-33 (CF).
- Ab 224.** Omotoso OE and Mikula RJ. 2003. *Gypsum Scale Formation in FGDS Chiyold-Yates Process Plant*. Natural Resources Canada, CanmetENERGY-Devon 03-34 (CF).
- Ab 225.** Munoz VA and Mikula RJ. 2005. *Microscopic Examination of Carbonaceous Solids from the Hub Oil Refinery*. Natural Resources Canada, CanmetENERGY-Devon 03-36 (CF).
- Ab 226.** Omotoso OE, Mikula RJ, and Munoz VA. 2003. *Processability of Selected Horizon Project Oil Sands–Part 2*. Natural Resources Canada, CanmetENERGY-Devon 03-37 (CF).
- Ab 227.** Mikula RJ, Omotoso OE, and Munoz VA. 2003. *Characterization of Selected Poorly Processing Ores: Preliminary Data*. Natural Resources Canada, CanmetENERGY-Devon 03-50 (CF).
- Ab 228.** Omotoso OE, Munoz VA, and Mikula RJ. 2004. *Investigation of Anomalous Recovery in High D-50 Ores*. Natural Resources Canada, CanmetENERGY-Devon 04-03 (CF).
- Ab 229.** Mikula RJ. 2004. *Suncor Tailings Seminar*. Natural Resources Canada, CanmetENERGY-Devon 04-07 (CF).
- Ab 230.** Mikula RJ and Munoz VA. 2004. *Microscopic Analysis of Chishom Fire Samples*. Natural Resources Canada, CanmetENERGY-Devon 04-11 (CF).



- Ab 231.** Mikula RJ and Kasperski KL. 2004. *The Futuer of Water Quality and the Regulatory Environment in Oil Sands and Coalbed Methane Development*. Natural Resources Canada, CanmetENERGY-Devon 04-17 (OP).
- Ab 232.** Omotoso OE and Mikula RJ. 2004. *Preliminary Processability Evaluation of 17 Horizon Lease Ore Repeat Samples*. Natural Resources Canada, CanmetENERGY-Devon 04-20 (CF).
- Ab 233.** Mikula RJ and Kasperski KL. 2004. *Carbon Dioxide Treated NRU Tailings: Preliminary Investigations*. Natural Resources Canada, CanmetENERGY-Devon 04-31 (CF).
- Ab 234.** Mikula RJ, Omotoso OE, and Friesen W. 2004. *Grade-Recovery for Selected CNRL Horizon Project ORes: The CANMET Extraction Procedure*. Natural Resources Canada, CanmetENERGY-Devon 04-36 (CF, INT).
- Ab 235.** Omotoso OE and Mikula RJ. 2004. *Literature Survey of Suncor Coke Properties*. Natural Resources Canada, CanmetENERGY-Devon 04-39 (CF).
- Ab 236.** Mikula RJ. 2004. *Recycle Water Pond Area Modeling for the CNRL Horizon Project*. Natural Resources Canada, CanmetENERGY-Devon 04-45 (CF).
- Ab 237.** Omotoso OE, Mikula RJ, and Munoz VA. 2004. *Processability of Selected CNRL Oil Sands–Part 2*. Natural Resources Canada, CanmetENERGY-Devon 04-47 (CF, INT).
- Ab 238.** Lu Y, Mikula RJ, and Dabros T. 2004. *Flue Gas Desulphurization Sparger Tube Performance: Empirical and Computational Fluid Dynamics Characterization*. Natural Resources Canada, CanmetENERGY-Devon 04-50 (CF).
- Ab 239.** Omotoso OE, Mikula RJ, and Munoz VA. 2004. *Compositional Evaluation of Husky Mineral Solids*. Natural Resources Canada, CanmetENERGY-Devon 04-55 (CF).
- Ab 240.** Mikula RJ, Omotoso OE, and Friesen W. 2004. *Data Memo: Grade and Recovery Relationship for Selected CNRL Horizon Project Ores: The CANMET Extraction Procedure*. Natural Resources Canada, CanmetENERGY-Devon 04-58 (DM).
- Ab 241.** Mikula RJ, Omotoso OE, and Friesen W. 2004. *Data Memo: Grade and Recovery Relationship for Selected CNRL Horizon Project Ores: The CANMET Extraction Procedure*. Natural Resources Canada, CanmetENERGY-Devon 04-59 (DM).
- Ab 242.** Munoz VA, Mikula RJ, Kasperski KL, and Omotoso OE. 2004. *Froth Treatment Mapping at Suncor: Metal Erosion*. Natural Resources Canada, CanmetENERGY-Devon 04-62 (CF).
- Ab 243.** Munoz VA, Mikula RJ, and Omotoso OE. 2004. *Froth Treatment Mapping at Suncor: Water Excursion*. Natural Resources Canada, CanmetENERGY-Devon 04-63 (CF).
- Ab 244.** Omotoso OE and Mikula RJ. 2005. *Syncrude 2004 Aurora Thickener Paste Pilot: Mineralogical Evaluation of Feed and Overflow Solids*. Natural Resources Canada, CanmetENERGY-Devon 05-01 (CF).

- Ab 245.** Mikula RJ. 2005. *Carbon Dioxide NST Field Trial: Water Chemistry*. Natural Resources Canada, CanmetENERGY-Devon 05-03 (CF).
- Ab 246.** Omotoso OE and Mikula RJ. 2005. *Suncor "MFT Drying" Pilot Test Support*. Natural Resources Canada, CanmetENERGY-Devon 05-08 (CF, DM).
- Ab 247.** Mikula RJ and Munoz VA. 2005. *Bench Scale Evaluation of an Emulsion Cleaner Type Chemical for Oil Sands Extraction*. Natural Resources Canada, CanmetENERGY-Devon 05-10 (INT, CF).
- Ab 248.** Lu Y, Mikula RJ, and Dabros T. 2005. *Numerical and Experimental Characterization of Sparger Tube Hydraulic Performance for Flue Gas Desulfurization*. Natural Resources Canada, CanmetENERGY-Devon 05-12 (J).
- Ab 249.** Mikula RJ. 2005. *Plant 87 and Plant 4 Dilbit Comparison (CETC-Devon 05-19 Follow-up)*. Natural Resources Canada, CanmetENERGY-Devon 05-18 (CF/DM).
- Ab 250.** Mikula RJ. 2005. *Comments on Erosion Samples Study October 2004*. Natural Resources Canada, CanmetENERGY-Devon 05-19 (CF/DM).
- Ab 251.** Munoz VA and Mikula RJ. 2005. *Microscopic Examination of Solids from P87 Water Excursion at Suncor*. Natural Resources Canada, CanmetENERGY-Devon 05-20 (CF/DM).
- Ab 252.** Mikula RJ and Omotoso OE. 2005. *Preliminary Report on Processability of Selected Synenco Oilsands: 2003/04 Drilling Program Samples*. Natural Resources Canada, CanmetENERGY-Devon 05-22 (CF/DM).
- Ab 253.** Mikula RJ. 2005. *Plant 87 Diluent Composition*. Natural Resources Canada, CanmetENERGY-Devon 05-24 (CF/DM).
- Ab 254.** Lu Y, Mikula RJ, Dabros T, and Hamza HA. 2005. *Modeling Viscoplastic Behaviour over an Extended Range of Strain Rates Using Constitutive Relations Without a Yield Term*. Natural Resources Canada, CanmetENERGY-Devon 05-28 (J).
- Ab 255.** Omotoso OE and Mikula RJ. 2005. *2004 Horizon Oil Sand Ores Extraction Program: Locked Cycle and Tailings Aging*. Natural Resources Canada, CanmetENERGY-Devon 05-29 (CF).
- Ab 256.** Mikula RJ. 2005. *Pond Area Considerations for the CNRL Horizon: 2004 Sampling Program*. Natural Resources Canada, CanmetENERGY-Devon 05-32 (CF).
- Ab 257.** Mikula RJ and Omotoso OE. 2005. *Processability of Selected Synenco Oil Sands: 2003/04 Drilling Program Samples*. Natural Resources Canada, CanmetENERGY-Devon 05-44 (CF).
- Ab 258.** Kasperski KL, Dentman G, and Mikula RJ. 2005. *CNRL Water Chemistry Model Version 3*. Natural Resources Canada, CanmetENERGY-Devon 05-49 (CF).

- Ab 259.** Mikula RJ and Kasperski KL. 2005. *Suncor Pond 7 Design - Expected Behaviour and Water Chemistry: Preliminary Comments*. Natural Resources Canada, CanmetENERGY-Devon 05-50 (CF).
- Ab 260.** Munoz VA and Mikula RJ. 2005. *Microscopic Assessment of Degraded Bitumen in Petro-Canada Fort Hill Oilsand Ores*. Natural Resources Canada, CanmetENERGY-Devon 05-54 (CF/DM).
- Ab 261.** Yang H, Du H, Chen J, Fairbridge C, Ring Z, and Mikula RJ. 2006. *Effect of Pt Content on the Crystal Morphology and Metal Dispersion of Pt/Na(K)A-Zeolite*. Natural Resources Canada, CanmetENERGY-Devon 05-57 (OP).
- Ab 262.** Omotoso OE, Mikula RJ, and Munoz VA. 2004. *Data Memo: Processability of Selected CNRL Oil Sands*. Natural Resources Canada, CanmetENERGY-Devon 05-57 (DM).
- Ab 263.** Mikula RJ and Omotoso OE. 2005. *The Role of Clays in Controlling Tailings Behaviour in Oil Sands Processing*. Natural Resources Canada, CanmetENERGY-Devon 05-57 (J).
- Ab 264.** Mikula RJ. 2005. *Evaluation of the Cavitech Tool for Oil Sand Tailing Treatment*. Natural Resources Canada, CanmetENERGY-Devon 05-62 (CF).
- Ab 265.** Mikula RJ and Kasperski KL. 2005. *Suncor Pond 7 Design - Expected Behaviour and Water Chemistry*. Natural Resources Canada, CanmetENERGY-Devon 05-63 (CF).
- Ab 266.** Fairbridge C, Mikula RJ, Kelly JF, Charland J-P, Stanciulescu M, Mishra H, and Burich R. 2006. *Advanced Catalytic Materials for NO<sub>x</sub> Reduction from Diesel Engine Exhaust*. Natural Resources Canada, CanmetENERGY-Devon 05-65 (OP).
- Ab 267.** Mikula RJ, Omotoso OE, Coleman PW, and Adams RB. 2005. *Development of a Conventional Water Based Extraction Process for the Utah Asphalt Ridge Tar Sands*. Natural Resources Canada, CanmetENERGY-Devon 05-74 (OP).
- Ab 268.** Mikula RJ and Omotoso OE. 2005. *Chemical Treatment of Total Tailings for Enhanced Settling Rate: A Scoping Study*. Natural Resources Canada, CanmetENERGY-Devon 05-96 (CF).
- Ab 269.** Omotoso OE, Mikula RJ, and Munoz VA. 2006. *Processability of Selected Synenco Oil Sands: 2005 Drilling Program*. Natural Resources Canada, CanmetENERGY-Devon 06-09 (CF).
- Ab 270.** Mikula RJ, Munoz VA, and Omotoso OE. 2006. *Laboratory and Pilot Experience in the Development of a Conventional Water Based Extraction Process for the Utah Asphalt Ridge Tar Sands*. Natural Resources Canada, CanmetENERGY-Devon 06-20 (OP, P).
- Ab 271.** Dabros T, Wu J, Michaelian KH, Munoz VA, and Mikula RJ. 2006. *Analysis of Particles in Shell Crude Oil*. Natural Resources Canada, CanmetENERGY-Devon 06-22 (CF).

- Ab 272.** Omotoso OE, Mikula RJ, and Munoz VA. 2006. *Flocculant Performance Evaluation for CNRL Tailings with Sand to fines Ratio of 1*. Natural Resources Canada, CanmetENERGY-Devon 06-23 (CF).
- Ab 273.** Munoz VA, Mikula RJ, and Omotoso OE. 2006. *Characterization of Gypsum Tailings from Phosphate Production*. Natural Resources Canada, CanmetENERGY-Devon 06-26 (CF).
- Ab 274.** Munoz VA and Mikula RJ. 2006. *Processability of Mittal Steel Tailings*. Natural Resources Canada, CanmetENERGY-Devon 06-28 (CF).
- Ab 275.** Omotoso OE and Mikula RJ. 2006. *Static Segregation Boundary of Carbon Dioxide - Non Segregating Tailings*. Natural Resources Canada, CanmetENERGY-Devon 06-41 (CF).
- Ab 276.** Mikula RJ. 2006. *Novel Tailings Treatment Options for the CNRL Horizon Project: Increasing Pond Availability*. Natural Resources Canada, CanmetENERGY-Devon 06-43 (CF).
- Ab 277.** Omotoso OE and Mikula RJ. 2006. *Suncor "MFT Drying" Pilot Test: Rheology of Amended MFT*. Natural Resources Canada, CanmetENERGY-Devon 06-45 (CF).
- Ab 278.** Mikula RJ, Munoz VA, and Omotoso OE. 2006. *Correlation of Natural Surfactant Partitioning and Bitumen Recovery in Oil Sands Extraction Processes*. Natural Resources Canada, CanmetENERGY-Devon 06-48 (OP, P).
- Ab 279.** Mikula RJ. 2006. *Muskeg River Mine Expansion Project - Natural Resources Canada's Presentation to the Joint Review Panel*. Natural Resources Canada, CanmetENERGY-Devon 06-53 (OP).
- Ab 280.** Mikula RJ, Munoz VA, and Omotoso OE. 2006. *Chloride Distribution and the Processability of Selected Suncor Oil Sands Ores*. Natural Resources Canada, CanmetENERGY-Devon 06-80 (CF).
- Ab 281.** Sawaryn M, Omotoso OE, and Mikula RJ. 2006. *Suncor "Flume Test Deposition" Pilot Test*. Natural Resources Canada, CanmetENERGY-Devon 06-81 (CF).
- Ab 282.** Omotoso OE, Munoz VA, and Mikula RJ. 2006. *Investigation of Samples from TIC's BSP Concentrator Pilot Plant*. Natural Resources Canada, CanmetENERGY-Devon 06-82 (CF).
- Ab 283.** Yang H, Chen H, Du H, Hawkins RW, Fairbridge C, Ring Z, and Mikula RJ. 2007. *Incorporating Platinum Precursors into a NaA-Zeolite Synthesis Mixture Promoting the Formation of Nanosized Zeolite*. Natural Resources Canada, CanmetENERGY-Devon 07-03 (J).
- Ab 284.** Mikula RJ and Omotoso OE. 2007. *Centrifuge Tailings: Proof of Concept*. Natural Resources Canada, CanmetENERGY-Devon 07-05 (CF).
- Ab 285.** Mikula RJ and Omotoso OE. 2007. *Settling and Depositional Behaviour of Imperial TSRU Tailings*. Natural Resources Canada, CanmetENERGY-Devon 07-06 (CF/DM).

- Ab 286.** Omotoso OE, Mikula RJ, and Munoz VA. 2007. *Development of a Bench-Scale Protocol to Emulate the Bitumen Process for Oil Sands Processability Studies*. Natural Resources Canada, CanmetENERGY-Devon 07-07 (CF).
- Ab 287.** Mikula RJ, Munoz VA, and Omotoso OE. 2007. *Preliminary Evaluation of Extractability for a Syrian Tar Sands*. Natural Resources Canada, CanmetENERGY-Devon 07-09 (CF/DM).
- Ab 288.** Mikula RJ and Omotoso OE. 2007. *Flume Testing of Imperial TSRU Tailings*. Natural Resources Canada, CanmetENERGY-Devon 07-10 (CF/DM).
- Ab 289.** Munoz VA and Mikula RJ. 2007. *Evaluation of the Degree of Degradation for Selected Petro-Canada Lease Samples*. Natural Resources Canada, CanmetENERGY-Devon 07-23 (CF).
- Ab 290.** Omotoso OE and Mikula RJ. 2007. *Wick Drain-Assisted MFT and CT Settlement*. Natural Resources Canada, CanmetENERGY-Devon 07-48 (CF/DM).
- Ab 291.** Omotoso OE, Morin M, and Mikula RJ. 2007. *Evaluation of the Methylene Blue Adsorption Method for Oil Sands Process Solids*. Natural Resources Canada, CanmetENERGY-Devon 07-68 (CF).
- Ab 292.** Mikula RJ, Munoz VA, and Omotoso OE. 2008. *Centrifuge options for production of "Dry stackable tailings" in surface mined oil sands tailings management*. Natural Resources Canada, CanmetENERGY-Devon 08-05 (OP, P, J).
- Ab 293.** Mikula RJ, Munoz VA, and Omotoso OE. 2008. *Water Use in Bitumen Production: Tailings Management in Surface Mined Oil Sands*. Natural Resources Canada, CanmetENERGY-Devon 08-06 (OP, P).
- Ab 294.** Mikula RJ. 2008. *Preliminary evaluation of Bitumen Recovery from Bemolanga Tar Sands (Madagascar)*. Natural Resources Canada, CanmetENERGY-Devon 08-11 (INT, DM).
- Ab 295.** Omotoso OE, Mikula RJ, and Wells SP. 2008. *Stabilization of MFT with Cementing Admixtures*. Natural Resources Canada, CanmetENERGY-Devon 08-13 (CF).
- Ab 296.** Omotoso OE, Mikula RJ, and Wells SP. 2008. *Evaluation of the Dynamic Segregation Behaviour of CT*. Natural Resources Canada, CanmetENERGY-Devon 08-14 (CF).
- Ab 297.** Mikula RJ, Demoz A, Omotoso OE, and Wells SP. 2008. *MFT Transfer Siphon Inlet Design Considerations: Preliminary Report*. Natural Resources Canada, CanmetENERGY-Devon 08-15 (CF).
- Ab 298.** Mikula RJ, Munoz VA, and Omotoso OE. 2008. *Bitumen Mapping: Surfactant Distribution in the Extraction Process and Implications for Froth Recycle*. Natural Resources Canada, CanmetENERGY-Devon 08-16 (CF).
- Ab 299.** Yang H, Chen H, Liu H, Fairbridge C, Ring Z, Mikula RJ, and Malac M. 2008. *Characterization and Hydrogenation Activity of Nanosized Pt/KA-Zeolite*. Natural Resources Canada, CanmetENERGY-Devon 08-18 (OP, J).

- Ab 300.** Omotoso OE, Mikula RJ, and Munoz VA. 2008. *Tailings and Extraction Research Support for the Northern Lights Project*. Natural Resources Canada, CanmetENERGY-Devon 08-19 (CF).
- Ab 301.** Omotoso OE, Mikula RJ, Demoz A, and Munoz VA. 2008. *Flocculation Testing of Simulated Thin Fine Tailings and Thickened Tailings*. Natural Resources Canada, CanmetENERGY-Devon 08-26 (CF).
- Ab 302.** Mikula RJ. 2008. *Trading Water for Oil: Tailings Management in Surface-Mined Oil Sands*. Natural Resources Canada, CanmetENERGY-Devon 08-27 (OP).
- Ab 303.** Demoz A, Mikula RJ, and Omotoso OE. 2008. *MFT Transfer Siphon Inlet Design Considerations*. Natural Resources Canada, CanmetENERGY-Devon 08-38 (CF).
- Ab 304.** Mikula RJ and Munoz VA. 2008. *Bitumen Recovery from MFT: Evaluation of the RJ Oilsands Process*. Natural Resources Canada, CanmetENERGY-Devon 08-45 (CF).
- Ab 305.** Demoz A, Omotoso OE, Munoz VA, and Mikula RJ. 2008. *Processability of Imperial Oil Kearl Lake Oil Sands*. Natural Resources Canada, CanmetENERGY-Devon 08-57 (CF).
- Ab 306.** Mikula RJ, Omotoso OE, and Kasperski KL. 2008. *The Chemistry of Oil Sand Tailings: Production to Treatment*. Natural Resources Canada, CanmetENERGY-Devon 08-65 (OP, J).
- Ab 307.** Kasperski KL, Allen EW, Munoz VA, and Mikula RJ. 2008. *Chemistry of Encana Boiler Feed and Boiler Blowdown Water*. Natural Resources Canada, CanmetENERGY-Devon 08-70 (INT).
- Ab 308.** Omotoso OE, Munoz VA, and Mikula RJ. 2008. *A Flotation Method to Recover Bitumen from Mature Fine Tailings*. Natural Resources Canada, CanmetENERGY-Devon 08-72 (INT).
- Ab 309.** Mikula RJ. 2008. *Surface Mined Oil Sands: Water and Tailings Background*. Natural Resources Canada, CanmetENERGY-Devon 08-73 (OP).
- Ab 310.** Omotoso OE, Mikula RJ, Munoz VA, and Eberl D. 2009. *Sample Preparation and Data Collection Strategies for X-Ray Diffraction Quantitative Phase Analysis of Clay Bearing Rocks*. Natural Resources Canada, CanmetENERGY-Devon 09-04 (OP).
- Ab 311.** Mikula RJ, Omotoso OE, Elias J, and Dang-Vu T. 2009. *Centrifuged Tailings: Preliminary Results from the Syncrude Field Test*. Natural Resources Canada, CanmetENERGY-Devon 09-09 (OP).
- Ab 312.** Mikula RJ, Kasperski KL, and Allen EW. 2009. *Oil Sands Water and Tailings Issues*. Natural Resources Canada, CanmetENERGY-Devon 09-13 (CF).
- Ab 313.** Mikula RJ and Demoz A. 2009. *Processability and Chloride Partitioning for Selected Suncor Oil Sands*. Natural Resources Canada, CanmetENERGY-Devon 09-15 (CF).

- Ab 314.** Mikula RJ, Munoz VA, and Omotoso OE. 2009. *Laboratory and pilot experience in the development of a conventional water-based extraction process for the Utah Asphalt Ridge tar sands*. Natural Resources Canada, CanmetENERGY-Devon 09-17 (OP, J).
- Ab 315.** Omotoso OE and Mikula RJ. 2009. *High surface area caused by smectitic interstratification of kaolinite and illite in Athabasca oil sands*. Natural Resources Canada, CanmetENERGY-Devon 09-19 (J).
- Ab 316.** Omotoso OE, Mikula RJ, and Stephens PW. 2009. *Surface area of interstratified phyllosilicates in Athabasca Oil sands from synchrotron XRD*. Natural Resources Canada, CanmetENERGY-Devon 09-20 (J).
- Ab 317.** Omotoso OE, Munoz VA, and Mikula RJ. 2009. *Mechanisms of crude oil-mineral interactions*. Natural Resources Canada, CanmetENERGY-Devon 09-21 (OP).
- Ab 318.** Omotoso OE and Mikula RJ. 2009. *Potential for Chemical Sequestration of Carbon Dioxide in Oil Sands Processing Streams*. Natural Resources Canada, CanmetENERGY-Devon 09-22 (OP, J).
- Ab 319.** Mikula RJ and Omotoso OE. 2009. *Small Scale Simulation of Pipeline or Stirred Tank Conditioning of Oil Sands: Oxidized/Degraded/Poorly Processing Ores and the Potential for On-Line Monitoring*. Natural Resources Canada, CanmetENERGY-Devon 09-25 (OP).
- Ab 320.** Mikula RJ, Dang-Vu T, Omotoso OE, and Lahaie R. 2009. *Dry stackable tailings as a tailings management option: Preliminary laboratory and field experience using centrifuges*. Natural Resources Canada, CanmetENERGY-Devon 09-28 (OP, P).
- Ab 321.** Mikula RJ, Munoz VA, and Omotoso OE. 2009. *Centrifugation options for production of dry stackable tailings in surface-mined oil sands tailings management*. Natural Resources Canada, CanmetENERGY-Devon 09-54 (OP, J).
- Ab 322.** Mikula RJ and Dang-Vu T. 2009. *Centrifugation of mature fine tailings: Syncrude field trial 2008*. Natural Resources Canada, CanmetENERGY-Devon 09-58 (CF).
- Ab 323.** Demoz A, Mikula RJ, and Dang-Vu T. 2009. *Rim Ditch Dewatering Pilot Test*. Natural Resources Canada, CanmetENERGY-Devon 09-80 (CF).
- Ab 324.** Demoz A and Mikula RJ. 2009. *Some Shear Rheology of Pond 8A and STP Mature Fine Tails*. Natural Resources Canada, CanmetENERGY-Devon 09-83 (CF/DM).
- Ab 325.** Mikula RJ and Demoz A. 2009. *Frontier Project Lease 311 Tailings*. Natural Resources Canada, CanmetENERGY-Devon 09-84 (CF).
- Ab 326.** Elliott G, Munoz VA, and Mikula RJ. 2009. *Microscopical techniques in oil sand extractions and tailings*. Natural Resources Canada, CanmetENERGY-Devon 09-95 (ABS).
- Ab 327.** Demoz A and Mikula RJ. 2010. *Role of Mixing Energy in the Flocculation of Mature Fine Tailings*. Natural Resources Canada, CanmetENERGY-Devon 10-33 (J).

- Ab 328.** Wang N and Mikula RJ. 2010. *Small Scale Simulation of Pipeline or Stirred Tank Conditioning of Oil Sands: The Relative Importance of Temperature and Mechanical Energy*. Natural Resources Canada, CanmetENERGY-Devon 10-44 (J).
- Ab 329.** Munoz V, Afara M, and Mikula RJ. 2011. *Microscopy of Heat Exchanger Fouling*. Natural Resources Canada, CanmetENERGY-Devon 2010-081 (CF).
- Ab 330.** Mikula RJ, Dickson K, and Elias J. 2011. *Dewatering treatment options for Titamium Corporation naphtha froth treatment tailings*. Natural Resources Canada, CanmetENERGY-Devon 2010-092 (CF).
- Ab 331.** Demoz A, Munoz V, and Mikula RJ. 2011. *Thin Lift Dewatering of Oil Sands Tailings and Optimizing Fluid Fine Tailings Dewatering by Controlling Polymer Mixing*. Natural Resources Canada, CanmetENERGY-Devon 2011-027 (INT).
- Ab 332.** Demko BA, Mikula RJ, and Spence JR. 2012. *Syncrude 2010 Mature Fine Tailings Centrifuge Pilot Tests*. Natural Resources Canada, CanmetENERGY-Devon 2011-034 (INT/CF).
- Ab 333.** Elliott GRD, Munoz V, and Mikula RJ. 2012. *Morphological Analysis of Particles in Diluted Bitumen: Part A and Part B*. Natural Resources Canada, CanmetENERGY-Devon 2011-037 (INT).
- Ab 334.** Demoz A, Mikula RJ, and Omotoso O. 2011. *A thermometric indicator method as a replacement for the filter paper spot test in the titration of clays by methylene blue*. Natural Resources Canada, CanmetENERGY-Devon 2011-059 (J).
- Ab 335.** Demoz A, Munoz V, and Mikula RJ. 2011. *Optimizing MFT Dewatering by Controlling Polymer Mixing*. Natural Resources Canada, CanmetENERGY-Devon 2011-060 (OP, P, ABS).
- Ab 336.** Demoz A and Mikula RJ. 2011. *Laboratory and Field Experience with Rim Ditch Dewatering of MFT*. Natural Resources Canada, CanmetENERGY-Devon 2011-061 (OP, P, ABS).
- Ab 337.** Elliott GRD, Munoz V, Fairbridge C, Charland J-P, and Mikula RJ. 2012. *Platinum tunneling morphology in a zeolite catalyst*. Natural Resources Canada, CanmetENERGY-Devon 2011-062 (J).
- Ab 338.** Munoz V, Elliott GRD, Demoz A, and Mikula RJ. 2012. *Flocculation behavior of mature fine tailings: decreasing water use in oil sands extraction*. Natural Resources Canada, CanmetENERGY-Devon 2011-063 (J).
- Ab 339.** Elliott GRD, Munoz V, and Mikula RJ. 2012. *Bitumen recovery from oil sands mature fine tailings*. Natural Resources Canada, CanmetENERGY-Devon 2011-064 (J).
- Ab 340.** Elliott GRD, Munoz V, Elias J, and Mikula RJ. 2012. *Understanding the soil microfabric of drying mature fine tails*. Natural Resources Canada, CanmetENERGY-Devon 2011-065 (ABS).
- Ab 341.** Munoz V, Elliott GRD, Afara M, and Mikula RJ. 2012. *Microscopy of heat exchanger fouling during SAGD operations*. Natural Resources Canada, CanmetENERGY-Devon 2011-066 (ABS).



- Ab 342.** Mikula RJ, Munoz V, and Elliott GRD. 2012. *Bitumen recovery from surface mined oil sands recycle water ponds*. Natural Resources Canada, CanmetENERGY-Devon 2011-067 (OP, P).
- Ab 343.** Elliott GRD, Munoz V, and Mikula RJ. 2012. *Microscopy of high chloride primary froth: non-mixing emulsified water*. Natural Resources Canada, CanmetENERGY-Devon 2011-068 (J).
- Ab 344.** Elliott GRD, Afara M, Namsechi M, and Mikula RJ. 2011. *Pond BC wastewater treatment project: batch extraction tests with dissolved air flotations and water treatment chemicals*. Natural Resources Canada, CanmetENERGY-Devon 2011-069 (CF).
- Ab 345.** Munoz V and Mikula RJ. 2012. *Microscopic Examination of Carbonaceous Solids from the HUB Oil Refinery Explosion*. Natural Resources Canada, CanmetENERGY-Devon 2011-070 (J).
- Ab 346.** Munoz VA, Elliott GRD, Demoz A, and Mikula RJ. 2012. *Flocculation Behaviour of Mature Fine Tailings: Reducing Water Use in Oil Sands Extraction*. Natural Resources Canada, CanmetENERGY-Devon 2011-074 (J).
- Ab 347.** Demoz A and Mikula RJ. 2012. *Decanter Centrifuge Dewatering of Verve ANP4MLB-2 Flocculated MFT*. Natural Resources Canada, CanmetENERGY-Devon 2011-082 (CF).
- Ab 348.** Demoz A and Mikula RJ. 2012. *Dewatering A3338-Flocculated MFT by Solid Bowl Decanter Centrifuge*. Natural Resources Canada, CanmetENERGY-Devon 2011-084 (CF).
- Ab 349.** Mikula RJ, Dickson K, and Elias J. 2012. *Dewatering Treatment Options for Titanium Corporation Pariffinic Froth Treatment Tailings*. Natural Resources Canada, CanmetENERGY-Devon 2011-089 (CF).
- Ab 350.** Demko BA, Afara M, and Mikula RJ. 2012. *Characterization of Mature Fine Tailings for the 2010 Syncrude Field Pilot Tests*. Natural Resources Canada, CanmetENERGY-Devon 2011-093 (CF).
- Ab 351.** Demoz A and Mikula RJ. 2012. *Parameter for Inline Mixing of Mature Fine Tailings to Produce Peak Dewatering Flocculation*. Natural Resources Canada, CanmetENERGY-Devon 2012-008 (OP, P).