



### Summary of Qualifications

## **MIKE ROGERS**

### **Water Treatment Consultant**

Mike has over 42 years experience in all aspects of industrial water management. He spent the last 23 years in the Oilsands Industry at Syncrude Canada.

**During this time Mike has been a member of Syncrude's Tailings Management Steering Committee and the Energy Management Committee**

**He was responsible for the chemistry interpretation during the field trial and actual operations of the Syncrude Consolidated Tails programs**

He also has complementary experience in refinery process-side corrosion, fouling control, and extensive utilities experience especially as it relates to high pressure boiler tube failure prevention. Mike has gained a thorough knowledge of water management for both SAGD and open pit oil sands operations. He is considered an expert in his field in water balance and ionic predictive modeling (Matlab and Simulink), boiler feedwater treatment, cooling water treatment, wastewater treatment, potable water treatment, water treatment for recycle and reuse, issues with water management and tailings for the oilsands industry, boiler tube failure prevention, water-side and process-side corrosion control programs, and engineering and operator training in all the above areas. Mike has served as the past chairman of the Industrial Water Treatment Group at NACE, International and past chairman of the Water Treatment Group at the Canadian Oilsands Network for Research and Development. He currently serves as the Chair, NACE Water Conservation and Reuse Group. He has published extensively with Syncrude Research, NACE, International, International Water Conference (IWC), and Electrical Power Research Institute (EPRI).

Mike is in the unique position of having the longest direct experience in all the issues associated with water usage in the open-pit oil sands industry in particular and the SAGD industry in general. Mike is currently a specialist consultant in these areas to many major oil and engineering companies. His 41 years of water treatment experience includes 20 years at Syncrude Canada and the last four years consulting for ALL of the remaining companies involved in oil sands development. He is the recognized expert in the industry.

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## Mike Rogers Resume – ATSI

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### Related Project Experience

During his years at Syncrude Canada, Mike has lead upgrades and new installations for:

- Potable water treatment
- Sewage treatment
- Cooling water
- Treatment of stripped sour water
- Treatment of tailings pond water for discharge
- Treatment of tailings pond water for reuse

As a specialist consultant, Mike has consulted on water treatment issues covering water intakes, boiler feedwater preparation, potable water preparation, condensate treatment, wastewater treatment and ZLD treatment using evaporators and crystallizers for:

- Aker Kvaerner – Norsk Hydro SAGD Project
- Alberta Research Council – Water Management Strategy
- Athabasca Oilsand Corp – SAGD Project
- Cumulative Environmental Management Association (CEMA) Surface Oilsand Water Management Summary Report, 2006
- Fluor Canada – Total Athabasca Upgrader Project
- Morrison Hershfield – Strathcona County – Alberta Heartland Process Water Feasibility Study
- Nexen Inc – Long Lake SAGD Project
- Opti Inc – Long Lake Upgrader
- Suncor Energy – Base Plant (Upgrader and Tailings)
- Suncor Energy – Voyageur - Upgrader
- Albion Sands – Muskeg River – Extraction
- Shell – Jackpine – Mining and Extraction
- Shell – BlackRock – SAGD Project
- Synenco Energy Inc – Mining, Extraction and Upgrader
- Total E&P – Joslyn Creek – SAGD Project
- CNRL – Horizon – Mining, Extraction and Upgrader
- Petro Canada – McKay River – SAGD Project
- Devon Canada – Jackfish – SAGD Project

### Education & Training:

- B.Sc. Chemistry, Howard University, 1966

### Professional Affiliation:

- NACE, International

### Availability and Commitment:

Mike's current assignments are on an as needed basis. This gives him the flexibility to make himself available on demand.

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### Publications:

- Rogers, Michael E and Suarez, Joe. “Concern for Indoor Air Quality Creates New Market for Consultants”. Canadian Consulting Engineer, April 1982.
- Rogers, Michael E AND Gervais, Leo. “Alleviating Corrosion Due To Copper Generating During H<sub>2</sub>S Leaks Into The Process Cooling Tower Water”, Syncrude Research Seminar, October 1985.
- Rogers, Michael E. “Retrofitting the Water Chemistry Programs at Syncrude Canada LTD”. Paper #85-50 46<sup>th</sup> Annual Meeting, International Water Conference, Pittsburgh, November 1985.
- Rogers, Michael E and Ferguson, Dave. “Water Management Challenges at the World’s Largest Integrated Oil Sands Mining and Refining Complex”. Corrosion ‘96’, NACE, International, Houston, Texas.
- Removal of naphthenic Acids from Syncrude Consolidated Tailings Using Acidification and Sand Filtration Followed by Activated Carbon Treatment – December 1996.
- Water Management Study – Conservation, Reuse and Discharge Options- February 1997.
- Biological Processes for Toxicity Removal in Consolidated tailings Water – January 1999.
- Ion Exchange Treatment of Stripped Sour Water – Bench & Pilot Scale Evaluation – January 1999.
- Reuse of Process Affected Waters – Recommended Development Strategy. November 2000.
- Bench EDR Testing – Concentration of Recycle Water for Syncrude Canada LTD Mildred Lake project – March 2001.
- Zeeweed Ultrafiltration Performance Evaluation at Syncrude Canada LTD – November 2001.
- Cooling Water System Simulator – Hot Surface Simulator and Cooling Tower Skids Operation Manual – September 2001.
- EDR Pilot Study of Concentration of Recycle Water for Syncrude Canada LTD Mildred Lake Project – October 2001.
- Bench Evaporator Testing – Concentration of Recycle Water for Syncrude Canada LTD Mildred Lake Project – March 2001.
- Bench-Scale Crystallizer Testing – Concentration and Crystallization of EDR and Evaporator Pre-Concentrated Recycle Water for Syncrude Canada Mildred Lake Project – October 2001.
- Attached Growth Biological Nitrification/Denitrification – Mini Pilot Plant Trail – December 2001.
- CT Release Water Reuse Cooling Water Factfinder Test Program Final Report – March 1998.
- Water Management Practices – June 2000.
- Pilot Evaluation Test of EDR Pre-Concentrated Recycle Water for Syncrude Canada LTD Mildred Lake Project – September 2001.

- Rogers, Michael E. ET Al. "Characterization Vs Identification of Organics in Boiler Feedwater Treatment". 47<sup>th</sup> Annual Meeting International Water Conference, Pittsburgh, October 1986.
- Rogers, Michael E and Nodelman, Joel R; "Feedwater Monitoring As It Relates to Deaerator Cracking". Corrosion 87, Paper #212, National Association of Corrosion Engineers, Houston, Texas, 1987.
- Rogers, Michael E; Rogers T.M. "Responding to Copper-Induced Corrosion During H<sub>2</sub>S Leaks In Syncrude Canada LTD's Process Cooling Tower", National Association of Corrosion Engineers, Houston, Texas, 1987.
- Rogers, Michael E ET Al. "Analytical Techniques For Determining Oily Matter In Condensates Used in Cogenerating Stream Plants" Paper #88-21, 49<sup>th</sup> Annual Meeting, International Water Conference, Pittsburgh, 1988.
- Rogers, Michael E; Cowles, Rogers. "Removal of Organics by Reverse Osmosis" Paper #89-24, 50<sup>th</sup> Annual Meeting International Water Conference, Pittsburgh, 1989.
- Rogers, Michael E; Venkatraman A. "Continuous On-Line Monitoring of H<sub>2</sub>S and Combustible Gases In Cooling Water", Paper #90-59, 51<sup>st</sup> Annual Meeting International Water Conference, Pittsburgh, October, 1990.
- Rogers, Michael E; Mort, Anthony, Skinner Bernard. "A Review of Some Boiler Tube Failures At Syncrude Canada LTD, International Conference On Boiler Tube Failures In Fossil Plants, EPRI, Palo Alto, CA, November 1991.
- Rogers, Michael; Tucker, Boyce. "5 Years Operating Experience With Weak Base Anion Resins In An Unconventional Position", International Conference Ion Exchange Advances, Society of Chemical Industry, London, UK, July 1992.
- Rogers, Michael E; Verhappen, Ian. "Justification And Engineering Design For Automating the Control of a Captive Alkalinity Program In Stream Generating Units", Corrosion '92, National Association of Corrosion Engineers, Houston, Texas.
- Rogers, Michael E; Mort, Anthony ET Al. "CO Boiler Reliability: Examination of Failure Mechanisms, Root Causes, Corrective Actions and Monitoring Required", Corrosion '94. National Association of Corrosion Engineers, Houston Texas.
- Corrosion Testing of Brine Concentration and Crystallization Brines for Syncrude Canada Mildred Lake Project – November 2001.
- Revised Syncrude Mildred Lake Recycle Water Zero Discharge Study and Cost Estimate – December 2001.
- Reverse Osmosis for Performance Evaluation at Syncrude Canada LTD – November – January 2002.
- Water Treatment Plant for Syncrude Canada's Process Affected Water – March 2002.
- Computer Modeling of Chloride in Bitumen, NACE International, 2007

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- Monitoring and Adjustment of Cooling Water Treatment – Operating Parameters, NACE International, 2006 (Committee Chair)
- Making the Open-Pit Operations Truly Zero Liquid Discharge, NACE International 2006