



SIRIUS CONSULTING

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SERVICES

- Regulatory Dispersion Modelling
- Alberta and British Columbia Sour Gas Flare and Incineration Permits/Approvals
- EIA Reviewing
- Regulatory Advice
- Emission Inventories
- Policy Advice
- Training Courses
- Geographic Information System (GIS) Expertise
- Project Management

PROFESSIONAL MEMBERSHIPS

- Association of Professional Engineers and Geoscientists of Alberta (APEGA)
- Association of Professional Engineers and Geoscientists of British Columbia (APEGBC).

EDUCATION

- Geographical Information Systems (GIS) Program, Mohawk College and McMaster University, 1996
- Bachelor of Applied Science Degree (Civil Engineering), University of Toronto, 1993
- Bachelor of Science Degree (Math and Physics), University of Toronto, 1989

PROFESSIONAL COURSES

- Earth Tech Advanced CALMET Training Course 2004
- Earth Tech CALPUFF Training Course 2002
- PSMJ Project Management Bootcamp 2001

PROFESSIONAL SKILLS

- Regulatory dispersion models: CALPUFF, AERMOD, ISC, RTDM, SCREEN3
- Programming Languages: FORTRAN, Visual C++, Visual Basic
- AER Applications: AERH2S, AERflare, AERincin
- GIS: ESRI ARCGIS, Surfer

Kristofer A. Siriunas, P.Eng.

President

Sirius Consulting Inc. (Sirius) is an environmental consulting firm founded in April 2009 specializing in regulatory air quality services. Mr. Siriunas is owner and president of Sirius.

BIOGRAPHY

Mr. Siriunas is a professional engineer with 20 years of experience in the regulatory air quality industry. He has worked on wide variety of projects focusing on air quality services including dispersion modelling in support of regulatory applications, reviewing regulatory applications, emission inventories, training courses, and regulatory advice. Mr. Siriunas is proficient using all regulatory dispersion models and is trained and experienced in using GIS tools to present and analyze air quality data. Mr. Siriunas has a thorough understanding of the oil and gas, and oil sands industries from his time as an air quality specialist and advisor at the Alberta Energy Resources Conservation Board (ERCB) – now the Alberta Energy Regulator.

Mr. Siriunas is a registered and practicing profession engineer under the Association of Professional Engineers and Geoscientists of Alberta (APEGA) and the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC). Mr. Siriunas has comprehensive knowledge of the regulatory system and air quality issues important in Alberta and BC through his regulatory and consulting experience.

WORK HISTORY

2009 – Present	President and Owner	Sirius Consulting Inc.
2004 – 2009	Air Quality Specialist	ERCB
2000 – 2004	Senior Engineer	RWDI West Inc
1996 – 2000	Technical Coordinator	RWDI Inc.

PROJECTS

REGULATORY REVIEWING

- Teck Resources Ltd. Application for Approval of the Frontier Oil Sands Mine Project – EIA Review for AESRD (2016)
- Syncrude Canada Ltd. Application for Approval of Mildred Lake Extension Project – EIA Review for AER (2015)
- Pengrowth Energy Corporation Application for Approval of Lindbergh SAGD Expansion Project – EIA Review for AESRD (2015)
- AREVA Resources Canada Kiggavik Uranium Mine Project – FEIS Review for the Government of Nunavut (2014)
- Osum Oil Sands Corp. Application for Approval of Sepiko Kesik Project – EIA Review for AESRD (2014)
- MEG Energy Corp. Application for Approval of Surmont Project – EIA Review for AESRD (2014)
- Coalspur Mines Ltd. Application for Approval of Vista Coal Mine Project – EIA Review for AESRD (2013)
- Southern Pacific Resource Corp Application for Approval of the Mackay Thermal Project Phase 2 - EIA Review for AESRD (Current)

REGULATORY REVIEWING (Cont'd)

- Devon Energy Canada Application for Approval of Jackfish 3 SAGD Project - EIA Review for Alberta Environment (2011)
- Cenovus Energy Application for Approval of Narrows Lake SAGD and SAP Projects -EIA Review for Alberta Environment (2011)
- Connacher Application for Approval of Great Divide SAGD Project - EIA Review for Alberta Environment (2011)
- Parsons Creek Application for Approval of Limestone Quarry - EIA Review for Alberta Environment (2011)
- Athabasca Oil Sands Corporation Application for Approval MacKay River SAGD -EIA Review for Alberta Environment (2011)
- Shell Canada Application for Approval of Jackpine Mine Expansion and Pierre River Mine - EIA Review for ERCB (2008)
- Total E&P Canada Application for Approval of Strathcona County Upgrader – EIA Review for ERCB (2008)
- StatOil Hydro Canada Application for Approval of Strathcona County Upgrader – EIA Review for ERCB (2008)
- Albert Sulphur Terminal Application for Approval of the Bruderheim Sulphur Forming and Shipping Facility – EIA Review for NRCB (2008)
- Shell Canada Application for Approval of Scotford 2 Upgrader - EIA Review for EUB (2007)
- Shell Canada Application for Approval of Scotford Upgrader Expansion – EIA Review for EUB (2006)
- Devon Energy Canada Application for Approval of Jackfish 2 SAGD Project - EIA Review for EUB (2007)
- TransAlta Application for Approval of Keephills 3 Thermal Generating Project – EIA Review for EUB(2007)
- Shell Canada Application for Approval of Bitumen Blending Facility – EIA Review for EUB (2007)
- Petro-Canada Oil Sands Inc. Application for Approval of Sturgeon Upgrader - EIA Review for EUB (2006)
- Suncor Energy Inc. Application for Approval of Voyageur Project and Steepbank Mine Expansion – EIA Review for EUB (2006)
- CNRL Application for Approval of Primrose East In-Situ Oil Sands Project – EIA Review for EUB (2006)
- OPTI/Nexen Application for Approval of Long Lake South Project – EIA Review for EUB (2006)
- StatOil Hydro Canada Application for Approval of Kai Kos In-Situ Oil Sands Project - EIA Review for EUB (2006)
- Elk Valley Coal Cardinal River Operations Application for Approval of Prospect Pit Development - EIA Review for EUB
- Northwest Upgrading Application for Approval of Sturgeon County Upgrader EIA for EUB (2005)
- Orion Oil Application for Approval of the Whitesands Experimental THAI Pilot Project – EIA Review for EUB (2004)
- BA Energy Inc. Application for Approval for Heartland Upgrader - EIA Review for EUB (2004)

REGULATORY ADVICE

- Suncor Energy Fort Hills EPEA Amendment Application – Air Quality Assessment Review for First Nations (2013)
- Shell Canada Application for Approval of Jackpine Mine Expansion and Pierre River Mine - EIA Review for Mikisew Cree First Nations (2011)
- JACOS Application for Approval of the Hangingstone SAGD Project – EIA Review for Mikisew Cree First Nations (2010)
- Suncor Energy Firebag EPEA Approval – Review for the Mikisew Cree First Nations (2010)
- Total E&P Canada Application for Approval of Joslyn Mine - EIA Update review for Mikisew Cree First Nations (2010)
- Alberta Environment Lower Athabasca Management Frameworks – Review for Mikisew Cree First Nations (2010)
- Shell Canada Application for Approval of Carmon Creek In-situ Project - EIA Review for Duncan's First Nations (2010)

AIR QUALITY ASSESSMENTS AND DISPERSION MODELLING

- Husky Energy Mikwan Gas Plant – Assessment of NO_x using AERMOD (2016)
- Husky Energy Sylvan Lake 3-34-38-2 W5M Compressor Station – Assessment of NO_x using AERMOD (2015)
- Mosaic Energy Jayar Gas Plant - Assessment of NO_x, SO₂ and H₂S Emissions using AERMOD (2014)
- Devon Frenman Lake Compressor Station - Assessment of NO_x emissions using AERMOD (2014)
- Husky Energy Bow Island Sour Gas Plant and Oil Battery – Assessment of NO_x, SO₂ and H₂S Emissions using AERMOD (2014)

AIR QUALITY ASSESSMENTS AND DISPERSION MODELLING (Cont'd)

- NOVA Chemicals Joffre Plant - Assessment of NO_x emissions using CALPUFF (2014)
- Encana Corporation Kaybob Facilities – Assessment of Potential Odours (2014)
- Vermilion Energy Elkhorn Northgate Facility (Saskatchewan) – Assessment of Unlit Flare (2014)
- Devon West Surmont Compressor Station - Assessment of NO_x emissions using AERMOD (2013)
- Devon Tommy Lakes Compressor Station (BC) - Assessment of NO_x and SO₂ emissions using AERMOD
- Baytex Energy Cliffdale Thermal Project Pad 3 and 4 Expansion - Assessment of NO_x and SO₂ emissions using AERMOD (2014)
- Perpetual Energy Panny Thermal Pilot Project – Assessment of NO_x Emissions using AERMOD (2014)
- Shell Canada Cecilia Gas Plant - Assessment of NO_x emissions using AERMOD (2013)
- Shell Canada Moose Mountain Compressor Station - Assessment of NO_x emissions using AERMOD (2013)
- Nexen Kinosis K1B In-situ Oil Sands Plant - Assessment of NO_x, SO₂, and PM_{2.5} emissions using CALPUFF (2013)
- Husky Energy Hussar Gas Storage Cavern 7-7-25-20 W4M – Assessment of Methane Emissions using SCREEN3 during Non-Routine Venting (2013)
- Devon Canada Jackfish 1 Oil Sands Plant - Assessment of Non-Routine Venting Emissions using SCREEN3 (2013)
- Devon Canada Jackfish 2 Oil Sands Plant – Estimation of SO₂ Concentrations from increased Sulphur Emissions (2013)
- Santonia Energy Wild River 8-14-57-23 W5M Wellsite Facility - Assessment of SO₂ Emissions associated with Continuous Flaring (2013)
- Baytex Energy Cliffdale Thermal Project Expansion to 15 Well Program - Assessment of NO_x and SO₂ emissions using AERMOD (2012)
- Nexen Kinosis K1A In-situ Oil Sands Plant - Assessment of NO_x, SO₂, and PM_{2.5} emissions using CALPUFF (2012)
- Devon Canada Corp. Dunvegan Sour Gas Processing Plant - Assessment of NO_x emissions using AERMOD (2012)
- Devon Canada Corp. South Cecil Sour Gas Processing Plant - Assessment of NO_x emissions using AERMOD at (2012)
- Daylight Energy Pembina 14-28-48-8 W5M Well - Assessment of SO₂ emissions using AERMOD during Incineration Events in 2005 (2011)
- Baytex Energy Cliffdale Thermal Project Expansion to 10 Well Program - Assessment of NO_x emissions using AERMOD (2011)
- Hunting Energy Fabrication Plant Calgary - Assessment of Methanol, Ethanol, Toluene, and Xylene emissions using AERMOD (2011)
- TransCanada Pipelines Ltd. Crowsnest Compressor - Assessment of NO_x emissions using AERMOD (2010)
- Shell Canada Cliffdale Heavy Oil Battery - Assessment of NO_x emissions using AERMOD (2010)
- Shell Canada Seal Lake Battery - Assessment of NO_x emissions using AERMOD (2010)
- Husky Energy Ram River Gas Plant - Performance Review of the Meteorologically Controlled Emission System (2009)
- Husky Energy Sunrise In-situ Oil Sands Project - Air Quality Assessment using CALPUFF (2004)
- Regional air quality modelling of ground level concentrations and deposition of 39 toxic and priority substances in the Athabasca Oilsands Region of Alberta using CALMET/CALPUFF for the Trace Metals Air Contaminants (TMAC) Working Group of the Cumulative Environmental Management Association (CEMA) (2003)
- Imperial Oil Nabiye and Mahihkan North Cold Lake Operations Expansion - Air Quality Assessment using CALPUFF (2002)
- TransCanada Pipelines Ltd. BC Pipeline System Expansion Elko and Moyie Compressor Stations – Assessment of NO_x Emissions using AERMOD (2001)
- TransCanada Pipeline Limited Mainline Compressor Station Expansion (Multiple Stations) Air Quality Assessment of using ISC-PRIME (1998)

ALBERTA FLARE AND INCINERATOR APPROVAL SUPPORT – DISPERSION MODELLING AND MANAGEMENT

- Conoco Phillips – Multiple Wells
- Husky Energy - Multiple Wells
- XTO Energy (Multiple Wells)
- Blackbird Energy – Multiple Wells
- Long Run Exploration – Multiple Wells
- PennWest Exploration – Multiple Wells
- Canadian Natural Resources Ltd. – Multiple Wells
- Devon Canada Corp. – Multiple Wells
- Delphi Energy - Multiple Wells
- Suncor Energy – Multiple Wells
- Paramount Resources – Multiple Wells
- WestFire Energy (Orion Oil and Gas Ltd.) –Multiple Wells
- MFC Resource Partnership – Multiple Wells
- Insignia Energy – Multiple Wells
- Venturion Oil Ltd. – Multiple Wells

BC FLARE AND INCINERATOR APPROVAL SUPPORT – DISPERSION MODELLING AND MANAGEMENT

- Devon Canada Corp. (Multiple Wells)
- Husky Energy (Multiple Wells)
- Enerplus Corp. (Multiple Wells)
- Canadian Natural Resources Ltd. (Multiple Wells)
- Talisman Energy Altares b-H94-l
- ConocoPhillips (Multiple Wells)
- Northpine Boundary A14-30-84-14 W6M
- ARC Resources Inga 14-30-88 W6M
- PennWest Exploration (Multiple Wells)
- Baytex Energy Cache 10-4-88-22 W6M

NON-ROUTINE FLARING DISPERSION MODELLING

- ConocoPhillips Canada – Multiple Facilities
- Tidewater Midstream – Brazeau Sour Gas Plant (2016)
- Athabasca Oil Sands Corporation – Multiple Facilities
- Shell Canada Energy – 3 Facilities in Burnt Timber Area (2013)
- Baytex Energy – 3 Facilities in Turin Area in SE Alberta (2013)
- Canadian Association of Petroleum Producers - Evaluation of ERCBflare Tool V2 for the Non-routine Flaring Task Team (2013)
- Canadian Association of Petroleum Producers - Preparing the Management Framework Document for the Non-routine Flaring Task Team (2011)
- Santonia Energy (Fairborne Energy) – Multiple Facilities
- PennWest Exploration – Multiple Facilities

ERCB (EUB) HEARINGS AND DECISIONS

- Petro-Canada Oil Sands Inc. Application to Construct and Operate an Oil Sands Upgrader in Sturgeon County, Air Quality Advisor, ERCB Decision 2009-002, <http://www.aer.ca/documents/decisions/2009/2009-002.pdf>
- Highpine Oil & Gas Limited, Applications for Three Well Licences, Pembina Field, Tomahawk Area– Air Quality and Hazard and Risk Advisor, ERCB Decision 2008-135, <http://www.aer.ca/documents/decisions/2008/2008-135.pdf>
- Shell Canada Limited - Applications for Well, Pipeline, and Associated Facilities Licences - Waterton Field, Air Quality and Hazard and Risk Advisor, ERCB Decision 2008-127, <http://www.aer.ca/documents/decisions/2008/2008-127.pdf>
- Highpine Energy Ltd., Section 39 Review of Well Licence No. 0389651 Pembina Field (Tomahawk Area), Air Quality and Hazard and Risk Advisor, ERCB Decision 2008-106, <http://www.aer.ca/documents/decisions/2008/2008-106.pdf>
- Highpine Energy Ltd., Applications for Six Well Licences, Pembina Field, Air Quality and Hazard and Risk Advisor, ERCB Decision 2008-088, <http://www.aer.ca/documents/decisions/2008/2008-088.pdf>
- Highpine Oil & Gas Limited, Applications for Well Licences, Pembina Field Applications No. 1480869 and 1486164, Air Quality and Hazard and Risk Advisor, ERCB Decision 2008-018, <http://www.aer.ca/documents/decisions/2008/2008-018.pdf>
- North West Upgrading Inc. Application to Construct and Operate an Oil Sands Upgrader in Sturgeon County (Application 1444141), Air Quality Advisor, EUB Decision 2007-058, <http://www.aer.ca/documents/decisions/2007/2007-058.pdf>
- Suncor Energy Inc., Application for Expansion of an Oil Sands Mine and a Bitumen Upgrading Facility in the Fort McMurray Area – Air Quality Advisor, EUB Decision 2006-112, <http://www.aer.ca/documents/decisions/2006/2006-112.pdf>
- Dominion Exploration Canada Ltd. Applications for Well Licences Pembina Field, Air Quality and Hazard and Risk Advisor, EUB Decision 2006-087, <http://www.aer.ca/documents/decisions/2006/2006-087.pdf>
- Prospec Resources Ltd. Application for a Well Licence Garrington Field, Air Quality and Hazard and Risk Advisor, EUB Decision 2006-039, <http://www.aer.ca/documents/decisions/2006/2006-039.pdf>
- Compton Petroleum Corporation Applications for Licences to Drill Six Critical Sour Natural Gas Wells, Reduced Emergency Planning Zone, Special Well Spacing, and Production Facilities Okotoks Field, Air Quality and Hazard and Risk Advisor, EUB Decision 2005-060, <http://www.aer.ca/documents/decisions/2005/2005-060.pdf>
- BlackRock Ventures Inc. Application for a Steam-Assisted Gravity Drainage Project for the Recovery of Bitumen Cold Lake Oil Sands Area (Application 1241564) Air Quality Advisor, EUB Decision 2004-089, <http://www.aer.ca/documents/decisions/2004/2004-089.pdf>

AIRSHEDS

- Preparing Summary Reports for Ambient Air Quality Surveys in Bonanza, Kinuso, Spirit River, Fahler, Sunset House and Reno for Peace Airshed Zone Association (2013 – 2015)
- Preparing Annual Invoicing for the Peace Airshed Zone Association (2011 - 2016)
- Evaluation of Parkland Airshed Management Zone Riverside Drive Monitor Particulate Matter data and suitability of monitor's location – Assisting Novus Environmental (2012)

GIS

- Oil Sands Bird Contact Monitoring Program – GIS Mapping and Analysis (2014 – Current)
- GIS Mapping and Analysis for the Wood Buffalo Environmental Association (2010 - Current)
- Preparing updated leaf area indices for MM5 grid for the Alberta South Saskatchewan Regional Planning Area using GIS (2011)
- Produced spatially allocated criteria air contaminant (CAC) emission data for Alberta for regional airshed modelling. Based from the 1995 Canadian national emission inventory, created a process using GIS that created gridded emission data from census division allocated data for input to SMOKE (2001)

INVESTIGATIONS

- Alberta Environment – Assisting with the Investigations of an H₂S Release at Hinton Pulp – (Current)
- Alberta Environment – Assisting with the Investigations of Two H₂S Releases in the Fort McMurray Area (2011 - 2013)

MULTI-STAKEHOLDER COMMITTEES

- Clean Air Strategic Alliance (CASA) Air Quality Objectives Strategic Advisory Committee – ERCB Representative 2004-2009
- CASA PM/O₃ Implementation Working Group - ERCB Representative 2006-2009
- Fort Air Partnership Airshed Technical Working Group - ERCB Representative 2006-2009
- Trace Metals and Air Contaminants Working Group Of the Cumulative Effects Management Association – Co-chair in 2005 and 2006

TRAINING COURSES

- 5 Day Air Pollution Modelling Course to QATAR Fertilizer Company – Doha, Qatar (2010)

CLADDING WIND LOAD STUDIES

- Paris Casino Resort – Balloon Sign Las Vegas, Nevada (1997)
- Hong Kong Station Southwest Tower, 40 Floor Tower, Hong Kong (1996)
- 221 East 38th Street , 41 Floor Tower, New York City (1996)