References Section Excerpt (30 pages) from the Council of Canadian Academies' May 1, 2014 Report,

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with Highlighted Text of the 47 Peer-Reviewed Citations which are Registered in the Physicians, Scientists & Engineers' On-line <u>Healthy Energy Citation Database on Shale Gas & Tight Oil Developments</u>

References

- (S&T)² Consultants Inc. (2004). GHGenius. Model History. Retrieved April 2013, from http://www.ghgenius.ca/about.php#GHGenius%20Impact%20 Assessment.
- (S&T)² Consultants Inc. (2012). GHGenius Natural Gas Pathway Update. Delta (BC): Natural Resources Canada.
- ACOLA (Australian Council of Learned Academies). (2013). *Engineering Energy:* Unconventional Gas Production. Melbourne, Australia: ACOLA.
- ACPH (The Federal, Provincial and Territorial Advisory Committee on Population Health). (1994). Strategies for Population Health. Investing in the Health of Canadians. Halifax (NS): Health Canada.
- ACPH (The Federal, Provincial and Territorial Advisory Committee on Population Health). (1999). Toward a Healthy Future. Second Report on the Health of Canadians. Charlottetown (PE): Health Canada.
- Adams, C. (2012). Summary of Shale Gas Activity in Northeast British Columbia 2011. Victoria (BC): B.C. Ministry of Energy and Mines.
- Adams, M. B. (2011). Land application of hydrofracturing fluids damage a deciduous forest stand in West Virgina. *Journal of Environmental Quality*, *40*, 1340-1344. doi: 10.2134/jeq2010.0504.
- AEMP (Alberta Environmental Monitoring Panel). (2011). A World Class Environmental Monitoring, Evaluation and Reporting System for Alberta. Edmonton (AB): AEMP.
- AER (Alberta Energy Regulator). (2010). Directive 020: Well Abandonment. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2011a). Unconventional Gas Regulatory Framework—Jurisdictional Review. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2011b). Directive 055 Addendum: Interim Requirements for Aboveground Synthetically-Lined Wall Storage Systems, Updates to Liner Requirements, and Optional Drinking Requirements for Single-Walled Aboveground Storage Tanks. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2011c). Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2011d). ST57-2011 Field Surveillance and Operations Branch Provincial Summary 2010. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2012a). Caltex Energy Inc. Hydraulic Fracturing Incident 16-27-068-10W6M September 22, 2011. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2012b). Directive 065: Resources Applications for Oil and Gas Reservoirs. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2012c). Directive 059: Well Drilling and Completion Data Filing Requirements. Calgary (AB): AER.

- AER (Alberta Energy Regulator). (2012d). Midway Energy Ltd. Hydraulic Fracturing Incident: Interwellbore Communication January 13, 2012. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2012e). *Regulating Unconventional Oil and Gas in Alberta*. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2012f). Bulletin 2012-25. Amendments to Directive 059: Well Drilling and Completion Data Filing Requirements in Support of Disclosure of Hydraulic Fracturing Fluid Information. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2013a). Directive 008: Surface Casing Depth Requirements. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2013b). Directive 083: Hydraulic Fracturing Subsurface Integrity. Calgary (AB): AER.
- AER (Alberta Energy Regulator). (2013c). Hydraulic Fracturing 201. Hydraulic Fracturing in Alberta. Paper presented by Cal Hill, Strategy and Regulation Division, AER, Calgary (AB).
- AESRD (Alberta Environment and Sustainable Resource Development). (2011). Methane Gas in Groundwater. Retrieved February 2013, from http://environment.alberta.ca/02883.html.
- AESRD (Alberta Environment and Sustainable Resource Development). (2012). A Guide to Remediation Certificates for Upstream Oil and Gas Sites. Edmonton (AB): AESRD.
- AESRD (Alberta Environment and Sustainable Resource Development). (2013). Oil and Gas Wells Reclamation. Retrieved October 2013, from http://environment.alberta.ca/02862.html.
- Al, T., Butler, K., Cunjak, R., & MacQuarrie, K. (2012). Opinion: Potential Impact of Shale Gas Exploitation on Water Resources. Fredericton (NB): University of New Brunswick.
- Alberta Energy and Utilities Board. (2003). *Interim Directive ID 2003-01*. Calgary (AB): Alberta Energy and Utilities Board.
- Alberta Geological Survey. (2012). Saline Aquifer Mapping. Retrieved January 2014, from http://www.ags.gov.ab.ca/groundwater/saline-aquifer-mapping.html.
- Alberta Ministry of Energy. (2013). *Energy Annual Report 2012–2013*. Edmonton (AB): Government of Alberta.
- ALL Consulting. (2012). *The Modern Practices of Hydraulic Fracturing: A Focus on Canadian Resources*. Tulsa (OK): Petroleum Technology Alliance Canada and Science and Community Environmental Knowledge Fund.
- Allen, D. T., Torres, V. M., Thomas, J., Sullivan, D. W., Harrison, M., Hendler,
 A., . . . Seinfeld, J. H. (2013). Measurements of methane emissions at natural gas production sites in the United States. *Proceeding of the National Academy of Sciences.* 44 (4). doi: 10.1073/pnas.1304880110

- Allen, M. R., Frame, D. J., Huntingford, C., Jones, C. D., Lowe, J. A., Meinshausen, M., & Meinshausen, N. (2009). Warming caused by cumulative carbon emissions towards the trillionth tonne. *Nature*, 458(7242), 1163-1166. doi: 10.1038/nature08019.
- Aller, L., Bennett, T., Lehr, J. H., Petty, R. J., & Hackett, G. (1987). DRASTIC: A Standardized System for Evaluating Ground Water Pollution Potential Using Hydrogeologic Settings. Dublin (OH): U.S. EPA.
- Alvarez, R. A., Pacala, S. W., Winebrake, J. J., Chameides, W. L., & Hamburg,
 S. P. (2012). Greater focus needed on methane leakage from natural gas infrastructure. *Proceedings of the National Academy of Sciences of the United States of America*, 109(17), 6435-6440. doi: 10.1073/pnas.1202407109.
- Amos, R. T. & Blowes, D. W. (2008). Versatile direct push profiler for the investigation of volatile compounds near the water table. *Water Resources Research*, 44(4). doi: 10.1029/2008WR006936.
- ANGA (America's Natural Gas Alliance) & AXPC (American Exploration and Production Council). (2012). ANGA Comments to EPA on New Source Performance Standards for Hazardous Air Pollutants Review America's Natural Gas Alliance. Washington (DC): ANGA and AXPC.
- APHA (American Public Health Association). (2012). Policy Statement on the Environmental and Occupational Health Impacts of High-Volume Hydraulic Fracturing of Unconventional Gas Reserves. Washington (DC): APHA.
- API (American Petroleum Institute). (2009). *Hydraulic Fracturing Operation Well Construction and Integrity Guidelines*. Washington (DC): API.
- ARI (Advanced Resources International, Inc.). (2013). EIA/ARI World Shale Gas and Shale Oil Resource Assessment. Technically Recoverable Shale Gas and Shale Oil Resources: An Assessment of 137 Shale Formations in 41 Countries Outside the United States. Arlington(VA): ARI.
- Arthur, J.D., Bohm, B., Coughlin, B.J., & Layne, M. (2008). Evaluating the Environmental Implications of Hydraulic Fracturing in Shale Gas Reservoirs. Tulsa (OK): ALL Consulting.
- Arthur, J. D., Coughlin, B. J., Bohm, B. K., & ALL Consulting. (2010). Summary of Environmental Issues, Mitigation Strategies, and Regulatory Challenges Associated with Shale Gas Development in the United States and Applicability to Development and Operations in Canada. Paper presented at Canadian Unconventional Resources and International Petroleum Conference, Calgary (AB).
- AWWA (American Water Works Association). (2013). Water and Hydraulic *Fracturing*. Denver (CO): AWWA.
- B.C. Ministry of Energy and Mines & NEB (National Energy Board). (2011). Ultimate Potential for Unconventional Natural Gas in Northeastern British Columbia's Horn River Basin. Victoria (BC): B.C. Ministry of Energy and Mines and NEB.

- B.C. Ministry of Energy, Mines and Petroleum Resources. (2008). Montney Activity/Production NE British Columbia. Retrieved August 2013, from www.empr.gov.bc.ca/OG/oilandgas/petroleumgeology/ UnconventionalOilAndGas/Pages/Shale.aspx.
- B.C. Ministry of Energy, Mines and Petroleum Resources. (2010). Province Takes Action to Manage Boreal Caribou. Retrieved February 2013, from http:// www2.news.gov.bc.ca/news_releases_2009-2013/2010EMPR0027-000734.htm.
- B.C. Oil and Gas Commission. (2009). Information Letter # OGC 09-07. Storage of Fluid Returns from Hydraulic Fracturing Operations. Fort St. John (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2010a). Safety Advisory 2010–03 Communication During Fracture Stimulation. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2010b). *Oil and Gas Water Use in British Columbia*. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2010c). Commission Order 10-15-001. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2011). *Land Use Planning*. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2012a). *Investigation of Observed Seismicity in the Horn River Basin*. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2012b). *Fracture Fluid Report Upload Manual*. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2012c). *Water Use in Oil and Gas Activities*. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2013a). 2013 Restoration Verification Audit Program Procedure Manual. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2013b). Well Completion, Maintenance and Abandonment Guidelines. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2013c). Application Guideline for: Deep Well Disposal of Produced Water Deep Well Disposal of Nonhazardous Waste. Victoria (BC):
 B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2013d). Water Source, Injection and Disposal Service Wells. Victoria (BC): B.C. Oil and Gas Commission.
- B.C. Oil and Gas Commission. (2013e). Flaring and Venting Reduction Guideline. Victoria (BC): B.C. Oil and Gas Commission.
- Bair, E. S., Freeman, D. C., & Senko, J. M. (2010). Expert Panel Technical Report. Subsurface Gas Innovation Bainbridge Township, Geauga County, Ohio. Columbus (OH): Ohio Department of Natural Resources Division of Mineral Resources Management.

- Bamberg, S. & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27, 14-25.
- Bamberger, M. & Oswald, R. E. (2012). Impacts of gas drilling on human and animal health. *New Solutions*, 22(1), 51-77.
- BAPE (Bureau d'audiences publiques sur l'environnement). (2011a). Sustainable Development of the Shale Gas Industry in Québec. Excerpts from Report 273. Québec (QC): BAPE.
- BAPE (Bureau d'audiences publiques sur l'environnement). (2011b).
 Développement durable de l'industrie des gaz de schiste au Québec. Rapport 273.
 Québec (QC): BAPE.
- Barker, J. F. & Fritz, P. (1981). The occurrence and origin of methane in some groundwater flow systems. *Canadian Journal of Earth Sciences*, 18(12), 1802-1816. doi: 10.1139/e81-168.
- Bexte, D. C., Willis, M., De Bruijn, G. G., Eitzen, B., & Fouillard, E. (2008). Improved cementing practice prevents gas migration. *World Oil*, 229(6).
- Birkholzer, J. T., Nicot, J. P., Oldenburg, C. M., Zhou, Q., Kraemer, S., & Bandilla, K. (2011). Brine flow up a well caused by pressure perturbation from geologic carbon sequestration: Static and dynamic evaluations. *International Journal of Greenhouse Gas Control*, 5(4), 850-861. doi: 10.1016/j. ijggc.2011.01.003.
- Bjørlykke, K. (1989). Sedimentology and Petroleum Geology. Berlin, Germany: Springer-Verlag.
- Bloomberg, M. R. & Mitchell, G. P. (2012, August 23). Fracking is too Important to Foul Up, *Washington Post.*
- Bourgoyne, A. T., Scott, S. L., & Manowski, W. (2000). A Review of the Sustained Casing Pressure Occurring on the OCS. Washington (DC): U.S. Department of the Interior, Minerals Management Services.
- Bradbury, J., Obeiter, M., Draucker, L., Wang, W., & Stevens, A. (2013). Clearing the Air: Reducing Upstream Greenhouse Gas Emissions from U.S. Natural Gas Systems. Working Paper. Washington (DC): World Resources Institute.
- Brisson, G., Campagna, C., Carrier, G., Chevalier, P., Deger, L., Gauvin, D.,... Smargiassi, A. (2010). *Etat des connaissances sur la relation entre les activités liées au gaz de schiste et la santé publique*. Québec (QC): Institut national de santé publique du Québec.
- Broomfield, M. (2012). Support to the Identification of Potential Risks for the Environment and Human Health Arising from Hydrocarbon Operations Involving Hydraulic Fracturing in Europe. Didcot, United Kingdom: European Commission DG Environment.

- Brouyère, S., Jeannin, P. Y., Dessargues, A., Goldscheider, N., Popescu, I. C., Sauter, M., . . . Zwahlen, F. (2011). Evaluation and Validation of Vulnerability Concepts Using a Physically Based Approach. Paper presented at 7th Conference on Limestone Hydrology and Fissure Media, Besancon, France.
- Brown, A. (2000). Evaluation of possible gas microseepage mechanisms. *American* Association of Petroleum Geologists Bulletin, 84(11), 1775-1789.
- Brown, J. (2010). *Drilling 101*. Paper presented in person, Sibley Hall, Cornell University, Ithica (NY).
- Burnham, A., Han, J., Clark, C. E., Wang, M., Dunn, J. B., & Palou-Rivera, I. (2012). Life-cycle greenhouse gas emissions of shale gas, natural gas, coal, and petroleum. *Environmental Science and Technology*, 46(2), 619-627.
- Caboit Oil & Gas Corporation. (2012). Uniquely Cabot. 2012 Annual Report. Houston (TX): Caboit Oil & Gas Corporation,.
- Canadian Water Network. (2013). Hydraulic Fracturing and Water Competition Announcement. Retrieved January 2014, from http://www.cwn-rce.ca/ initiatives/research-calls/hydraulic-fracturing-and-water-competitionannouncement/.
- CAPP (Canadian Association of Petroleum Producers). (2003). *Guide for Effective Public Involvement*. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012a). Responsible Canadian Energy. 2012 Progress Report Summary. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012b). *Baseline Groundwater Testing*. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012c). Anomolous Induced Seismicity: Asessemnt, Monitoring, Mitigation and Response. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012d). Fluid Transport, Handling, Storage and Disposal. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012e). Water Sourcing, Measurement, and Reuse. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012f). Wellbore Construction and Quality Assurance. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012g). Fracturing Fluid Additive Risk Assessment and Management. Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2012h). *Fracturing Fluid Additive Disclosure.* Calgary (AB): CAPP.
- CAPP (Canadian Association of Petroleum Producers). (2013a). New Brunswick. Retrieved January 2014, from http://www.capp.ca/canadaIndustry/ industryAcrossCanada/Pages/NewBrunswick.aspx.
- CAPP (Canadian Association of Petroleum Producers). (2013b). Land and Reclamation. Retrieved March 2013, from http://www.capp.ca/ environmentCommunity/land/Pages/RestoringLand.aspx.

- CAPP (Canadian Association of Petroleum Producers). (2014). Basic Statistics. Retrieved January 2014, from http://www.capp.ca/library/statistics/ basic/Pages/default.aspx.
- Carter, T., Fortner, L., & Béland Otis, C. (2009). *Shale Gas Opportunities in Southern Ontario.* Paper presented at 48th Annual OPI Conference and Trade Show, Sarnia (ON).
- Cathles, L.M., Brown, L., Taam, M., & Hunter., A. (2012). A commentary on "The greenhouse-gas footprint of natural gas in shale formations" by R.W. Howarth, R. Santoro, and Anthony Ingraffea. *Climate Change*, *(113*(2), 525–535.)
- CBC (Canadian Broadcasting Corporation). (2011). Interactive: What a Hydraulic Fracturing Site Looks Like. Retrieved February 2013, from http://www.cbc.ca/nb/features/fracturedfuture/annotated_site.html.
- CBC (Canadian Broadcasting Corporation). (2013). Maliseet Anti-Shale Gas Letter Delivered to Premier's Office. Retrieved January 2014, from http://www.cbc.ca/news/canada/new-brunswick/maliseet-anti-shalegas-letter-delivered-to-premier-s-office-1.2253996.
- CCA (Council of Canadian Academies). (2012). Integrating Emerging Technologies into Chemical Safety Assessment. Ottawa (ON): The Expert Panel on the Integrated Testing of Pesticides, CCA.
- CCA (Council of Canadian Academies). (2013). *Water and Agriculture in Canada: Towards Sustainable Management of Resources*. Ottawa (ON): Expert Panel on Sustainable Use of Water in the Agricultural Landscapes of Canada, CCA.
- CDPHE (Colorado Department of Public Health and Environment). (2010).
 Public Health Implications of Ambient Air Exposures as Measured in Rural and Urban Oil & Gas Development Areas – An Analysis of 2008 Air Sampling Data.
 Denver (CO): CDPHE.
- Chapman, A. & Venables, S. (2012). Projections of Surface Water Use for Hydraulic Fracturing in the Montney Trend. Paper presented at Unconventional Gas Technical Forum, Victoria (BC).
- Chapman, S. W., Parker, B. L., Cherry, J. A., McDonald, S. D., Goldstein, K. J., Frederick, J. J.,... Williams, C. E. (2013). Combined MODFLOW-FRACTRAN application to assess chlorinated solvent transport and remediation in fractured sedimentary rock. *Remediation*, 23(3), 7-35.
- Chesapeake Energy. (2012). Water Used in Deep Shale Gas Exploration Fact Sheet. Oklahoma City (OK): Chesapeake Energy.
- Cheung, K., Klassen, P., Mayer, B., Goodarzi, F., & Aravena, R. (2010). Major ion and isotope geochemistry of fluids and gases from coalbed methane and shallow groundwater wells in Alberta, Canada. *Applied Geochemistry*, 25, 1307-1329.

- CIA (Central Intelligence Agency). (2013). The World Factbook. Country Comparison: Natural Gas - Production. Retrieved February 2013, from https://www.cia.gov/library/publications/the-world-factbook/ rankorder/2249rank.html?countryName=Canada&countryCode=ca&r egionCode=noa&rank=5#ca.
- Clark, I. D., Al, T., Jensen, M., Kennell, L., Mazurek, M., Mohapatra, R., & Raven, K. G. (2013). Paleozoic-aged brine and authigenic helium preserved in an Ordovician shale aquiclude. *Geology*, 41(9), 951-954.
- Cohen, H. A., Parratt, T., & Andrews, C. B. (2013). Discussion of papers "Potential contaminant pathways from hydraulically fractured shale to aquifers". *Groundwater*, *51*(3), 317-319.
- Colborn, T., Kwiatkowski, C., Schultz, K., & Bachran, M. (2011). Natural gas operations from a public health perspective. *Human and Ecological Risk Assessment, 17*, 1039-1056.
- Comité de l'évaluation environnementale stratégique sur le gaz de schiste. (2012). Implementation Plan for the Strategic Environmental Assessment on Shale Gas. Québec (QC): Gouvernement du Québec.
- Committee of Energy and Commerce. (2011). *Chemicals Used in Hydraulic Fracturing*. Washington (DC): U.S. House of Representatives.
- Cooke Jr., C. E. (1979). Radial differential temperature (RDT) logging A new tool for detecting and treating flow behind casing. *Journal of Petroleum Technology*, *31*(6), 676-682.
- Cooley, H. & Donnelly, K. (2012). *Hydraulic Fracturing and Water Resources:* Separating the Frack from the Fiction. Oakland (CA): Pacific Institute.
- Cottle, M. & Guidotti, T. (1990). Process chemical in the oil and gas industry: Potential occupational hazards, toxicology, and industrial health. *Toxicology and Industrial Health*, *6*, 41-56.
- Coussens, C. & Martinez, R. M. (2014). *Health Impact Assessment of Shale Gas Extraction: Workshop Summary.* Washington (DC): National Academy of Sciences.
- Covello, V. T. (1983). The perception of technological risks: A literature review. *Technological Forecasting and Social Change*, 23(4), 285-297.
- Covello, V. T. (1992). Risk Communication: An Emerging Area of Health Communication Research. In S. A. Deetz (Ed.), *Communications Yearbook*. Newbury Park (CA): Sage Publications.
- Crouse, D. L., Peters, P. A., Van Donkelaar, A., Goldberg, M. S., Villeneuve, P. J., Brion, O.,... Burnett, R. T. (2012). Risk of nonaccidental and cardiovascular mortality in relation to long-term exposure to low concentrations of fine particulate matter: A Canadian national-level cohort study. *Environmental Health Perspectives*, 120(5), 708-714.
- CSA Group (Canadian Standards Association Group). (2012). Geological Storage of Carbon Dioxide (Z741-12). Toronto (ON): CSA Group.

- Daigle, P. (2010). A summary of the environmental impacts of roads, management responses, and research gaps: A literature review. BC Journal of Ecosystems and Management, 10(3), 65-89.
- Davey, E. (2012). Written Ministerial Statement by Edward Davey: Exploration for Shale Gas. Retrieved January 2014, from https://www.gov.uk/government/ speeches/written-ministerial-statement-by-edward-davey-exploration-forshale-gas.
- DeMong, K., Fahlman, J., & Schnell, R. (2010). Coping With Surface and Downhole Interference on Tightly Spaced Completions Pads in the Horn River. Paper presented at Canadian Unconventional Resources and International Petroleum Conference, Calgary (AB).
- Dittrick, P. (2012, July 30). Drought raising water costs, scarcity concerns for Shale Plays. *Oil and Gas Journal.*

DNV (Det Norske Veritas). (2013). Recommended Practice: Risk Management of Shale Gas Developments and Operations (DNV-RP-U301). Høvik, Norway: DNV. Dolley, T. P. (2012). 2010 Minerals Yearbook. Silica. USGS.

- Dondiego, M. (2013). New Fracking Study, New Controversy. Retrieved January 2014, from http://www.legislativegazette.com/Articles-c-2013-09-23-85187.113122-New-fracking-study-new-controversy.html.
- Duchaine, Y., Tourigny, Y., Beaudoin, G., & Dupuis, C. (2012). Potentiel en gaz naturel dans le groupe d'Utica. Québec (QC): Université Laval.
- Dusseault, M., Gray, M., & Nawrocki, P. (2000). Why Oilwells Leak: Cement Behavior and Long-Term Consequences. Paper presented at Society of Petroleum Engineers International Oil and Gas Conference and Exhibition, Beijing, China.
- Dusseault, M. (2013). Geomechanical Aspects of Shale Gas Development. Paper presented at EUROCK 2013, Wroclaw, Poland.
- Dutzik, T., Ridlington, E., & Rumpler, J. (2012). *The Costs of Fracking*. Santa Barbara (CA): PennEnvironment Research and Policy Center.
- EC/R Incorporated. (2011). Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution. Background Technical Support Document for Proposed Standards. Chapel Hill (NC): EPA.
- EEA (European Environmental Agency). (2001). Late Lessons from Early Warnings: The Precautionary Principle 1896–2000. Copenhagen, Denmark: EEA.
- EEA (European Environmental Agency). (2013). Late Lessons from Early Warnings: Science, Precaution, Innovation. Copenhagen, Denmark: EEA.
- Efstathiou, J. & Drajem, M. (2013). Drillers Silence Fracking Claims With Sealed Settlements. Retrieved August 2013, from http://www.bloomberg.com/ news/2013-06-06/drillers-silence-fracking-claims-with-sealed-settlements.html.
- EIA (U.S. Energy Information Administration). (1998). Natural Gas 1998. Issues and Trends. Washington (DC): EIA.

- EIA (U.S. Energy Information Administration). (2011). Maps: Exploration, Resources, Reserves, and Production. Retrieved August 2013, from http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ maps/maps.htm.
- EIA (U.S. Energy Information Administration). (2012). Annual Energy Outlook 2012. Washington (DC): EIA.
- EIA (U.S. Energy Information Administration). (2014). Henry Hub Natural Gas Spot Price. Retrieved January 2014, from http://www.eia.gov/dnav/ ng/hist/rngwhhdm.htm.
- Einarson, M. (2006). Multilevel Groundwater Monitoring. In *Practical Handbook* of *Environmental Site Characterization and Groundwater Monitoring* (2nd edition). Boca Raton (FL): CRC Taylor & Francis.
- Einarson, M. D. & Cherry, J. A. (2002). A new multilevel ground water monitoring system using multichannel tubing. *Groundwater Monitoring and Remediation*, 22(4), 52-65.
- Eklund, D. (2005). *Penetration Due to Filtration Tendency of Cement Based Grouts*. Stockholm, Sweden: Royal Institute of Technology.
- Eligon, J. (2013, January 27). An Oil Boom Takes a Toll on Health Care, *The New York Times*.
- Encana. (2013). Courtesy Matters. Retrieved September 2013, from http://www.encana.com/communities/courtesy-matters/.
- Entrekin, S., Evans-White, M., Johnson, B., & Hagenbuch, E. (2011). Rapid expansion of natural gas development poses a threat to surface waters. *Frontiers in Ecology and the Environment*, 9(9), 503-511. doi: 10.1890/110053.
- Environment Canada. (2011). An Integrated Oil Sands Environment Monitoring Plan. Ottawa (ON): Environment Canada.
- EPA (Environmental Protection Agency). (1993). Guidance for Evaluation the Technical Impracticability of Ground-Water Restoration. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2009a). Greenhouse Gas Emissions Reporting From the Petroleum and Natural Gas Industry. Background Technical Support Document. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2009b). National Primary Drinking Water Regulations. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2009c). Ozone and Your Health. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2010). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2011a). Oil and Natural Gas Sector: New Source Performance Standards and National Emissions Standards for Hazardous Air Pollutants Reviews. Washington (DC): EPA.

- EPA (Environmental Protection Agency). (2011b). Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2012a). Regulation of Hydraulic Fracturing Under the Safe Drinking Water Act. Retrieved July 2013, from http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/ wells_hydroreg.cfm.
- EPA (Environmental Protection Agency). (2012b). Health Effects. Retrieved September 2013, from http://www.epa.gov/glo/health.html.
- EPA (Environmental Protection Agency). (2012c). Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution. Background Supplemental Technical Support Document for the Final New Source Performance Standards. Chapel Hill (NC): EPA.
- EPA (Environmental Protection Agency). (2013a). Nitrogen Dioxide. Health. Retrieved September 2013, from http://www.epa.gov/airquality/ nitrogenoxides/health.html.
- EPA (Environmental Protection Agency). (2013b). EPA Needs to Improve Air Emissions Data for the Oil and Natural Gas Production Sectors. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2013c). Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2011. Washington (DC): EPA.
- EPA (Environmental Protection Agency). (2013d). Particulate Matter (PM). Health. Retrieved September 2013, from http://www.epa.gov/pm/ health.html.
- Erickson, P. A. (1994). A Practical Guide to Environmental Impact Assessment. San Diego (CA): Academic Press.
- Erno, B. & Schmitz, R. (1996). Measurements of soil gas migration around oil and gas wells in the Lloydminster area. *Journal of Canadian Petroleum Technology*, 35(7). doi: 10.2118/96-07-05.
- Esswein, E. J., Breitenstein, M., & Snawder, J. (2012). NIOSH Field Effort to Assess Chemical Exposures in Oil and Gas Workers: Health Hazards in Hydraulic Fracturing. Denver (CO): NIOSH.
- Ethridge, S. (2010). Interoffice Memorandum: Health Effects Reviews of Barnett Shale Formation Area Monitoring Projects. Austin (TX): Texas Commission on Environmental Quality.
- European Parliament. (2011). Impacts of Shale Gas and Shale Oil Extraction on the Environment and on Human Health. Brussels, Belgium: European Parliament.
- Ewen, C., Borchardt, D., Richter, S., & Hammerbacher, R. (2012). Hydrofracking Risk Assessment. Study Concerning the Safety and Environmental Compatibility of Hydrofracking for Natural Gas Production from Unconventional Reservoirs (Executive Summary). Berlin, Germany: ExxonMobil Production Deutschland Gmbh.

- Eynon, G. (2012). Energy: The Impact of Hydraulic Fracture Stimulation on Regulations and the Economy. Panel Discussion. Paper presented at Hydraulic Fracture Stimulation, Banff (AB).
- Fierro, M. A., O'Rourke, M. K., & Burgess, J. L. (2001). Adverse Health Effects of Exposure to Ambient Carbon Monoxide. Tucson (AZ): College of Public Health, University of Arizona.
- Figueroa, J. D., Fout, T., Plasynski, S., McIlvried, H., & Srivastava, R. D. (2008). Advances in CO₂ capture technology – The U.S. department of energy's carbon sequestration program. *International Journal of Greenhouse Gas Control*, 2(1), 9-20.
- Fisher, K. & Warpinski, N. (2011). Hydraulic Fracture-Height Growth: Real Data. Paper presented at Society of Petroleum Egineers Annual Technical Conference and Exhibition, Denver (CO).
- Flemisch, B., Darcis, M., Erbertseder, K., Faigle, B., Lausser, A., Mosthaf, K.,... Helmig, R. (2011). DuMu^x: Dune for multi-flow and transport in porous media. *Advances in Water Resources*, 34, 1102-1112.
- Flewelling, S. A., Tymchak, M. P., & Warpinski, N. (2013). Hydraulic fracture height limits and fault interactions in tight oil and gas formations. *Geophysical Research Letters* 40, 1-5. doi: 10.1002/grl.50707.
- Flewelling, S. A. & Sharma, M. (2014). Constraints on upward migration of hydraulic fracturing fluid and brine. *Groundwater*, *52*(1). doi: 10.1111/ gwat.12095.
- FNFN (Fort Nelson First Nation). (2012). Respect for the Land: Fort Nelson First Nation Strategic Land Use Plan. Fort Nelson (BC): Fort Nelson First Nation.
- Focazio, M. J., Reilly, T. E., Rupert, M. G., & Helsel, D. R. (2002). Assessing Ground-Water Vulnerability to Contamination: Providing Scientifically Defensible Information for Decision Makers. Denver (CO): USGS.
- Folkes, D. J. (1982). Control of contaminant migration by the use of liners. *Canadian Geotechnical Journal 19*(3), 320-344.
- Fountain, J. C. & Jacobi, R. D. (2000). Detection of buried faults and fractures using soil gas analysis. *Environmental and Engineering Geoscience*, 6(3), 201-208.
- Fraser Basin Council. (2012). Identifying Health Concerns Relating to Oil & Gas Development in Northeastern BC. Vancouver (BC): BC Ministry of Health.
- Frind, E. O., Molson, J. W., & Rudolph, D. L. (2006). Well vulnerability: A quantitative approach for source water protection. *Groundwater*, 44(5), 732-742. doi: 10.1111/j.1745-6584.2006.00230.x.
- Gassiat, C., Gleeson, T., Lefebvre, R., & McKenzie, J. (2013). Hydraulic fracturing in faulted sedimentary basins: Numerical simulation of potential contamination of shallow aquifers over long time scales. *Water Resources Research*, 40(12), 8310-8327. doi: 10.1002/2013WR014287.

- Gautschi, A. (2001). Hydrogeology of a fractured shale (Opalinus Clay): Implications for deep geological disposal of radioactive wastes. *Hydrogeology Journal*, 9, 97-107.
- GE (General Electric). (2014). FlexEfficiency* 50 Combined Cycle Power Plant. Retrieved January 2014, from http://www.ge-energy.com/products_and_ services/products/gas_turbines_heavy_duty/flexefficiency_50_combined_ cycle_power_plant.jsp.
- Geoscience B.C. (2011a). Geoscience BC Announces Collaborative Horn River Basin Water Study Phase II Activities. Retrieved January 2014, from http://www.geosciencebc.com/s/NewsReleases.asp?ReportID=478074.
- Geoscience B.C. (2011b). *Montney Water Project. Project Completion Report.* Vancouver (BC): Geoscience B.C.
- Geoscience B.C. (2012). Geoscience BC Announces Collaborative Regional Seismic Program. Retrieved April 2013, from http://www.geosciencebc.com/ s/NewsReleases.asp?ReportID=545816&_Type=News&_Title=Geoscience-BC-Announces-Collaborative-Regional-Seismic-Program.
- Gevantman, L. H. (2013). Solubility of Selected Gases. In W. M. Haynes (94th Ed.), *Handbook of Chemistry and Physics*. Boca Raton (FL): CRC Press/ Taylor and Francis.
- Gillis, D. (2012). Fort Nelson First Nation to Discuss Massive Shale Gas Water Licenses Nov. 13 in Vancouver. Retrieved March 2013, from http://thecanadian.org/item/1805-fort-nelson-first-nation-to-discuss-mass.
- Gilman, J. B., Lerner, B. M., Kuster, W. C., & de Gouw, J. A. (2013). Source signature of volatile organic compounds from oil and natural gas operations in northeastern colorado. *Environmental Science and Technology*, 47(3), 1297-1305. doi: 10.1021/es304119a.
- Gimmi, T., Waber, H. N., Gautschi, A., & Rubel, A. (2007). Stable water isotopes in pore water of Jurassic argillaceous rocks as tracers for solute transport over large spatial and temporal scales. *Water Resources Research*, 43(4). doi: 10.1029/2005WR004774.
- Goldstein, B. D., Kriesky, J., & Pavliakova, B. (2012). Missing from the table:
 Role of the environmental public health community in governmental advisory commissions related to Marcellus Shale drilling. *Environmental Health Perspectives*, 120(4), 483-486.
- Goldstein, B. D., Bjerke, E. F., & Kriesky, J. (2013). Challenges of unconventional shale gas development: So what's the rush?. Notre Dame Journal of Law, Ethics & Public Policy, 27(1), 149-185.
- GoodGuide. (2011). Hazardous Air Pollutants (Clean Air Act). Retrieved January 2014, from http://scorecard.goodguide.com/chemical-groups/ one-list.tcl?short_list_name=hap.

- Gorody, A. W. (2012). Factors affecting the variability of stray gas concentration and composition in groundwater. *Environmental Geosciences*, 19(1), 17-31. doi: 10.1306/eg.12081111013.
- Gouvernement du Québec. (2013). *Gazette officielle du Québec. Laws and Regulations.* Vol. 22. Québec (QC): Gouvernement du Québec.
- Gouvernement du Québec. (2014). Strategic Environmental Assessment on Shale Gas. Retrieved January 2014, from http://ees-gazdeschiste.gouv. qc.ca/en/.
- Government of Alberta. (2011). Occupational Injuries and Diseases in Alberta. Upstream Oil and Gas Industries 2006 to 2010. Edmonton (AB): Government of Alberta.
- Government of Canada. (1982). *Constitution Act, 1982.* Ottawa (ON): Government of Canada.
- Government of Canada & Government of Alberta. (n.d.). *Joint Canada Alberta Implementation Plan for Oil Sands Monitoring*. Government of Canada and the Government of Alberta.
- Government of New Brunswick. (2013a). *The New Brunswick Oil and Natural Gas Blueprint*. Fredericton (NB): Government of New Brunswick.
- Government of New Brunswick. (2013b). Responsible Environmental Management of Oil and Natural Gas Activities in New Brunswick: Rules for Industry. Fredericton (NB): Government of New Brunswick.
- Government of New Brunswick. (2014). Oil & Natural Gas in NB. Retrieved January 2014, from http://www2.gnb.ca/content/gnb/en/corporate/ promo/natural_gas_from_shale/fact_sheets/oil_natural_gas_innb.html.
- Government of Newfoundland and Labrador. (2013). Minister Provides Position on Hydraulic Fracturing. Retrieved January 2014, from http://www. releases.gov.nl.ca/releases/2013/nr/1104n06.htm.
- Gregory, K. B., Radisav, D. V., & Dzombak, D. A. (2011). Water management challenges associated with the production of shale gas by hydraulic fracturing. *Elements*, 7(3), 181-186. doi: 10.2113/gselements.7.3.181.
- GRES (Groupe de recherche sur l'eau souterraine). (2013). Projet/PACES/ Mise en Contexte. Retrieved January 2014, from http://gres.uqat.ca/ FR/PACES_MISE_EN_CONTEXTE.
- GW Solutions. (2012). *Montney Water Project Hydrogeologic Review*. Dawson Creek (BC): City of Dawson Creek.
- Halliburton. (2008). U.S. Shale Gas. An Unconventional Resource. Unconventional Challenges. Houston (TX): Halliburton.
- Hamlat, M. S., Djeffal, S., & Kadi, H. (2001). Assessment of radiation exposures from naturally occurring radioactive materials in the oil and gas industry. *Applied Radiation and Isotopes*, 55(1), 141-146.

- Hawkes, C. D., McLellan, P. J., Zimmer, U., & Bachu, S. (2004). Geomechanical Factors Affecting Geological Storage of CO₂ in Depleted Oil and Gas Reservoirs: Risks and Mechanisms. Paper presented at Gulf Rocks 2004, the 6th North America Rock Mechanics Symposium (NARMS), Houston (TX).
- Hayes, B.J.R. & Archibald, H.B. (2012). Scoping Study of Unconventional Oil and Gas Potential. Whitehorse (YK): Yukon Geological Survey.
- Hayhoe K., Kheshgi H.S., Jain A.K., & Wuebbles D.J. (2002). Substitution of natural gas for coal: Climatic effects of utility sector emissions. *Climate Change*, 54, 107-139.
- Health Canada. (1996). Health-Based Tolerable Daily Intakes/Concentrations and Tumorigenic Doses/Concentrations for Priority Substances. Ottawa (ON): Health Canada.
- Health Canada. (2002). *Health Policy Research Bulletin*. Ottawa (ON): Health Canada.
- Health Canada. (2012). Guidelines for Canadian Drinking Water Quality—Summary Table. Ottawa (ON): Health Canada.
- Healy, J.H., Rubey, W.W., Griggs, D.T., & Raleigh, C.B. (1968). The Denver earthquakes. *Science*, *161*(3848), 1301-1310.
- Heath, G.A. & Mann, M.K. (2012). Background and reflections on the life cycle assessment harmonization project. *Journal of Industrial Ecology*, 16(S1), S8-S11.
- Heilweil, V.M., Stolp, B.J., Kimball, B.A., Susong, D.D., Marston, T.M., & Gardner, P.M. (2013). A stream-based methane monitoring approach for evaluating groundwater impacts associated with unconventional gas development. *Groundwater*, 51(4), 511-524.
- Herz, S., Vina, A., & Sohn, J. (2007). Development Without Conflict. The Business Case for Community Consent. Washington (DC): World Resources Institute.
- Hill, J. (2013). Eagle Ford Trucking Accident Risk. Retrieved August 2013, from http://www.rhlawgroup.com/blog/eagle-ford-trucking-accident-risk/.
- Holder, J. (2004). Environmental Assessment: The Regulation of Decision Making. New York (NY): Oxford University Press.
- Honeycutt, M. (2012). Air Quality Impacts of Natural Gas Operations in Texas. Austin (TX): Texas Commission on Environmental Quality.
- Horn River Basin Producers Group. (2010). Horn River Basin/Shale Gas Frequently Asked Questions. Retrieved September 2013, from http://www. northernrockies.ca/assets/Business/Producers~Group/HRBPG_FAQ.pdf.
- House of Commons Energy and Climate Change Committee. (2011). Shale Gas. Fifth Report of Sessions 2010–12. London, United Kingdom: House of Commons.
- Howarth, R., Shindell, D., Santoro, R., Ingraffea, A., Phillips, N., & Townsend-Small, A. (2012). *Methane Emissions from Natural Gas Systems*. Washington (DC): National Climate Assessment.

- Howarth, R., Santoro, R., & Ingraffea, A. (2011). Methane and the greenhousegas footprint of natural gas from shale formations. *Climate Change*, *106*(4), 670-690. doi: 10.1007/s10584-011-0061-5.
- Hughes, D. J. (2013). Drill, Baby, Drill. Santa Rosa (CA): Post Carbon Institute.
- Hughes, T. P. (1983). Networks of Power: Electrification in Western Society, 1880–1930. Baltimore (MD): Johns Hopkins University Press.
- Hultman, N., Rebois, D., Scholten, M., & Ramig, C. (2011). The greenhouse impact of unconventional gas for electricity generation. *Environmental Research Letters*, 6(4). doi: 10.1088/1748-9326/6/4/044008.
- Hume, M. (2012, September 9). Dawson Creek and Shell Elude Water Shortage Crisis. *The Globe and Mail.*
- IAIA (International Association for Impact Assessment). (1999). Principles of Environmental Impact Assessment Best Practice. Fargo (ND): IAIA.
- ICO₂N. (2013). Canadian Carbon Capture and Storage Projects. Retrieved September 2013, from http://www.ico2n.com/ccs-in-canada/first-projects-in-canada.
- IEA (International Energy Agency). (2011). Are We Entering a Golden Age of Gas? World Energy Outlook 2011. Paris, France: IEA.
- IEA (International Energy Agency). (2012a). *Energy Statistics of OECD Countries* 2012. Paris, France: IEA.
- IEA (International Energy Agency). (2012b). *Golden Rules for a Golden Age of Gas.* Paris, France: IEA.
- IEA (International Energy Agency). (2013). Energy Balances of OECD Countries (2013 Edition). Paris, France: IEA.
- Industry Canada. (2010). Voluntary Codes Guide What is a Voluntary Code? Retrieved September 2013, from http://www.ic.gc.ca/eic/site/oca-bc. nsf/eng/ca00963.html.
- Infante, L., Hopkins, J., Obenshain, K., & Fisher, E. (2012). *Emerging Natural Gas Issues: Concerns and Activities Surrounding Hydraulic Fracturing and the Development of Shale Gas.* Washington (DC): Edison Electric Institute.
- Interorganizational Committee on Guidelines and Principles for Social Impact Assessment. (1994). *Guidelines and Principles for Social Impact Assessment*. Washington (DC): National Oceanic and Atmospheric Administration.
- IPCC (Intergovernmental Panel on Climate Change). (2007). *Climate Change* 2007 – *The Physical Science Basis*. New York (NY): IPCC.
- IPCC (Intergovernmental Panel on Climate Change). (2013). *Climate Change* 2013: *The Physical Science Basis*. New York (NY): IPCC.
- Jackson, R. & Dusseault, M. (2013). Seepage Pathway Assessment for Natural Gas to Shallow Groundwater During Well Stimulation, Production, and After Abandonment. Paper presented at GéoMontréal 2013, Montréal (QC).

- Jackson, R. B., Vengosh, A., Darrah, T. H., Warner, N. R., Down, A., Poreda,
 R. J.,... Karr, J. D. (2013a). Increased stray gas abundance in a subset of drinking water wells near Marcellus Shale gas extraction. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, 110(8), 11250-11255. doi: 10.1073/pnas.1221635110.
- Jackson, R.E., Gorody, A.W., Mayer, B., Roy, J.W., Ryan, M.C., & Van Stempvoort, D.R. (2013b). Groundwater protection and unconventional gas extraction: The critical need for field-based hydrogeological research. *Groundwater*, 51(4), 488-510. doi: 10.1111/gwat.12074.
- Jacquet, J. (2009). Energy Boomtowns and Natural Gas: Implications for Marcellus Shale Local Governments and Rural Communities. NERCRD Rural Development Paper No. 43. University Park (PA): The Northeast Regional Center for Rural Development and Pennsylvania State University.
- Jacquet, J. (2013). *Risks to Communities from Shale Gas Development*. Paper presented at Workshop on Risks from Shale Gas Development, Washington (DC).
- Jewell, K. P. & Wilson, J. T. (2011). A new screening method for methane in soil gas using existing groundwater monitoring wells. *Ground Water Monitoring* and Remediation, 31(3), 82-94. doi: 10.1111/j1745-6592.2011.001345.x.
- Jiang, M., Griffin, W. M., Hendrickson, C., Jaramillo, P., VanBriesen, J., & Venkatesh, A. (2011). Life cycle greenhouse gas emissions of Marcellus shale gas. *Environmental Research Letters*, 6(3), 034014.
- Johnson, E. (2012). Water Issues Associated with Hydraulic Fracturing in Northeast British Columbia. Paper presented at Unconventional Gas Technical Forum, Victoria (BC).
- Johnson, E. & Johnson, L. A. (2012). Hydraulic fracture water usage in northeast British Columbia: Locations, volumes and trends. *Geoscience Reports 2012*, B.C. Ministry of Energy and Mines 2012, 41-63.
- Johnson, N. (2010). Pensylvania Energy Impacts Assessment. Report 1: Marcellus Shale Natural Gas and Wind. Harrisburg (PA): The Nature Conservancy.
- Johnson, N. (2011). *Pennsylvania Energy Impacts Assessment*. Harrisburg (PA): The Nature Conservancy.
- Jones, C. F. (2010). A landscape of energy abundance: Anthracite coal canals and the roots of american fossil fuel dependence, 1820–1860. *Environmental History*, *15*, 449-484. doi: 10.1093/envhis/emq057.
- Kahrilas, G., Blotevogal, J., Corrin, E. R., & Borch, T. (2013). Fate of Hydraulic Fracturing Chemicals Under Down-Hole Conditions. Paper presented at ACS National Meeting, Indianapolis (IN).
- Keighley, D. & Maher, C. (2010). A Preliminary Assessment of Carbon Storage Capacity in Deep Underground Geological Formations of New Brunswick. Fredericton (NB): University of New Brunswick.

- Kelly, W. R. & Mattisoff, G. (1985). The effects of a gas well blow out on groundwater chemistry. *Environmental Geology and Water Sciences*, 7(7), 205-213.
- Kemball-Cook, S., Bar-Ilan, A., Grant, J., Parker, L., Jung, J., Santamaria, W.,...
 Yarwood, G. (2010). Ozone impacts of natural gas development in the Haynesville Shale. *Environmental Science and Technology*, 44(24), 9357-9363.
- Keranen, K. M., Savage, H. M., Abers, G. A., & Cochran, E. S. (2013). Potentially induced earthquakes in Oklahoma, USA: Links between wastewater injection and the 2011 M_w 5.7 earthquake sequence. *Geology*, 41(6), 699-702.
- King, G. E. (2012). Hydraulic Fracturing 101: What Every Representative, Environmentalists, Regulator, Reporter, Investor, University Researcher, Neighbor and Engineer Should Know About Estimating Frac Risk and Improving Frac Performance in Unconventional Gas and Oil Wells. Paper presented at SPE Hydraulic Fracturing Technology Conference, The Woodlands, Texas.
- Korfmacher K.S., Jones W.A., Malone S.L., & Vinci L.F. (2013). Public health and high volume hydraulic fracturing. *New Solutions*, *23*(1), 13-31.
- Kresic, N. & Mikszewski, A. (2012). Hydrogeological Conceptual Site Models: Data Analysis and Visualization. Boca Raton (FL): CRC Press.
- Kueper, B. W., Haase, C. S., & King, H. L. (1992). Leakage of dense, nonaqueous phase liquids from waste impoundments constructed in fractured rock and clay: Theory and case history. *Canadian Geotechnical Journal*, 29, 234-244.
- Lackey, S.O., Myers, W.F., Christopherson, T.C., Gottula, J.J. (2009). *Nebraska Grout Task Force*. Lincoln (NE): University of Nebraska.
- Lapierre, L. (2012). The Path Forward. Part I: Public Meeting Summary. Fredericton (NB): The Government of New Brunswick.
- Lapp, S. L. & Whiten, R. (2012). British Columbia/Alberta Partnership for Applied Long-Term Watershed Management Research in the Peace River Region's Upper Kiskatinaw River. Kamploops (BC): Forum for Research and Extension in Natural Resources.
- Lavoie, D., Chen, Z., Pinet, N., & Lyster, S. (2012). A Review of November 24–25, 2011 Shale Gas Workshop. Resource Evaluation Methodology. Calgary (AB): Geological Survey of Canada.
- Leblanc, D., Huskins, L., & Lestz, R. (2011). Propane-based fracturing improves well performance in Canadian tight reservoirs. *World Oil, July* 39-46.
- Lemieux, J.M. (2011). The potential impact of underground geological storage of carbon dioxide in deep saline aquifers on shallow groundwater resources. *Hydrogeology Journal*, 19, 457-778. doi: 10.1007/s10040-011-0715-4.
- Levson, V., Pyle, L., & Fournier, M. (2012). NWT Open File 2012-06: Identification of Potential Silica Sand Deposits in the Northwest Territories. Yellowknife (NT): Northwest Territories Geoscience Office.

- Liroff, R. (2012). *Extracting the Facts: An Investor Guide to Disclosing Risks from Hydraulic Fracturing Operations*. New York (NY): Investor Environmental Health Network and Interfaith Center on Corporate Responsibility.
- Litovitz, A., Curtright, A., Abramzon, S., Burger, N., & Samaras, C. (2013).
 Estimation of regional air-quality damages from Marcellus Shale natural gas extraction in Pennsylvania. *Environmental Research Letters*, 8(1).
- Logan, J., Heath, G., Paranhos, E., Boyd, W., & Carlson, K. (2012). *Natural Gas and the Transformation of the US.* Golden (CO): Joint Institute for Strategic Energy Analysis.
- Lolon, E. P., Cipolla, C. L., & Weijers, L. (2009). Evaluation Horizontal Well Placement and Hydraulic Fracture Spacing/Conductivity in the Bakken Formation, North Dakota. Paper presented at Society of Petroleum Engineers Annual Technical Conference and Exhibition, New Orleans (LA).
- Lowen Hydrogeology Consultants Ltd. (2011). Aquifer Classification Mapping in the Peace River Region for the Montney Water Project. Victoria (BC): Geoscience B.C.
- Manga, M., Beresnev, I., Brodsky, E. E., Elkhoury, J. E., Elsworth, D., Ingebritsen, S. E., . . . Wang, C.-Y. (2012). Changes in permeability caused by transient stresses: Field observations, experiments and mechanisms. *Review of Geophysics*, 50, RG000382.
- Manning, M. & Reisinger, A. (2011). Broader perspectives for comparing different greenhouse gases. *Philosophical Transactions of the Royal Society*, 369(1943), 1891-1905.
- Martin, G. (2003). Management of New Brunswick's Crown Forest. Fredericton (NB): New Brunswick Department of Natural Resources.
- Matthews, H. D., Gillett, N. P., Stott, P. A., & Zickfeld, K. (2009). The proportionality of global warming to cumulative carbon emissions. *Nature*, 459, 829-832.
- Maule, A. L., Makey, C. M., Benson, E. B., Burrows, I. J., & Scammell, M. K. (2012). Disclosure of hydraulic fracturing fluid chemicals additives: Analysis of regulations. *New Solutions: A Journal of Environmental and Occupational Health Policy*, 23(1), 167-187.
- McGarr, A., Simpson, D., & Seeber, L. (2002). 40 case histories of induced and triggered seismicity. *International Handbook of Earthquake and Engineering Seismology*, *81*(A), 647-661.
- McKenzie, L. M., Witter, R. Z., Newman, L. S., & Adgate, J. L. (2012). Human health risk assessment of air emissions from development of unconventional natural gas resources. *Science of the Total Environment*, 424(1), 79-87.
- McLeod, R. (2011, July-August). \$and dollars mining frac sand in the River Valley, *Big River Magazine*.
- Meyer, J. R., Parker, B. L., & Cherry, J. A. (2008). Detailed hydraulic head profiles as essential data for defining hydrogeologic units in layered fractured sedimentary rock. *Environmental Geology*, *56*, 27-44.

- Mielke, E., Anadon, L. D., & Narayanamurti, V. (2010). Water Consumption of Energy Resource Extraction, Processing, and Conversion, Discussion Paper #2010-15. Cambridge (MA): Harvard Kennedy School Belfar Center for Science and International Affairs.
- Millennium Ecosystem Assessment. (2005). *Ecosystems and Human Well-Being*. Washington (DC): Island Press.
- Minister of Justice. (2012). *Canadian Environmental Assessment Act*. Ottawa (ON): Government of Canada.
- Minister of Justice. (2013). *Hazardous Materials Information Review Act*. Ottawa (ON): Government of Canada.
- MIT (Massachussetts Institute of Technology). (2011). *The Future of Natural Gas.* Cambridge (MA): MIT.
- Moffet, J., Bregha, F., & Middelkoop, M. J. (2004). Responsible Care: A Case Study of a Voluntary Environmental Initiative. In K. Webb, *Voluntary Codes.* Ottawa (ON): Carleton Research Unit for Innovation, Science and Environment.
- Molofsky, L. J., Connor, J. A., Farhat, S. K., Wylie, A., & Wagner, T. (2011). Methane in Pennsylvania water wells unrelated to Marcellus Shale fracturing. *Oil and Gas Journal*, 109, 54-67.
- Molofsky, L. J., Connor, J. A., Wylie, A. S., Wagner, T., & Farhat, S. K. (2013). Evaluation of methane sources in groundwater in northeastern Pennsylvania. *Groundwater*, 51(3), 333-349.
- Muehlenbachs, K. (2012a). Using Stable Isotope Geochemistry to Fingerprint Fugitive Gases from Hydraulically Fractured Wells. Paper presented at Hydraulic Fracture Stimulation: Science, Society & Environment, Canadian Society of Petroleum Geologists' Gussow Conference, Banff (AB).
- Muehlenbachs, K. (2012b). Identifying the Sources of Fugitive Methane Associated with Shale Gas Development, Updated with New Data, Jan 2012. Paper presented at Resource for the Future. Managing the Risks of Shale gas: Identifying a Pathway Toward Responsible Development, Washington (DC).
- Mueller, D. & Eid, R. (2006). Characterizing Early-Stage Physical Properties, Mechanical Behavior of Cement Designs. Paper presented at Drilling Conference, Miami Beach (FL).
- Mufson, S. (2012, February 1). Cheap Natural Gas Jumbles Energy Markets, Stirs Fears it Could Inhibit Renewables, *Washington Post*.
- Myers, T. (2012). Potential contaminant pathways from hydraulically fractured shale to aquifers. *Groundwater*, *50*(6), 872-882.
- NEB (National Energy Board). (2009a). A Primer for Understanding Canadian Shale Gas. Calgary (AB): NEB.
- NEB (National Energy Board). (2009b). Energy Brief Understanding Canadian Shale Gas. Calgary (AB): NEB.

- NEB (National Energy Board). (2011). *Canadian Energy Overview 2010*. Calgary (AB): NEB.
- NEB (National Energy Board). (2012). Energy Trade Energy Facts. Retrieved January 2014, from http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/ nrgyrprt/nrgdmnd/nrgytrdfct2011/nrgtrdfct-eng.html.
- NEB (National Energy Board). (2013a). Filing Requirements for Onshore Drilling Operations Involving Hydraulic Fracturing. Calgary (AB): NEB.
- NEB (National Energy Board). (2013b). Marketable Natural Gas Production in Canada. Retrieved February 2013, from http://www.neb-one.gc.ca/clfnsi/rnrgynfmtn/sttstc/mrktblntrlgsprdctn/mrktblntrlgsprdctn-eng.html.
- NETL (National Energy Technology Laboratory). (2010). *Improving Thermal Efficiency of Power Plants. Technical Workshop Report.* Baltimore (MD): U.S. Department of Energy.
- Neuzil, C. E. (1986). Groundwater flow in low-permeability environments. *Water Resources Research*, 22(8), 1163-1195.
- Neuzil, C. E. (1994). How permeable are clays and shales? *Water Resources Research*, *30*(2), 145-150.
- Nicholson, C. & Wesson, R. L. (1990). Earthquake Hazard Associated with Deep Well InjectioN. A Report to the U.S. Environmental Protection Agency. Denver (CO): U.S. Geological Survey and U.S. Department of the Interior.
- Nielsen, A. (2012). We Gambled Everything: The Life and Times of an Oilman. Edmonton (AB): The University of Alberta Press.
- NIOSH (National Institute for Occupational Safety and Health). (2002). *Health Effects of Occupational Exposure to Respirable Crystalline Silica*. Cincinnati (OH): Department of Health and Human Services, Centers for Disease Control and Prevention, NIOSH.
- Northrup, J. M. & Wittemyer, G. (2013a). Characterising the impacts of emerging energy development on wildlife, with an eye towards mitigation. *Ecology Letters*, *16*(*1*), 112-125. doi: 10.1111/ele.12009.
- Nova Scotia. (2011). *Review of Hydraulic Fracturing in Nova Scotia*. Halifax (NS): Government of Nova Scotia.
- Nova Scotia Department of Natural Resources. (2008). State of the Forest Report 1995–2005. Halifax (NS): Nova Scotia Department of Natural Resources.
- NRC (National Research Council). (2010). *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use.* Washington (DC): NRC.
- NRC (National Research Council). (2012). Induced Seismicity Potential in Energy Technologies. Washington (DC): NRC.
- NRCan (Natural Resources Canada). (2009). Demonstrating Carbon Capture and Storage in Canada. NRCan.
- NYSDEC (New York State Department of Environmental Conservation). (1999). An Investigation of Naturally Occurring Radioactive Materials (NORM) in Oil and Gas Wells in New York State. Albany (NY): NYSDEC.

- NYSDEC (New York State Department of Environmental Conservation). (2011). Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program. Albany (NY): NYSDEC.
- O'Sullivan, F. & Paltsev, S. (2012). Shale gas production: Potential versus actual greenhouse gas emissions. *Environmental Research Letters*, 7(4). doi: doi:10.1088/1748-9326/7/4/044030.
- OCMOH (Office of the Chief Medical Officer of Health). (2012). Chief Medical Officer of Health's Recommendations Concerning Shale Gas Development in New Brunswick. Fredericton (NB): New Brunswick Department of Health.
- Ordonez, I. (2012). Oil Companies Drawn to 'Frac Sand'. Retrieved July 2013, from http://www.rigzone.com/news/oil_gas/a/117839/Oil_Companies_ Drawn_To_Frac_Sand.
- Oreskes, N. & Belitz, K. (2001). Philosophical Issues in Model Assessment. In M. G. Anderson & P. D. Bates, *Model Validation: Perspectives in Hydrological Science.* London, United Kingdom: John Wiley and Sons Ltd.
- Oreskes, N. (2011). Working with Uncertainty: 'Unitisation and Renegotiation' as a Model for Science and Environmental Policy. In J. Lentsch & P. Weingart, *The Politics of Science Advice: Institutional Design for Quality Assurance.* Cambridge, United Kingdom: Cambridge University Press.
- Osborn, S. G. & McIntosh, J. C. (2010). Chemical and isotopic tracers of the contribution of microbial gas in Devonian organic-rich shales and reservoir sandstones, northern Appalachian Basin. *Applied Geochemistry*, *25*, 456-471.
- Osborn, S. G., Vengosh, A., Warner, N. R., & Jackson, R. B. (2011). Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing. *Proceedings National Academy of Science*, *108*, 8172-8176. doi: 10.1073/pnas.1100682108.
- OSHA (Occupational Safety and Health Administration) & NIOSH (National Institute for Occupational Safety and Health). (2012). *Hazard Alert. Worker Exposure to Silica During Hydraulic Fracturing*. OSHA & NIOSH.
- PA DEP (Pennsylvania Department of Environmental Protection). (2012a). Emissions and Source Reporting Requirements for Natural Gas Operations. Retrieved March 2012, from http://www.pabulletin.com/secure/data/ vol42/42-52/2535.html.
- PA DEP (Pennsylvania Department of Environmental Protection). (2012b). Long-Term Ambient Air Monitoring Project Near Permanent Marcellus Shale Gas Facilities Protocol. Harrisburg (PA): Commonwealth of Pennsylvania Department of Environmental Protection.
- Pankow, J. F., & Cherry, J. A. (1996). Dense Chlorinated Solvents and Other DNAPLs in Groundwater: History, Behavior, and Remediation. Portland (OR): Waterloo Press.

- Patton, F. D. & Smith, H. R. (1988). Designs Considerations and the Quality of Data from Multiple Level Ground-Water Monitoring Wells. In A. G. Collins & A. I. Johnson, *Ground-Water Contamination: Field Methods. ASTM STP 963.* Philadelphia (PA): American Society for Testing and Materials.
- Pembina Institute. (2012). Shale Gas in Canada. Background Document for the Pembina Institute Thought Leaders Forum. Towards Responsible Shale Gas Development in Canada: Opportunities & Challenges. Pembina Institute.
- PennEnergy Editorial Staff. (2013, January 11). Halliburton using clean-burning natural gas to power fracking fleet, *PennEnergy*.
- Pennsylvania Office of the Governor. (2012). Governor Corbett Signs Historic Marcellus Shale Law. Retrieved May 2013, from http://www.pikepa.org/ Planning/Marcellus/Governor%20Corbett%20Signs%20Historic%20 Marcellus%20Shale%20Law.pdf.
- Perry, S. L. (2013). Using ethnography to monitor the community health implications of onshore unconventional oil and gas developments: Examples from Pennsylvania's Marcellus Shale. *New Solutions: A Journal* of Environmental and Occupational Health Policy, 23(1), 33-53.
- Petron, G., Frost, G., Miller, B. T., Hirsch, A. I., Montzka, S. A., Karion, A., ... Hall, B. (2012). Hydrocarbon emissions characterization in the Colorado
 Front Range – a pilot study. *Journal of Geophysical Research: Atmospheres* 117(D4), D04 304. doi: 10.1029/2011JD016360.
- Pinti, D. L., Barnetche, D., Larocque, M., Valadez, A., Boucher, C., Retailleau, S., . . . Gélinas, Y. (2013). 4He and 222Rn in shallow aquifers as potential indicators of fluid migration in shale gas exploration areas: St. Lawrence Lowlands (Québec, Canada). Paper presented at GéoMontréal, Montréal (QC).
- Pochon, A., Tripet, J.-P., Kozel, R. M., B., Sinreich, M., & Zwahlen, F. (2008). Groundwater protection in fractured media: A vulnerability-based approach for delineating protection zones in Switzerland. *Hydrogeology Journal*, *16*(7), 1267-1281. doi: 10.1007/s10040-008-0323-0.
- Porter, M. E. & Kramer, M. R. (2006). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 2006, 78-92.
- Precht, P. & Dempster, D. (2012). Jurisdictional Review of Hydraulic Fracturing Regulation. Halifax (NS): Nova Scotia Department of Energy and Nova Scotia Environment.
- Province of British Columbia. (2012). B.C. Regulation 282/2010. Oil and Gas Activities Act. Drilling and Production Regulation. Retrieved January 2014, from http://www.bclaws.ca/EPLibraries/bclaws_new/document/ ID/freeside/282_2010.

- Pruess, K., Oldenburg, C., & Moridis, G. (1999). *TOUGH2 User's Guide, Version*2. Berkeley (CA): Earth Sciences Division, Lawrence Berkeley National Laboratory, University of California.
- Pruess, K. (2005). ECO2N: A TOUGH2 Fluid Property Module for Mixtures of Water, NaCl and CO₂. Berkeley (CA): Earth Sciences Division, Lawrence Berkeley National Laboratory, University of California.
- PSAC (Petroleum Services Association of Canada). (2013). Media Release: Petroleum Services Association of Canada (PSAC) Reaching Out To Public About Hydraulic Fracturing Calgary. (AB): PSAC.
- Public Health Agency of Canada. (2011). What Determines Health? Retrieved March 2013, from http://www.phac-aspc.gc.ca/ph-sp/determinants/ index-eng.php.
- PwC (PricewaterhouseCoopers LLP). (2011). Shale Gas. A Renaissance in U.S. Manufacturing? PwC.
- Raleigh, C. B., Healy, J. H., & Bredehoeft, J. D. (1976). An Experiment in earthquake control at rangely, Colorado. *Science*, 191(4233), 1230-1237.
- Ramudo, A. & Murphy, S. (2010). *Hydraulic Fracturing Effects on Water Quality*. Ithica (NY): Cornell University.
- Raven, K. G., Novakowksi, K. S., Yager, R. M., & Heystee, R. J. (1992). Supernormal fluid pressures in sedimentary rocks of southern Ontario – western New York State. *Canadian Geotechnical Journal*, 29, 80-93.
- République Française. (2013). L'exploitation et l'exploration des gaz de schiste définitivement interdites. Retrieved January 2014, from http://www.gouvernement.fr/gouvernement/en-direct-des-ministeres/fracturation-hydraulique-l-exploitation-et-l-exploration-des-g.
- Resnikoff, M. (2012). Radon in Natural Gas from Marcellus Shale. New York (NY): Submission to the New York State Department of Environmental Conservation.
- Rich, A. L. & Crosby, E. C. (2013). Analysis of reserve pit sludge from unconventional natural gas hydraulic fracturing and drilling operations for the presence of technologically enhanced naturally occurring radioactive material (TENORM). *New Solutions: A Journal of Environmental and Occupational Health Policy*, 23(1), 117-135. doi: 10.2190/NS.23.1.h.
- Richardson, B. (2013). Natural Gas Is Bridge from Oil to Renewables. Bloomberg TV. Retrieved July 2013, from http://www.youtube.com/watch?v=-Br9BPVcrFo.
- Rivard, C., Molson, J., Soeder, D. J., Johnson, E. G., Grasby, S., Wang, B., & Rivera, A. (2012). A Review of the November 24–25, 2011 Shale Gas Workshop, Calgary, Alberta – 2. Groundwater Resources. Open File 7096. Natural Resources Canada.
- Robinson, A. L. (2012). Air Pollutant Emissions from Shale Gas Development and Production. Pittsburgh (PA): Carnegie Mellon University.

- Rokosh, C. D., Lyster, S., Anderson, S. D. A., Beaton, A. P., Berhane, H., Brazzoni, T.,... Pawlowicz, J. G. (2012). Summary of Alberta's Shale- and Siltstone-Hosted Hydrocarbon Resource Potential. Calgary (AB): AER.
- Roy, J. W. & Ryan, M. C. (2013). Effects of unconventional gas development on groundwater: A call for total dissolved gas pressure field measurements. *Groundwater*, 51(4), 480-482.
- Royte, E. (2012, November 28). Fracking Our Food Supply, The Nation.
- RSI (Risk Sciences International). (2012). An Assessment of the Lung Cancer Risk Associated with the Presence of Radon in Natural Gas Used for Cooking in Homes in New York State. Ottawa (ON): RSI.
- Ruth, J. H. (1986). Odor thresholds and irritation levels of several chemical substances: A review. American Industrial Hygiene Association Journal, 47(3), A142-A151
- Ryder Scott Company Petroleum Consultants. (2008). *Appendix A: Resource Potential Horton Bluff Formation, Windsor Basin.* Calgary (AB): Ryder Scott Company Petroleum Consultants.
- Saba, T. & Orzechowski, M. (2011). Lack of data to support a relationship between methane contamination of drinking water wells and hydraulic fracturing. *Proceeding of the National Academy of Sciences*, 108(37). doi: 10.1073/pnas.1108435108.
- Saiers, J. E. & Barth, E. (2012). Potential contaminant pathways from hydraulically fractured shale aquifers. *Ground Water*, *50*(6), 826-828.
- Schirmer, M., Butler, B. J., Church, C. D., Barker, J. F., & Nadarajah, N. (2003). Laboratory evidence of MTBE biodegradation in Borden aquifer material. *Journal of Contaminant Hydrology*, *3-4*, 229-249.
- Schon, S. C. (2011). Hydraulic fracturing not responsible for methane migration. Proceeding of the National Academy of Sciences, 108(37), E664.

Schrag, D. P. (2012). Is shale gas good for climate change? *Daedalus*, 41(2), 72-80.

- SEAB (Secretary of Energy Advisory Board). (2011a). Shale Gas Production Subcommittee Second Ninety Day Report. Washington (DC): U.S. Department of Energy.
- SEAB (Secretary of Energy Advisory Board). (2011b). Shale Gas Production Subcommittee 90-Day Report. Washington (DC): U.S. Department of Energy.
- Séjourné, S., Lefebvre, R., Lavoie, D., & Malet, X. (2013). Geologic and Hydrogeoloic Understanding of Caprock Strata Overlying the Utica Shale in the St. Lawrence Lowlands (Quebec, Canada). Paper presented at GéoMontréal 2013, Montreal (QC).
- Sethi, S. P. (1979). A conceptual framework for environmental analysis of social issues and evaluation of business response pattern. *Academy of Management Review*, 4(1), 63-74.
- Shih, T., Rong, Y., Harmon, T., & Suffet, M. (2004). Evaluation of the impact of fuel hydrocarbons and oxygenates on groundwater resources. *Environmental Science and Technology*, 38(1), 42-48.

- Shindler, B. & Toman, E. (2003). Fuel reduction strategies in forest communities: A longitudinal analysis. *Journal of Forestry*, *101*(6), 8-14.
- Shindler, B. A., Brunson, M. W., & Stankey, G. H. (2002). Social Acceptability of Forest Conditions and Management Practices: A Problem Analysis. Portland (OR): U.S. Department of Agriculture Pacific Nortwest Research Station.
- Shipley, A., Hampson, A., Hedman, B., Garland, P., & Bautista, P. (2008). Combined Heat and Power. Oak Ridge (TN): Oak Ridge National Laboratory.
- Siemens. (2013). Siemens to Build a Turnkey Combined Cycle Power Plant in the Philippines. Retrieved January 2014, from http://www.siemens. com/press/en/pressrelease/?press=/en/pressrelease/2013/energy/ power-generation/ep201312015.htm
- Sierra Research Inc. (2011). Screening Health Risk Assessment Sublette County, Wyoming. Sacramento (CA): Sublette County Commissioners, Wyoming Department of Environmental Quality and Wyoming Department of Health.
- Slonecker, E. T., Milheim, L. E., Roig-Silva, C. M., Malizia, A. R., Marr, D. A., & Fisher, G. B. (2012). Landscape Consequences of Natural Gas Extraction in Bradford and Washington Counties, Pennsylvania, 2004–2010. Reston (VA): U.S. Geological Survey.
- Soeder, D. J. (1988). Porosity and permeability of eastern devonian gas shale. Society of Petroleum Engineers, 116-124.
- Staaf, E. (2012). Risky Business: An Analysis of Marcellus Shale Gas Drilling Violations in Pennsylvania 2008–2011. Pittsburgh (PA): PennEnvironment Research and Policy Center.
- Stark, M., Allingham, R., Calder, J., Lennartz-Walker, T., Wai, K., Thompson, P., & Zhao, S. (2012). Water and Shale Gas Development. Accenture Consulting.

Statistics Canada, (2012). Canada Year Book 2010. Ottawa (ON): Statistics Canada.

- Steinzor N, Subra W, & L., S. (2013). Investigating links between shale gas development and health impacts through a community survey project in Pennsylvania. *New Solutions*, 23(1), 55-83. doi: doi: 10.2190/NS.23.1.e.
- Subra, W. (2009). Results of Health Survey of Current and Former DISH/Clark, Texas Residents. New Iberia (LA): Earthworks.
- Supreme Court of Canada. (1997). *Delgamuukw v. British Columbia No. 23799.* Ottawa (ON): Supreme Court of Canada
- Supreme Court of Canada. (1999). *Ryan v. Victoria. File No. 25704.* Ottawa (ON): Supreme Court of Canada
- Supreme Court of Canada. (2004). *Haida Nation v. British Columbia (Minster of Forests). File No. 29419.* Ottawa (ON): Supreme Court of Canada
- The Canadian Press. (2011). N.B. Environment Minister Aplogizes to Group. Retrieved January 2014, from http://atlantic.ctvnews.ca/n-b-environmentminister-apologizes-to-group-1.688196.

- The Royal Society and Royal Academy of Engineering. (2012). *Shale Gas Extraction in the U.K.: A Review of Hydraulic Fracturing*. London, United Kingdom: The Royal Society and The Royal Academy of Engineering.
- Tilley, B. & Muehlenbachs, K. (2011). *Fingerprinting of Gas Contaminating Groundwater and Soil in a Petroliferous Region, Alberta, Canada*. Paper presented at International Network of Environmental Forensics Conference, Cambridge, United Kingdom.
- Tilley, B. & Muehlenbachs, K. (2013). Isotope reversals and universal stages and trends of gas maturation in sealed, self-contained petroleum systems. *Chemical Geology*, *339*, 194-204.
- Tollefson, J. (2013a). Nature News: Methane leaks erode green credentials of natural gas. *Nature*, 493(7430), 12.
- Tollefson, J. (2013b). Methane leaks erode green credentials of natural gas. *Nature*, 493(12).
- Topolnyski, T. N., Lemke, C. P., & Ikeda, T. J. (2009). Frederick Brook Shale Gas Study. Sussex/Elgin Sub-Basins. Calgary (AB): Corridor Resources Inc.
- Triangle Petroleum. (2009). *Corporate Profile 2009*. Calgary (AB): Triangle Petroleum.
- Turner, N. J., Gregory, R., Brooks, C., Failing, L., & Satterfield, T. (2008). From invisibility to transparency: Identifying the implications. *Ecology* and Society, 13(2), 7.
- U.K. Parliament. (1996). Offshore Installations and Wells (Design and Construction, etc) Regulations 1996. London, United Kingdom.
- U.S. GAO (United States Government Accountability Office). (2012a). Unconventional Oil and Gas Development. Key Environmental and Public Health Requirements. Washington (DC): GAO.
- U.S. GAO (United States Government Accountability Office). (2012b). Information on Shale Resources, Development, and Environmental and Public Health Risks. Washington (DC): GAO.
- U.S. House of Representatives Committee of Energy and Commerce. (2011). *Chemicals Used in Hydraulic Fracturing*. Washington (DC): U.S. House of Representatives Committee of Energy and Commerce.
- Unger, A. J. A., Sudicky, E. A., & Forsyth, P. A. (1995). Mechanisms controlling vacuum extraction coupled with air sparging for remediation of heterogeneous formations contaminated by dense nonaqueous phase liquids. *Water Resources Research*, 31(8), 1913-1915. doi: 10.1029/95WR00172.
- URS. (2012). Revised Attachment 3: Gas Well Completion Emissions Data. Submitted as part of ANGA & AXPC. (2012). ANGA Comments to EPA on New Souce Performance Standards for Hazardous Air Pollutants Review America's Natural Gas Alliance. Washington (DC): ANGA and AXPC.
- USGS (United States Geological Survey). (2006). Methane in West Virginia Ground Water. USGS.

- Van Stempvoort, D., Maathuis, H., aworski, E., Mayer, B., & Rich, K. (2005). Oxidation of fugitive methane in ground water linked to bacterial sulfate reduction. *Groundwater*, 43(2), 187-199. doi: 10.1111/j.1745-6584.2005.0005.x.
- Van Stempvoort, D. & Roy, J. W. (2011). Potential Impacts of Natural Gas Production on Groundwater Quality in Canada and Related Research Needs. Ottawa (ON): Environment Canada.
- Vaughn, S. (2012). Report of the Commissioner of the Environment and Sustainable Development. Ottawa (ON): Office of the Auditor General of Canada.
- Vengosh, A., Warner, N., Jackson, R., & Darrah, T. (2013). The effects of shale gas exploration and hydraulic fracturing on the quality of water resources in the United States. *Procedia Earth and Planetary Science*, 7(2), 863-866.
- Venkatesh, A., Jaramillo, P., Griffin, W. M., & Matthews, H. S. (2011). Uncertainty in life cycle greenhouse gas emissions from United States natural gas end-uses and its effects on policy. *Environmental Science and Technology*, 45(19), 8182-8189. doi: 10.1021/es200930h.
- Vidic, R., Brantley, S. L., Vandenbossche, J. M., Yoxtheimer, D., & Abad, J.
 D. (2013). Impact of shale gas development on regional water quality. *Science*, 340(6134), 1235009.
- Walsh, W., Adams, C., Kerr, B., & Korol, J. (2006). Regional "Shale Gas" Potential of the Triassic Doig and Montney Formations, Northeastern British Columbia. Victoria (BC): British Columbia Ministry of Energy, Mines and Petroleum Resources.
- Wang, B. (2013a). A Hypothetical Geomechanics Model for Qualitative Assessment of Environmental Impact of Shale Gas Fracking – Part I: Potential Effect on Goundwater. Paper presented at GéoMontréal 2013, Montréal (QC).
- Wang, B. (2013b). A Hypothetical Geomechanics Model for Qualitative Assessment of Environmental Impact of Shale Gas Fracking – Part II: Implication for Induced Seismicity. Paper presented at GéoMontréal 2013, Montréal (QC).
- Warner, N. R., Jackson, R. B., Darrah, T. H., Osborn, S. G., Down, A., Zhao,
 K., . . . Vengosh, A. (2012). Geochemical evidence for possible natural
 migration of Marcellus Formation brine to shallow aquifers in Pennsylvania.
 Proceeding of the National Academy of Sciences, 109(30), 11961-11966.
- Warner, N. R., Christie, C. A., Jackson, R. B., & Vengosh, A. (2013). Impacts of shale gas wastewater disposal on water quality in western Pennsylvania. *Environmental Science and Technology*, 47(20), 11849-11857.
- Watson, M. (2003). Environmental Impact Assessment and European Community Law. Paper presented at XIV International Conference – Danube River of Cooperation, Belgrade, Serbia.
- Watson, T. L. (2004). *Surface Casting Vent Flow Repair A Process*. Paper presented at 5th Canadian International Petroleum Conference, Calgary (AB).

- Watson, T. L. & Bachu, S. (2009). Evaluation of the potential for gas and CO₂ leakage along wellbores. SPE Drilling & Completion Journal 24(1), 115-126.
- Webb, K. (2004). Understanding Voluntary Codes. In K. Webb, Voluntary Codes: Private Governance, the Public Interest, and Innovation. Ottawa (ON): Carleton Research Unit for Innovation, Science and Environment.
- Weber, C. L. & Clavin, C. (2012). Life cycle carbon footprint of shale gas: Review of evidence and implications. *Environmental Science and Technology*, 46(11), 5688-5695.
- Whitaker, M., Heath, G. A., O'Donoughue, P., & Vorum, M. (2012). Life Cycle Greenhouse Gas Emissions of Coal-Fired Electricity Generation. *Journal* of Industrial Ecology, 16(51), 853-872.
- WHO (World Health Organization). (1946). Constitution of the World Health Organization. Vol. 36. Copenhagen, Denmark: WHO.
- WHO (World Health Organization). (2009). *Milestones in Health Promotion*. *Statements from Global Conferences.* Geneva, Switzerland: WHO.
- Wigley, T. M. L. (2011). Coal to gas: The influence of methane leakage. *Climatic Change, 108*, 601-608. doi: http://dx.doi.org/10.1007/s10584-011-0217-3.
- Williams, H. F. L., Havens, D. L., Banks, K. E., & Wachal, D. J. (2008). Fieldbased monitoring of sediment runoff from natural gas well sites in Denton County, Texas, USA. *Environmental Geology*, 55, 1463-1471.
- Wilson, J. M. & VanBriesen, J. (2012). Oil and gas produced water management and surface drinking water sources in Pennsylvania. *Environmental Practice*, 14(4), 288-300. doi:10.10170S1466046612000427.
- Wilson, S., Subra, W., & Sumi, L. (2013). *Reckless Endangerment While Fracking the Eagle Ford.* Washington (DC): Earthworks.
- Witter, R., Stinson, K., Sackett, H., Putter, S., Kinney, G., Teitelbaum, D., & Newman, L. (2008). Potential Exposure-Related Human Health Effects of Oil and Gas Development: A Literature Review (2003–2008). Denver (CO): Colorado School of Public Health.
- Witter, R., McKenzie, L., Towle, M., Stinson, K., Scott, K., Newman, L., & Adgate, J. (2010). Health Impact Assessment for Battlement Mesa, Garfield County Colorado. Aurora (CO): Colorado School of Public Health, University of Colorado.
- Wolf Eagle Environmental. (2009). *Town of DISH, Texas. Ambient Air Monitoring Analysis.* Flower Mound (TX): Wolf Eagle Environmental.
- Worster, D. (1992). Under Western Skies: Nature and History in the American West. New York (NY): Oxford University Press.
- Wyoming Department of Environmental Quality. (2008). Compliance Monitoring and Siting Requirements for Unlined Impoundments Receiving Coalbed Methane Produced Water. Laramie (WY): Wyoming Department of Environmental Quality.

- Xu, T., Spycher, N., Sonnenthal, E., Zheng, L., & Pruess, K. (2012). TOUGHREACT User's Guide: A Simulation Program for Non-isothermal Multiphase Reactive Transport in Variably Saturated Geologic Media, Version 2.0. Berkeley (CA): Earth Sciences Division, Lawrence Berkeley National Laboratory.
- Young, O. R., King, L. A., & Schroeder, H. (2008). Institutions and Environmental Change. Cambridge (MA): MIT Press.
- Yoxtheimer, D. (2012). Addressing the Environmental Risks from Shale Gas Development. Washington (DC): Worldwatch Institute.
- Zeirman, R. (2013, June 21). Why Such Hysteria Over Fracking?, Los Angeles Times.
- Zhou, Q., Birkholzer, J. T., Mehnert, E., Lin, Y.-F., & Zhang, K. (2010). Modeling basin- and plume-scale processes of CO₂ storage for full-scale deployment. *Ground Water*, 48(4), 494-514.
- Zoback, M. (2010). *Reservoir Geomechanics*. Cambridge, United Kingdom: Cambridge University Press.
- Zoback, M., Kitasei, S., & Copithorne, B. (2010). Addressing the Environmental Risks from Shale Gas Development. Washington (DC): WorldWatch Institute.
- Zoback, M. (2012). Managing the seismic risk posed by wastewater disposal. *Earth Magazine*, 57(4), 38-44.