PETROLEUM HISTORY SOCIETY

ARCHIVES

Newsletter of the Petroleum History Society *February 2015; Volume XXVI, Number 2*

The Turner Valley Gas Plant Photograph Portfolio, 2013

By George Webber, Photographer and Artist and David Finch, Author and Historian

The Petroleum History Society together with Lougheed House is pleased to present the work of renowned Calgary-based photographer George Webber with the exhibition *Turner Valley Gas Plant Portfolio, 2013.* The exhibition underscores Webber's fascination with the formal beauty of this unique industrial and historically significant site. The exhibit also features a panel on Senator Lougheed, his business connections with the site and his investment in the early oil patch. The Exhibition opened January 21, 2015 and runs to March 22, 2015.

George Webber has been photographing the people, landscape and urban environment of the Canadian west for over thirty-five years. He was inducted into The Royal Canadian Academy of Arts in 1999. In 2005 George received the Alberta Centennial Medal "in recognition of outstanding service to the people and Province of Alberta". In 2010 he was the recipient of the National Magazine Gold Award for Photojournalism. Tobi Bruce of the Art Gallery of Hamilton has described his work as "Haunting, touching, evocative and enigmatic, these images occupy a place somewhere between everywhere and nowhere." His books include Requiem, A World Within, People of The Blood, Last Call, In This Place and Prairie Gothic. Webber's work can be found in museums and archives in Canada, France, Germany, Belgium, Switzerland and Australia. George's work has been featured in recent solo exhibitions at The Art Gallery of Calgary, The Glenbow Museum and The Whyte Museum. See his work at www.georgewebber.ca The event will involve a presentation and then a tour through the exhibition.

Time:	Time: 12 noon, Wednesday, February 25, 2015 Presentation approximately 12:30 - 1:00 p.m.
Place:	Lougheed House, 707 – 13 Avenue SW, Calgary Business casual dress.
Cost:	P.H.S. Members $30 and Guests $35 (most welcome). Cash or cheque only at the door. Payment can be made in advance by credit card or by email. Please advise with reply.
Lunch:	Soup, sandwiches and cookies. Gluten-free? Vegan? Advise with reply.

Reply if you wish to attend to: Micky Gulless, 403-283-9268 or micky@petroleumhistory.ca by noon, Monday, February 23, if not sooner.

Those who register but do not come, or cancel after the deadline, will be invoiced.

Those who do not register by the deadline may not get a seat.

The Bull Wheel

Time to Renew Your P.H.S. Membership: Most members need to renew their membership for 2015. (Check your membership Status on your mail label or email, or contact Micky at 403-283-9268 or micky@petroleumhistory.ca.). Please renew your annual membership for $30 by:

- email transfer via your own bank's website to micky@petroleumhistory.ca
- credit card via PayPal if you have an email address. Contact Micky for a PayPal invoice
- cheque to Petroleum History Society mailed to Micky Gulless, 1638 Broadview Rd NW, Calgary T2N 3H1

Some of your renewals may have crossed paths in transit with this issue of Archives. Hence your mailing address may not reflect your renewal status. Please be assured that Micky is on top of this process and wait until your next issue to see if there really is a problem.

We have also received many generous donations from our membership during the renewal cycle. Micky is conveying our gratitude for this support individually and we will also issue a collective thanks once the renewals are finalized.

World Heavy Oil Congress: This event is taking place in Edmonton from March 24-26, 2015. If this is of interest, please go to their website for information and registration at: www.worldheavyoilcongress.com

Maclean's "Special Double Issue" of February 16, 2015. This volume is covered with the slogan "Going Under: From housing prices and jobs to politics and terrorism, everything you need to know about how the oil crisis will affect you – and the economy". 27-page special report. If you are willing and interested in reviewing this comprehensive treatment, please let us know and we will publish your summary in a forthcoming issue of Archives. Despite its reputation for sometimes fumbling the facts, Maclean's does reach a lot of Canadians so that understanding the perspectives that they convey is important in deciphering how government policies and political party platforms are constructed and rationalized.

From Bad to Worse: An article in the Calgary Herald of January 30, 2015 concerning the exploration situation in the Northwest Territories included Chevron's perspective on why it was "putting on ice" its drilling program for the Beaufort Sea. Usually one would say that this was being done due to "economic uncertainty" – but the way Chevron expressed it, this decision was due to "uneconomic certainty". A subtle but important distinction.

Oil Sands Oral History Project results: P.H.S. Board Member and Chief Archivist at the Glenbow, Doug Cass, has advised us that the transcripts for all of the interviews that were done can be accessed at: http://www.glenbow.org/collections/search/findingAids/archhtm/oilsands.cfm

ADVANCE NOTICE OF MOTION TO BE PROPOSED AT THE ANNUAL MEETING

At the annual meeting on March 25 members will vote on a proposal to modify Bylaw 19 – Dissolution of the Society. Please note that there is no intention to dissolve the society. This change will broaden the choices the final board would have regarding any remaining funds.

Current wording:

> 19. In the event that the Society winds-up and dissolves, following receipt of all final income and payment of all amounts owing, any balance remaining is to be turned over to the University of Calgary for deposit to the Petroleum History Society Graduate Scholarship.

Proposed wording:

19. In the event that the Society winds-up and dissolves, following receipt of all final income and payment of all amounts owing, the final Board of Directors is to decide how to distribute any remaining funds, with the requirement that such funds are to be directed to a non-profit organization or organizations which support preservation of Canadian petroleum history. Some examples are the University of Calgary's Petroleum History Society Graduate Scholarship, the Canadian Petroleum Hall of Fame, Turner Valley Oilfield Society, Leduc #1 Discovery Centre at Devon Alberta, or other similar organizations.

I thought that guy looked familiar: Although I have long been impressed with the CBC program "The Nature of Things" (and in particular its recent HD episodes), the popularity of its host, David Suzuki, has been a bit of a puzzle given his political stance on many issues. I think that I have figured out the subliminal reason for this. Mr. Suzuki bears a strong resemblance to Noriyuki "Pat" Morita who played Mr. Keisuke Miyagi, the beloved karate instructor and mentor, in the movie "Karate Kid". Nothing like riding on someone else's coat-tails to endear oneself!

A Downstream Thriller: A new movie is out called "A Most Violent Year". The buzzlines for it are "Blood is thicker than oil" and that it "... delivers brutal cinematic poetry in a four-star tale of family, corruption, greed - and heating oil". The movie is set in New York City. The article by Chris Knight in the January 30, 2015 Post says "In the opening scene he's putting a down payment on some prime riverfront property, complete with 10 million gallons of oil tank storage, to expand the company". I guess the marketers deserve some headlines in Hollywood too!

Archives is published approximately eight times a year
by the Petroleum History Society for Society members.

Back issues are archived on our website at http://www.petroleumhistory.ca/
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REMEMBRANCE

SAVAGE, Peter James. Pete Savage passed away after a brief illness on Thursday, February 5, 2015 with his wife and family at his side. He was born in Grand'Mere Quebec on September 5, 1927. Peter attended school in Grand'Mere and Montreal and graduated from McGill University in 1948 with a degree in Mathematics, Physics and Geology. He joined Heiland Exploration, contracted to Shell in New Brunswick where he met the love of his life Shirley. In 1949 he joined Shell as a geophysicist and moved to Calgary with his bride. His fourty-four year career saw him work with multi-nationals (Shell Oil, PanCanadian Petroleum), small oilfield companies (Discovery Geophysical, Nance Exploration) and a start-up (Canadian Magnetic Reduction later Teledyne Exploration). Throughout his career and after his retirement in 1992 he served as an active committee member and in leadership positions for numerous industry and professional organizations, including the Canadian Society of Exploration Geophysicists, Canadian Geophysical Union, Petroleum History Society and Geological Association of Canada. In June 2013 he was elected Fellow of Geoscientists Canada. In 1996 he was awarded The Order of The University of Calgary, recognizing his broad contributions to the University: multi-year involvement with the Nickle Arts Museum, where he co-curated three exhibitions with works of art from Calgary collections, two terms on the U. of C. Senate, and service on the Advisory Council of the Faculty of Fine Arts. An Honorary Member of the Alberta Society of Artists, Peter served as Juror for the Medicine Hat Print Show, the mural selection committee for the Medicine Hat Credit Union and Arts 17 in Calgary. Peter and Shirley shared a passion for collecting Canadian woodcuts and engravings, and both became Life Members of The Glenbow Museum (the recipient of a tremendous donation of block prints and wood engravings from their years of collecting, and where he gave several public lectures on art) and Life Members at The National Gallery of Canada, as well as forming lifelong friendships with many Canadian artists that they met through this passion. Peter played the slide trombone for seventy years performing with a number of groups both large and small, leaving his children with a lifelong appreciation of music in all its genres. A book lover as well, he was a long-time member of the Alcuin and Private Libraries Associations. And in his spare time … he transformed his back yard into a tranquil rock and alpine garden with running streams and two ponds, even boasting trout (as a licensed fish farmer) for one season. Peter's love of alpine gardening led to him serving as President of the Reader Rock Garden Society and as a Board Member of the Calgary Rock and Alpine Garden Society. Thanks to the Calgary Herald for this obituary.

Pete was a lifetime member and a Director of the Petroleum History Society who just stepped back from his role with us a few years ago. His memorial service was well attended by family and friends. Many accolades and touching stories were recounted during the event. Given Pete’s long association with the P.H.S., it is felt appropriate to share some of them here: He greatly valued his interactions with others, whether they be family or people that he met in the course of his work or hobbies. He treated them as “a person that he was interested in knowing”. He had a great sense of humour, loved puns and will be recalled for his infectious laugh and expression “wowser”. A practice that he promoted in their home with their children was “no television after 6:00 p.m.” with the time freed up being dedicated to reading a vast array of books and magazines – with related discussions to follow. Presentations that triggered sleep in the audience were simply not exciting enough. He took great pride in being an explorationist and loved showing anyone who was interested his latest discoveries. Every outside interest gained his full attention – and was pursued with passion and patience. Pete will be missed.

OIL PATCH BLOOPER OF THE MONTH

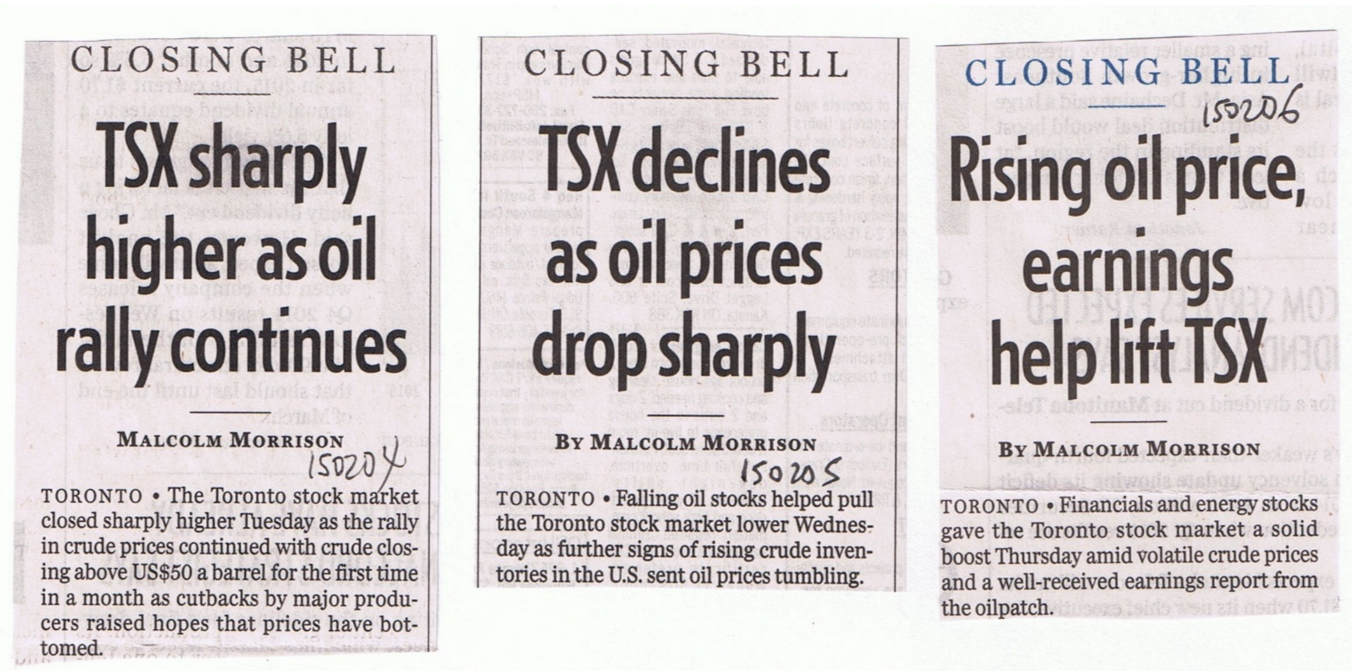
SCOTT OLSON / GETTY IMAGES

An idled pump jack, once used to extract crude oil from the ground, sits rusting above a well in a farmers field last month near Ridgway, Ill.

From the National Post of February 2, 2015, p. FP4.
A small pile of casing and tubing (note thread protectors) at the side of a field.
How this is interpreted as a pump jack is a mystery.
Picture was intended to convey the downturn in the industry – so at least that's right!

ALBERTA'S TRIPLE WHAMMY FROM THE OIL PRICE COLLAPSE

Every day brings new headlines of capital budget cuts and job losses. This has become quite disorienting as today's hint at a positive move is almost immediately shattered by tomorrow's drop, as illustrated by the tier of headlines in the clippings below. Probably the only happy people are those who deal in oil and can somehow guess the next move in prices, positioning themselves to make money on the margin. As previously mentioned, there are some players who have strong opinions on which way prices are headed – and may, as a result, be buying up crude for storage (whether onshore or in tankers), expecting a premium in an uptick. Or alternatively playing the reverse through investment vehicles like puts and takes, shorting, etc.



CLOSING BELL

TSX sharply higher as oil rally continues

MALCOLM MORRISON

150204

TORONTO • The Toronto stock market closed sharply higher Tuesday as the rally in crude prices continued with crude closing above US$50 a barrel for the first time in a month as cutbacks by major producers raised hopes that prices have bottomed.

CLOSING BELL

TSX declines as oil prices drop sharply

BY MALCOLM MORRISON

150205

TORONTO • Falling oil stocks helped pull the Toronto stock market lower Wednesday as further signs of rising crude inventories in the U.S. sent oil prices tumbling.

CLOSING BELL

150206

Rising oil price, earnings help lift TSX

BY MALCOLM MORRISON

TORONTO • Financials and energy stocks gave the Toronto stock market a solid boost Thursday amid volatile crude prices and a well-received earnings report from the oilpatch.

Headlines from three successive days (Feb. 4 to 6, 2015) as seen in the financial section of the National Post demonstrating the financial rollercoaster that the markets have been subjected to and the parallel emotional rollercoaster that has impacted investors.

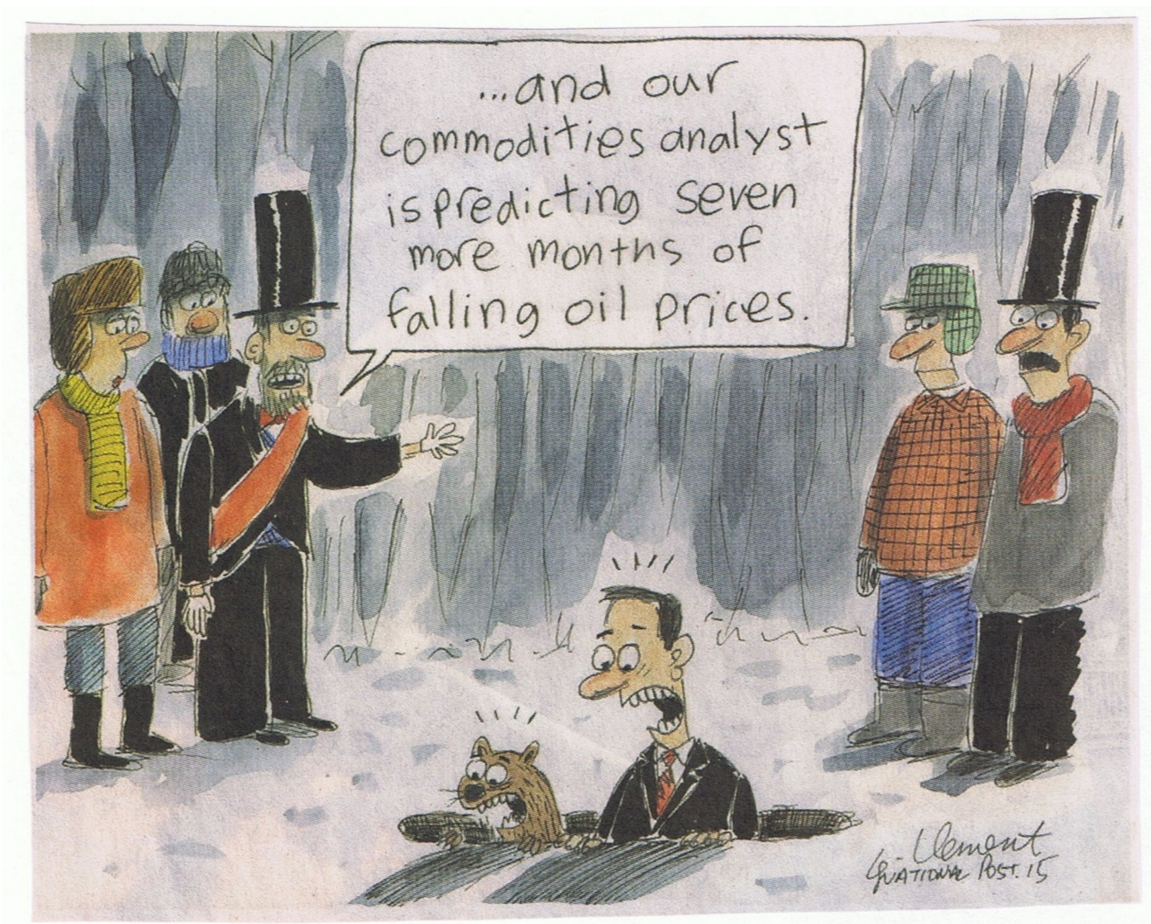
The Calgary Herald and National Post have recently taken the laudable position that they have an obligation to educate their readers as opposed to just regurgitating activities. This involves digging somewhat deeper to find out how industries and governments really work and how decisions are made. This is a positive step forward.

One area in which this educational mandate has not expressed itself very strongly is the royalty structure of the petroleum industry in Alberta. Of course everyone knows that low prices are bad and high prices are good – but how does this impact the revenue streams that the Alberta Provincial Government depends on for its budgets?

This short article will try to describe three mechanisms through which industry bad news is translated into diminished government revenue and resulting pressure on social programs in periods of lower oil and gas prices.

LAND SALES

The Crown (a.k.a. Government of Alberta) owns most of the subsurface rights in the province including those to oil and gas. The remainder are freehold lands privately held by individuals and corporations – but subject to the same types of financial pressures as Crown lands. Every two weeks, the Crown holds a sealed bid session of "land sales" through which rights are leased for some period of time to companies who wish to pursue activities on them in return for cash bonuses (as opposed to promises of activity as is the case in Frontier areas). The mechanics are complicated but the results are clear. In times of high prices, companies wish to explore and develop spend a lot of money to tie up these rights. Another trigger for intense (and costly) land sale activity is the emergence of a new play concept (for example some of the unconventionals like the Duvernay or the Montney) or a new fairway in an existing play type (like the Caroline Beaverhill Lake Pool in the mid-1980's). Sales during these heated episodes generate billions of dollars in "strings-free" cash for the province (same in B.C. and Saskatchewan). It's like winning the lottery. If this goes on for some time, the province begins to depend on that revenue stream. But like all parties, this usually ends and if plans have not taken this into account, the aftermath is like a bad hangover and/or going cold turkey. So to the present situation - low prices for both oil and gas plus a lack of new plays and prospects have dried up land sale expectations - putting the crunch on the budget. This is Whammy #1.



Cartoon from the Feb. 3 issue of the National Post by Gary Clement nicely capturing the situation with oil prices – and probably the skepticism that many have for any given prediction.

CONVENTIONAL OIL ROYALTIES

This is an area that has attracted a lot of attention over the last decade. Efforts to revise the setup in Alberta were amongst the main contributing factors to the downfall of ex-Premier Ed Stelmach. In reality, industry has generally had the ear of the government on this matter and their requests for special schemes to accommodate investment in specific play types has resulted in a complicated regime of royalty administration. With reference to the table on page 9, factors that control royalty calculations include:

1. a desire to protect wells with less productivity (hence terms that are geared to actual production),
2. a tradeoff of having higher rates for more prolific wells (presumably because they can afford it),
3. allowances for costs like transportation and processing,
4. accommodation for the lower prices received for heavier oil types (hence a gearing to a lower "par price" at low gravity and a higher one at higher gravity - with categories of light, medium, heavy and ultra-heavy with boundaries at 925, 900 and 850 kg/m3) and, finally,
5. a recognition that for some capital intensive plays, rapid recovery of that capital helps to underpin their economics and supports investment and industry activity.

Reference should be made to the details on the Alberta Government Energy Department website at www.energy.alberta.ca Follow the links to Our Business – Oil – Royalty Information – About Oil Royalties. This actually taps into both oil and gas. There you will see reference to the following specialized royalty regimes and their administration:

Alberta Royalty Framework wells
Transition wells
New Well Royalty Rate (NWRR, 5% for the first year)
Natural Gas Deep Drilling Program (NGDDP, depth dependent)
Horizontal Gas NWRR
Coal Bed Methane NWRR
Shale Gas NWRR
Deep Oil Royalty Program

The point is that industry is somewhat cushioned by several factors in periods of lower prices with the government taking a disproportionately large slice of the pain. This is Whammy #2.

OIL SANDS ROYALTIES

As already alluded to with some of the unconventional rates and early royalty relief, the rapid recovery of capital has been paramount to the large operators in the oil sands. Given the present value of money, the effect of low up-front royalties is to bolster profitability. The major long term complication for the province, in addition to this immediate impact, is that royalties from these projects only jump up to more lucrative levels once the project has reached "payout" – in other words once the original capital plus some allowance for its growth have been recovered from the cash flow. Please refer to the charts on page 10. An oil sands mine that started up in 2005 might have paid out in 2015 with $100 per barrel oil (theoretical example) may now have its payout horizon pushed out with $50 per barrel oil to 2025. That's 10 more years of low royalty rates for the province to endure. This is Whammy #3.

Royalty Formulas – Conventional Oil
Effective January 1, 2011

R% = Price Component (r_p) + Quantity Component (r_q)

ARF (2011): R% has a minimum of 0% and a maximum of 40%

Transition: R% has a minimum of 0% and a maximum of 50%

Royalty Parameters

	Price ($/m^3)		% Change (%/$/m^3)	
	ARF (2011)	Transition Wells	ARF (2011)	Transition Wells
P_1	190.00	210.00	0.06%	0.035%
P_2	250.00	250.00	0.10%	0.01%
P_3	400.00	350.00	0.05%	0.005%
P_4	535.00	--	0.03%	--
	Q (m^3/month)		**% Change (%/m^3/month)**	
	ARF (2011)	Transition Wells	ARF (2011)	Transition Wells
Q_1	106.4	30.4	0.26%, 0.10%	0.13%
Q_2	197.6	152.0	0.07%	0.08%
Q_3	304.0	273.6	0.03%	0.02%

Price Component (r_p)

Alberta Royalty Framework (2011)		Transition Wells	
Price ($/m^3)	**r_p**	**Price ($/m^3)**	**r_p Transition Wells**
PP ≤ 250.00	((PP – 190.00) * 0.0006)*100	PP ≤ 250.00	((PP – 210.00) * 0.00035)*100
250.00 < PP ≤ 400.00	(((PP – 250.00) * 0.0010) + 0.0360)*100	250.00 < PP ≤ 350.00	(((PP – 250.00) * 0.00010) + 0.0140)*100
400.00 < PP ≤ 535.00	(((PP – 400.00) * 0.0005) + 0.1860)*100	PP > 350.00	(((PP – 350.00) * 0.00005) + 0.0240)*100
PP > 535.00	(((PP – 535.00) * 0.0003) + 0.2535)*100	--	--
Maximum	35%	Maximum	35%
PP is the par price for the month in $/m^3			
Note: r_p can be negative			

Quantity Component (r_q)

Alberta Royalty Framework (2011)		Transition Wells	
Quantity (m^3/month)	**r_q**	**Quantity (m^3/month)**	**r_q Transition Wells**
Q ≤ 106.4	((Q – 106.4) * 0.0026)*100	Q ≤ 30.4	((Q – 30.4) * 0.0013)*100
106.4 < Q ≤ 197.6	((Q – 106.4) * 0.0010)*100	30.4 < Q ≤ 152.0	((Q – 30.4) * 0.0013)*100
197.6 < Q ≤ 304.0	(((Q – 197.6) * 0.0007) + 0.0912)*100	152.0 < Q ≤ 273.6	(((Q – 152.0) * 0.0008) + 0.1581)*100
Q > 304.0	(((Q – 304.0) * 0.0003) + 0.1657)*100	Q > 273.6	(((Q – 273.6) * 0.0002) + 0.2554)*100
Maximum	30%	Maximum	35%
Q is the monthly production in m^3			
Note: r_q can be negative			

Examples

Price ($/m^3)	Quantity (m^3/month)	ARF (2011)			Transition Wells		
		r_p	r_q	R%	r_p	r_q	R%
400.00	50.0	18.60%	-14.66%	3.94%	2.65%	2.55%	5.20%
400.00	200.0	18.60%	9.29%	27.89%	2.65%	19.65%	22.30%
600.00	50.0	27.30%	-14.66%	12.64%	3.65%	2.55%	6.20%
600.00	200.0	27.30%	9.29%	36.59%	3.65%	19.65%	23.30%

As extracted from the Alberta Government Energy Department website, the conventional oil royalty calculation template demonstrating complex sensitivities to well productivity (quantity, designed to protect lower deliverability wells) and crude price (including adjustments for crude quality/gravity). Metric convention makes this a bit hard to translate into the “normal” barrel equivalents.

Alberta

Production Month: December 2014

Royalty Information

Pre-Payout Gross Royalty Rate: 4.99138% (based on **Production Month actual WTI Price**)

Post-Payout Gross Royalty Rate: 7.30769% (based on the **average WTI Price for Production Year**)

Post-Payout Net Royalty % Factor (NRPF): 36.82692% (based on the **average WTI Price for Production Year**)

WTI Prices and Exchange Rates

Month	Act/Est	WTI Price ($US)	Exchange Rate ($US/$CDN)	WTI Price ($CDN)
Jan 2014	Act	$97.89	0.91391730	
Feb 2014	Act	$94.86	0.90455946	
Mar 2014	Act	$100.68	0.90032154	
Apr 2014	Act	$100.51	0.90981167	
May 2014	Act	$102.03	0.91796055	
Jun 2014	Act	$101.79	0.92330014	
Jul 2014	Act	$105.15	0.93116963	
Aug 2014	Act	$102.39	0.91514333	
Sep 2014	Act	$96.08	0.90811596	
Oct 2014	Act	$93.03	0.89185815	
Nov 2014	Act	$84.34	0.88288732	
Dec 2014	**Act**	**$75.81**	**0.86711289**	**= $87.43**
Average		**$96.21**	**0.90551316**	**= $106.25**

Gross Royalty Rate

Minimum Royalty Rate: $R_G\% = 1\%$ for $W \leq L$

Maximum Royalty Rate: $R_G\% = 9\%$ for $W \geq H$

Price Sensitive Royalty Rate: $R_G\% = 1\% + [(W - L) * F_G]$ for $L < W < H$

Net Royalty % Factor (NRPF)

Minimum Royalty % Factor: $R_N\%$ Factor = 25 % for $W \leq L$

Maximum Royalty % Factor: $R_N\%$ Factor = 40 % for $W \geq H$

Price Sensitive Royalty % Factor: $R_N\%$ Factor = $[25\% + (W - L) * F_N]$ for $L < W < H$

W = WTI Price $CDN

L = $CDN 55/bbl

H = $CDN 120/bbl

F_G = 8%/$65 per barrel increase in W (straight line relation)

F_N = 15%/$65 per barrel increase in W (straight line relation)

Note: Formulas are the working level representation of the legal version that is in OSRR2009

2015/01/05 11:46:22 AM Page 1 Alberta

As extracted from the Alberta Government Energy Department website, the template for oil sands royalty calculations as a function of price, exchange rate and, very importantly, the payout status of the project from which the bitumen is being produced.