

November 19, 1999

3600-4580-59240-07 OGC 990516

Mr. Gordon McIntosh Production Engineer Fort St. John Asset Team Northern Gas Business Unit Petro-Canada Resources P.O. Box 2844 Calgary AB T2P 3E3

Petro-Canada Unit#1 (02)

Dear Mr. McIntosh:

RE: CONCURRENT PRODUCTION WITH GOOD ENGINEERING PRACTICE APPROVAL AMENDMENT # |

FORT ST JOHN NORTH PINE "A" POOL

Attached is an amendment to the Concurrent Production Approval with Good Engineering Practice for Petro-Canada Unit#1 in the subject pool.

Following a meeting with Petro-Canada staff on October 25, 1999, a detailed geological, geophysical and engineering review was carried out for the subject pool. Based on this review, we concur with your interpretation that an E-W fault exists just to the north of section 25 and 26–83-18 W6M. As a result the well 8-35-83-18 W6M (WA 8814) has now been removed from the North Pine "A" pool and mapped in the North Pine "C" pool.

Reserves based oil and gas allowables have now been recalculated for newly mapped oil and gas-cap within Unit#1 of the North Pine "A" pool. Accordingly, the approval of August 1, 1977 is hereby amended and Approval 77-07-01 (Amendment #1) granted under section 97 of the Petroleum and Natural Gas Act. Please note that both oil and gas allowables for the Calahoo operated project within the North Pine "A" pool have also been recalculated.

Also, attached is a daily gas allowable of 21.9 e3m3 for the gas-cap well 13-14-83-18 W6M.

Should you have any questions, please contact Peter Attariwala at (250) 952-0311 or Ron Stefik at (250) 952-0310.

Sincerely	Approval Letters to Industry GEP, SWD, CONCURRENT PROD, PRESSURE MAINTENANCE, WATERFLOOD, ETC.			
B. van Oort, P. Eng. Director Engineering and Geology Branch	Copy Wellfile (originals) 59240 Daily			
Attachment	Resource Revenue R. Stefik G. Farr			
PO Box 9329 Stn Prov Gov't, Victoria BC V8W Location: 6 th Flr 1810	P. Attariwala C. Gibson D. Krezanoski S. Chicorelli	52-0291		

APPROVAL 77-07-01 (Amendment #1)

THE PROVINCE OF BRITISH COLUMBIA PETROLEUM AND NATURAL GAS ACT **OIL AND GAS COMMISSION**

IN THE MATTER of a Concurrent Production proposal of Petro-Canada Oil and Gas (Petro-Canada) for producing from Unit #1 of the Fort St. John North Pine "A" Pool with project oil and gas allowable.

NOW, THEREFORE, the Commission, pursuant to section 97 of the Petroleum and Natural Gas Act (the Act), hereby approves an amendment to the Concurrent Production project of Petro-Canada for oil and gas production with project allowables.

This project is approved, subject to the conditions herein contained and, in particular:

- 1. The area of the project shall consist of N/2 sec 10, N/2 sec 11, NW/4 sec 12, W/2 sec 13, 14, 15, 22, 23 and W/2 sec 24-83-18 W6M.
- 2. The reserves based project oil allowable is 64.3 m³/d.
- The reserves based project gas allowable is 52.8 10³ m³/d. 3.
- 4. All associated gas production must be conserved.
- 5. This approval may be modified or rescinded at a later date if deemed appropriate.

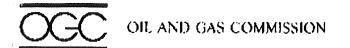
Bou van Oor

Director

Engineering and Geology Branch

DATED AT the City of Victoria, in the Province of British Columbia, this

19 day of November, 1999.



Mailing Address: Engineering and Geology Branch PO BOX 9329 STN PROV GOV'T VICTORIA BC V8W 9N3

Location: 1810 Blanshard St - 6th FI Victoria BC V8T 4J1

Phone: (250) 952-0302 FAX: (250) 952-0291

APPLICATION FOR DAILY GAS ALLOWABLE (DGA)

Individual Well

Form must be submitted under the authority of the Petroleum and Natural Gas Act R.S.B.C. 1996, c. 361, Drilling and Production Regulation, s.88, to the Oil and Gas Commission, at the address noted above. Information collected on this form will be used for public record in accordance with s.57 of the Drilling and Production Regulation.

Initial Application							
Well Name PEX WP FT ST JOHN 13-14-83-18				Well Authorization No. 194			
Field Fort St. John Pool North Pine "A"							ie "A"
Factors		Units _	Value	Owner's es Obtained from	Calculat Valu	ions les Used in This Calculation	Branch Calculations
Depth to top gas pay		mKb					1318.7
Depth to bottom gas pay		mKb					1320.2
Assigned area	А	hectares					260.6
Average net pay thickness	h	metres					2.1
Average net porosity	φ	fraction					0.146
Average water saturation (Nominal 0.25)	S _w	fraction					0,200
Initial pool pressure at MPP	P _i	kPaa					13,231.
Formation temperature	Т	к					325
Initial supercompressibility factor	Z _i						0,835
Recovery factor	R	fraction					0.90
Unadjusted Daily Gas Allowable	(10 ³ m ³) =	$\frac{\text{Ah}\phi(1-S_{\text{w}})}{35.16398}$	$\left(\frac{P_1 R}{TZ_1}\right) \left(\frac{1}{3.65}\right)$	<u>50</u>)			- 21.9
Name				Position			
Signature				Company			
Date		Phone No.			FAX	No.	
		APPI	ROVAL (fo	or commission use	only)		
Off-target penalty factor	1.00		Da (minimum Ul	ily gas allowab DGA is 60.0 10³m³ in	le 2	1,9 with Section 1 of the D	10 ³ m ³ rilling and Production Regulation)
Date Effective	Augus	st 23, 1					
Field	Fort	St. Joh	n	Pool	N	orth Pine	"A"
Approval Date		mber 18,	1999			1/182	
OGC_038_DGA Rev. 99/05					Box	Authorized	Commission Employee 59070-03/WA