



The Oil and Natural Gas
Conservation Board

Room 309
Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

(204) 945-3130

July 9, 1986

Chevron Canada Resources Limited
500 - 5th Avenue S.W.
Calgary, Alberta
T2P 0L7

Attention: Mr. D. Schierman

Dear Sirs:

Re: Proposed Daly Unit No. 4
Application for Waterflood Incentives

Your letter of June 26, 1986 requesting deferral of your previous application for an extension of the Production Incentive Program for the subject project is acknowledged.

Yours sincerely,

ORIGINAL SIGNED BY
WM M McDONALD 9 JUN 86

Charles S. Kang
Chairman

LRD/1k

b.c. Wm. McDonald
B. Ball
Petroleum Branch



Chevron Canada Resources Limited

500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7

1986-06-26

K.E. Godard
Chief Engineer

Proposed Daly Unit No. 4
Application for Waterflood Incentives

The Oil and Natural Gas Conservation Board
309 Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: Mr. C. S. Kang, Chairman

Gentlemen:

1. On 1986-04-28, Chevron Canada Resources Limited, as Operator of the proposed Daly Unit No. 4, requested an extension of the Production Incentive Period for the proposed Daly Unit No. 4 Waterflood. Chevron now requests that this Application be deferred.
2. On 1986-06-26, Chevron Canada Resources Limited submitted an amendment to the Daly Unit No. 4 Waterflood Application. The subject of this amendment is the downsizing of the Unit No. 4 Stage I Waterflood Development. Instead of infill drilling four injectors on 8 ha well spacing in the Section 27 Area, only one injector will be drilled.
3. This downsizing of the waterflood development has resulted in improved economics. Therefore, Waterflood Incentives are not required for the proposed Daly Unit No. 4 Waterflood at this time.
4. Should Waterflood Incentives be required in the future to facilitate Unit No. 4 waterflood development, Chevron will resubmit the Application for Waterflood Incentives.

Any questions regarding this matter should be directed to Doug Schierman at (403) 234-5150.

Sincerely,



for C. G. FOLDEN, P.Eng.
Supervising Engineer
Reservoir Engineering

DNS/lgs



The Oil and Natural Gas
Conservation Board

Room 309
Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

(204) 945-3130

MAY 13

Chevron Canada Resources Limited
500 - Fifth Avenue S.W.
Calgary, Alberta
T2P 0L7

Attention: Mr. D. Schierman

Dear Sirs:

Re: Proposed Daly Unit No. 4
Waterflood Incentives

Your letters of April 23rd, 24th, and 28th, 1986 regarding waterflood incentives for the subject proposed Unit are acknowledged.

Upon review of your request, we have the following questions:

1. What oil price forecast have you used? Please provide this on a yearly basis.
2. For which wells is Chevron requesting the incentive?
3. Would the Oil and Natural Gas Tax payable on the incentive wells be calculated based on allocated production? Do you foresee any administrative complexities that would result from your proposal?
4. Please provide a breakdown of the specific components in the variable portion of the operating cost. Are operating costs escalated over the life of the project?
5. What is the justification for extending the incentive 6.5 years past the anticipated payout of the project?

We suggest that it may be beneficial for your representatives to meet with us after we have reviewed your response to the above questions.

Yours sincerely,

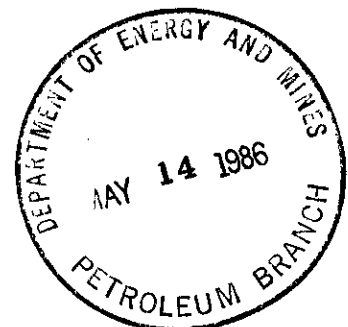
THE OIL AND NATURAL GAS
CONSERVATION BOARD

**ORIGINAL SIGNED BY
CHARLES S. KANG**

Charles S. Kang
Chairman

LRD/lk

b.c. Wm. McDonald
B. Ball
Petroleum Branch





Chevron Canada Resources Limited
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7

K.E. Godard
Chief Engineer

1986-04-28

Amendment to Application
For Waterflood Incentives
For The Proposed Daly Unit No. 4

The Oil and Natural Gas Conversation Board
Room 309, Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: C. S. Kang, Chairman

Gentlemen:

The investment used to generate the waterflood after the profits in the subject application was incorrectly reported to be \$160 000. The actual value is \$1 609 000.

Attached is the revised first page of the application.

Yours truly,

C. G. Folden
for C. G. FOLDEN, P.Eng.
Supervising Engineer
Reservoir

DMcC/ds
Attach.

cc: Working Interest Owners
Proposed Daly Unit No. 4



K.E. Godard
Chief Engineer

Chevron Canada Resources Limited

500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7

1986-04-28

Application for Waterflood Incentives For The Proposed Daly Unit No. 4

The Oil and Natural Gas Conversation Board
Room 309, Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: C. S. Kang, Chairman

Gentlemen:

1. Chevron Canada Resources Limited, as Operator of the Proposed Daly Unit No. 4, requests extension of the Production Incentive Period for the proposed Daly Unit No. 4 waterflood.
2. The proposed unit will include wells which produce from the Daly Lodgepole "A" Pool. A waterflood application for the subject area was submitted to the Manitoba Board on 1986-03-31.
3. Economic analyses indicate that implementing a waterflood throughout the proposed Unit is uneconomic at this time. Therefore a staged waterflood development is planned. Stage I of the waterflood development includes the Section 27 area and one 5-spot pattern in Section 35. The Waterflood Application describes the Stage I Development in more detail.
4. Economic analysis indicates that the Section 27 area waterflood development is uneconomic without waterflood incentives and marginally economic with waterflood incentives for Chevron at this time. The payouts with and without waterflood incentives are 3.5 and 4.0 years respectively. Production and cash flow data are shown on Tables 1 and 2.
5. The assumptions used in generating the after tax profits are:
 - a) Water injection commences 1986-10.
 - b) Total investment of \$1 609 000 incurred in 1986-10.
 - c) All production has freehold royalty and new mineral tax status.
 - d) Waterflood incentives would be an extension of the Production Incentive Period (i.e., reduced mineral taxes) to cover the first 10 years of the project.
 - e) Operating costs - fixed cost of \$593/producing well/month plus variable cost of \$6.93/m³ of oil. Water injection costs of \$1.77/m³ of water.



Chevron Canada Resources Limited
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7

K.E. Godard
Chief Engineer

1986-04-24

Amendment to Application
For Waterflood Incentives
For The Proposed Daly Unit No. 4

The Oil and Natural Gas Conversation Board
Room 309, Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: C. S. Kang, Chairman

Gentlemen:

Amendments to Tables 1 and 2 of the Application For Waterflood Incentives
for the Proposed Daly Unit No. 4, dated 1986-04-23 are attached.

A correction in the units for Oil Production was necessary.

Yours truly,

A handwritten signature in cursive script, appearing to read "C. G. Folden".

C. G. FOLDEN, P.Eng.
Supervising Engineer
Reservoir

DMcC/ds
Attach.

cc: Working Interest Owners
Proposed Daly Unit No. 4



Chevron Canada Resources Limited

500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7

K.E. Godard
Chief Engineer

1986-04-24

Application for Waterflood Incentives For The Proposed Daly Unit No. 4

The Oil and Natural Gas Conversation Board
Room 309, Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: C. S. Kang, Chairman


Gentlemen:

1. Chevron Canada Resources Limited, as Operator of the Proposed Daly Unit No. 4, requests extension of the Production Incentive Period for the proposed Daly Unit No. 4 waterflood.
2. The proposed unit will include wells which produce from the Daly Lodgepole "A" Pool. A waterflood application for the subject area was submitted to the Manitoba Board on 1986-03-31.
3. Economic analyses indicate that implementing a waterflood throughout the proposed Unit is uneconomic at this time. Therefore a staged waterflood development is planned. Stage I of the waterflood development includes the Section 27 area and one 5-spot pattern in Section 35. The Waterflood Application describes the Stage I Development in more detail.
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5. The assumptions used in generating the after tax profits are:
 - a) Water injection commences 1986-10.
 - b) Total investment of \$160 000 incurred in 1986-10.
 - c) All production has freehold royalty and new mineral tax status.
 - d) Waterflood incentives would be an extension of the Production Incentive Period (i.e., reduced mineral taxes) to cover the first 10 years of the project.
 - e) Operating costs - fixed cost of \$593/producing well/month plus variable cost of \$6.93/m³ of oil. Water injection costs of \$1.77/m³ of water.

6. Technical analyses indicate that oil recovery from the Lodgepole "A" Pool is improved by waterflooding, but waterflood incentives will be required before Chevron can consider implementing a waterflood in the Section 27 area.

Any questions regarding this Application should be addressed to Kevin Matieshin at (204) 748-1334 or Doug Schierman at (403) 234-5150.

Sincerely,


for) C. G. FOLDEN, P.Eng.
Supervising Engineer
Reservoir Engineering

DS/ds

cc: Working Interest Owners
Proposed Daly Unit No. 4

TABLE 1

Proposed Daily Unit No. 4
Production and Cash Flow Data With Waterflood Incentives

Year	Primary Recovery				Waterflood Recovery				Incremental		
	Prod		A.T. Profit		Prod.		A.T. Profit		Oil Prod.	A.T. Profit	A.T. Profit
	Oil Prod.	Wells	A.T. Profit	10 ³ \$	Oil Prod.	Wells	Inject. Costs	A.T. Profit			
	m ³				m ³		10 ³ \$	10 ³ \$	m ³	10 ³ \$	10 ³ \$
1986-10	1 500	12	82	80	1 500	12	53.1	-1 303	0	-1 385	-1 389
1987	4 980	12	270	243	8 400	12	220.9	529	3 420	259	233
1988	3 960	10	208	163	12 300	12	229.7	672	8 340	464	363
1989	3 240	9	198	135	12 300	12	238.9	748	9 060	550	374
1990	2 520	8	156	92	11 436	12	248.5	699	8 916	543	322
1991	1 920	7	128	66	10 644	12	255.9	703	8 724	575	296
1992	1 560	6	106	47	9 888	12	263.6	653	8 328	547	245
1993	1 320	5	100	39	9 204	12	271.5	661	7 884	561	218
1994	1 020	4	79	27	8 556	12	279.7	621	7 536	543	184
1995	816	4	65	19	7 956	12	288.1	624	7 140	559	165
1996	648	4	48	12	7 404	12	296.7	570	6 756	522	134

1. Payout of waterflood project - 3.5 years

TABLE 2

Proposed Daily Unit No. 4

Production and Cash Flow Data Without Waterflood Incentives

Year	Primary Recovery				Waterflood Recovery				Incremental			
	Prod		A.T. Profit		Prod.		A.T. Profit		Oil Prod.		A.T. Profit	
	Oil Prod.	Wells	A.T. Profit	10 ³ \$	Oil Prod.	Wells	Inject. Costs	A.T. Profit	10 ³ \$	10 ³ \$	10 ³ \$	A.T. Profit
	m ³				m ³		10 ³ \$	10 ³ \$		m ³		@15%
1986-10	1 500	12	82	80	1 500	12	53.1	-1 303	-1 309	0	-1 385	-1 389
1987	4 980	12	270	243	8 400	12	220.9	484	435	3 420	214	193 -1196
1988	3 960	10	208	163	12 300	12	229.7	582	456	8 340	374	293-903
1989	3 240	9	198	135	12 300	12	238.9	647	441	9 060	449	306 - 597
1990	2 520	8	156	92	11 436	12	248.5	604	358	8 916	448	265 - 332
1991	1 920	7	128	66	10 644	12	255.9	606	312	8 724	478	246 - 86
1992	1 560	6	106	47	9 888	12	263.6	565	253	8 328	459	205 119
1993	1 320	5	100	39	9 204	12	271.5	578	225	7 884	478	186 305
1994	1 020	4	79	27	8 556	12	279.7	548	186	7 536	470	159 464
1995	816	4	65	19	7 956	12	288.1	557	164	7 140	492	145 609
1996	648	4	48	12	7 404	12	296.7	534	137	6 756	486	124 733

1. Payout of waterflood project - 4.0 years



Chevron Canada Resources Limited

500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7

K.E. Godard
Chief Engineer

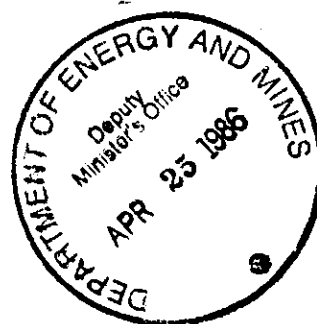
1986-04-23

Application for Waterflood Incentives For The Proposed Daly Unit No. 4

The Oil and Natural Gas Conversation Board
Room 309, Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: C. S. Kang, Chairman

Gentlemen:




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 - e) Operating costs - fixed cost of \$593/producing well/month plus variable cost of \$6.93/m³ of oil. Water injection costs of \$1.77/m³ of water.

6. Technical analyses indicate that oil recovery from the Lodgepole "A" Pool is improved by waterflooding, but waterflood incentives will be required before Chevron can consider implementing a waterflood in the Section 27 area.

Any questions regarding this Application should be addressed to Kevin Matieshin at (204) 748-1334 or Doug Schierman at (403) 234-5150.

Sincerely,


for C. G. FOLDEN, P.Eng.
Supervising Engineer
Reservoir Engineering

DS/ds

cc: Working Interest Owners
Proposed Daly Unit No. 4

TABLE 1

Proposed Daily Unit No. 4
Production and Cash Flow Data With Waterflood Incentives

Year	Primary Recovery				Waterflood Recovery				Incremental		
	Prod.		A.T. Profit		Prod.		Inject. Costs		A.T. Profit		A.T. Profit @15%
	Oil Prod.	Wells	A.T. Profit	@ 15%	Oil Prod.	Wells	Inject. Costs	A.T. Profit	Oil Prod.	A.T. Profit	
	93 313 m3		10 ³ \$	10 ³ \$	103 313 m3		10 ³ \$	10 ³ \$	103 313 m3	10 ³ \$	10 ³ \$
1986-10	1 500	12	82	80	1 500	12	53.1	-1 303	0	-1 385	-1 389
1987	4 980	12	270	243	8 400	12	220.9	529	3 420	259	233
1988	3 960	10	208	163	12 300	12	229.7	672	8 340	464	363
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1994	1 020	4	79	27	8 556	12	279.7	621	7 536	543	184
1995	816	4	65	19	7 956	12	288.1	624	7 140	559	165
1996	648	4	48	12	7 404	12	296.7	570	6 756	522	134

1. Payout of waterflood project ~ 3.5 years

TABLE 2

Proposed Daily Unit No. 4
Production and Cash Flow Data Without Waterflood Incentives

Year	Primary Recovery				Waterflood Recovery				Incremental			
	Prod.		A.T. Profit		Prod.		A.T. Profit		Oil Prod.		A.T. Profit	
	Oil Prod.	Wells	A.T. Profit	@ 15%	Wells	Inject. Costs	A.T. Profit	@ 15%	10³ \$ m ³	10 ³ \$	A.T. Profit	@ 15%
1986-10	10³ \$ m ³	1 500	82	10 ³ \$	12	53.1	-1 303	10 ³ \$	10³ \$ m ³	0	-1 385	10 ³ \$
1987	4 980	12	270	80	12	220.9	484	435	3 420	3 420	214	193
1988	3 960	10	208	243	12	229.7	582	456	8 340	8 340	374	293
1989	3 240	9	198	163	12	238.9	647	441	9 060	9 060	449	306
1990	2 520	8	156	135	12	248.5	604	358	8 916	8 916	448	265
1991	1 920	7	128	92	12	255.9	606	312	8 724	8 724	478	246
1992	1 560	6	106	66	12	263.6	565	253	8 328	8 328	459	205
1993	1 320	5	100	47	12	271.5	578	225	7 884	7 884	478	186
1994	1 020	4	79	39	12	279.7	548	186	7 536	7 536	470	159
1995	816	4	65	27	12	288.1	557	164	7 140	7 140	492	145
1996	648	4	48	19	12	296.7	534	137	6 756	6 756	486	124

1. Payout of waterflood project - 4.0 years

DALY UNIT No. 4
WATER FLOOD ALTERNATIVE

DIETZGEN CORPORATION
MADE IN U.S.A.
Cum Inc
AT Profit
© 15%
0

NO. 341-M DIETZGEN GRAPH PAPER
MILLIMETER

