WASKADA UNIT #6
BOARD CORRESPONDENCE

- TRANSFER UNIT CHEVRON - TUNDRA
- OIC 229/87 CONFIRMATION
- CHEVRON'S TESTIMONY AT HEARING
- X-COPIES CONSENT FORMS
- GAZETTE NOTICE OF HEARING
- TIMES AND STAR NOTICE OF HEARING
- CHEVRON'S REQUEST - UNIT ORDER
- OIC 584/86 MINISTER'S CONSENT

March 18, 1992

Mr. B.J. Wasyliw
Past Chairman
Operating Committee
Chevron Canada Resources
500 - Fifth Avenue S.W.
Calgary, Alberta
T2P OL7

Dear Sir:

RE: Waskada Unit No. 6
Change in Operatorship

The Oil and Natural Gas Conservation Board hereby acknowledges the changes in Unit Operatorship in Waskada Unit No. 6 from Chevron Canada Resources to Tundra Oil and Gas Ltd. effective February 1, 1992.

All well licences, battery operating permits and flowline licences relating to Waskada Unit No. 6 will be transferred by the Petroleum Branch to Tundra. No additional material is required from Chevron in respect of these transfers.

If you have any questions, please contact John N. Fox, Chief Petroleum Engineer at (204) 945-6574.

Yours respectfully,

ORIGINAL SIGNED BY
H. CLARE MOSTER

H. Clare Moster
Deputy Chairman

cc Tundra Oil and Gas Ltd.

Chevron Canada Resources
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7
Phone (403) 234-5000 Fax (403) 234-5947

Bob John
Please review and draft acknowledgement from Board.

March 4, 1992

R.J. Terlesky
Manager
Units & Joint Ventures
Producing Department

Change of Operatorship
Waskada Unit No. 6

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

Attention: H.C. Moster

Ladies/Gentlemen:

Chevron Canada Resources, a Partnership by its managing Partner, Chevron Canada Resources Limited, has received Working Interest Owner approval to transfer Operatorship of the subject Unit to Tundra Oil and Gas Ltd. Tundra recently acquired the interest formerly held by Chevron Canada Resources.

The change of Operatorship has been carried out in accordance with Part XI of the Plan for Unit Operation. Enclosed for your records you will find one copy of the mail ballot approving the designation of Tundra, as Chevron's successor. The effective date of the change is February 1, 1992. All facility licenses to be updated should be sent to Mr. R.G. Puchniak of Tundra for his signature.

Chevron has agreed to contract operate Waskada Unit No. 6 for a short period in order to facilitate a smooth transition from Chevron to Tundra.

If you have any questions regarding this transaction, please contact me at 234-5026.

Yours very truly,

B.J. WASYLIW, Past Chairman
Operating Committee

BJW/pd
Attach.

cc (w/o encl.)
J.E. Causgrove (Virden) J. Dornian (453) M.A. Simi (2374)
cc: (with encl.)
R.G. Puchniak - Tundra Oil & Gas
Working Interest Owners

ASSISTANT DEPUTY MINISTER
ENERGY
MAR 9 1992
DEPARTMENT OF
ENERGY and MINES

TRANSFER
UNIT
CHEVRON ⇒ TUNDRA

Chevron Canada Resources
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7
Phone (403) 234-5000 Fax (403) 234-5947

R.J. Terlesky
Manager
Units & Joint Ventures
Producing Department

February 28, 1992

Mail Ballot No. 92-01
Change of Operatorship
Waskada Unit No. 6

TO: ALL WORKING INTEREST OWNERS
WASKADA UNIT NO. 6

Ladies/Gentlemen:

The subject mail ballot, dated January 23, 1992 was approved as shown on the attached summaries. In accordance with the Plan for Unit Operation, please note that the voting interest in Motions 2 and 3 have been adjusted reflecting Chevron's ineligibility to vote.

Yours very truly,

B.J. WASYLIW, Chairman
Operating Committee

/pd

CALCULATION OF MAIL BALLOT RESULTS

PROPERTY: WASKADA UNIT #6
MB#: 92-1
Motion #1: Approve Resignation of Chevron Canada Resources as Unit Operator

Due Date:1992-02-18

Working Interest Owner	Participation	Reply Date	Vote
2277817 Manitoba Ltd.	3.146800	1992-01-27	A
Can-Am Drilling Ltd.	2.638700	1992-02-06	A
Chevron Canada Resources	58.782500	1992-01-27	A
Colenco Petroleum Ltd.	6.088600	1992-01-24	A
East Plains Resources Ltd.	20.315100	1992-01-29	A
Great American Energy	5.968800		D
PanCanadian Petroleum Ltd.	3.059500	1992-01-24	A
	100.000000		

Motion #1	
AFFIRMATIVE	94.031200
DEEMED	5.968800
NEGATIVE	0.000000
	100.000000

CALCULATION OF MAIL BALLOT RESULTS

PROPERTY: WASKADA UNIT #6
MB#: 92-1
Motion #2: APPROVE SELECTION OF TUNDRA OIL AND GAS LTD. AS SUCCEEDING OPERATOR

Due Date:1992-02-18

Working Interest Owner	Participation	Reply Date	Vote
2277817 Manitoba Ltd.	7.634620	1992-01-27	A
Can-Am Drilling Ltd.	6.401890	1992-02-06	A
Colenco Petroleum Ltd.	14.771880	1992-01-24	A
East Plains Resources Ltd.	49.287580	1992-01-29	A
Great American Energy	14.481220		D
PanCanadian Petroleum Ltd.	7.422810	1992-01-24	A
	100.000000		

	Motion #2
AFFIRMATIVE	85.518780
DEEMED	14.481220
NEGATIVE	0.000000
	100.000000

CALCULATION OF MAIL BALLOT RESULTS

PROPERTY: WASKADA UNIT #6
MB#: 92-1
Motion #3: Audit Of Accounts of CCR Be Waived

Due Date:1992-02-18

Working Interest Owner	Participation	Reply Date	Vote
2277817 Manitoba Ltd.	7.634620	1992-01-27	A
Can-Am Drilling Ltd.	6.401890	1992-02-06	A
Colenco Petroleum Ltd.	14.771880		D
East Plains Resources Ltd.	49.287580	1992-01-29	A
Great American Energy	14.481220		D
PanCanadian Petroleum Ltd.	7.422810	1992-01-24	A
	100.000000		

Motion #3	
AFFIRMATIVE	70.746900
DEEMED	29.253100
NEGATIVE	0.000000
	100.000000

Chevron Canada Resources
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7
Phone (403) 234-5000 Fax (403) 234-5947

January 23, 1992

R.J. Terlesky
Manager
Units & Joint Ventures
Producing Department

Mail Ballot No. 92-01
Change of Operatorship
Waskada Unit No. 6

TO: ALL WORKING INTEREST OWNERS
WASKADA UNIT NO. 6

Ladies/Gentlemen:

Attached for your consideration and approval is Mail Ballot No. 92-01 with respect to the resignation of Chevron Canada Resources as Unit Operator and the approval of Tundra Oil and Gas Ltd., as succeeding Unit Operator.

Chevron Canada Resources has reached an agreement to sell its working interest in Waskada Unit No. 6 to Tundra Oil and Gas Ltd. The effective date of the sale is January 31, 1992. It has become expedient for Chevron to seek approval from the Working Interest Owners for Chevron Canada Resource's resignation and Tundra's succession, as Unit Operator. Tundra has a large base of operations in the area and operation of this Unit could be incorporated into this base very easily. Chevron has also agreed to contract operate Waskada Unit No. 6 for a period of at least two months following the effective date of the sale, in order to facilitate a smooth transition from Chevron to Tundra.

In addition, Chevron also requests Working Interest Owner approval to waive the requirement to cause an audit to be made of the records of the departing Operator.

Please return a signed copy of the attached mail ballot to the attention of our Producing Records on or before **February 18, 1992.** Chevron would appreciate your attention to this matter as soon as possible.

If you have any questions, please contact me at 234-5026.

Yours very truly,

B.J. WASYLIW, Chairman
Operating Committee

BJW/pd
Attach.

cc: J.E. Causgrove (Virden) J. Dornian (453) J.G. Webb (414) M.A. Simi (2374)
R.G. Puchniak - Tundra Oil & Gas Ltd.

Mail Ballot No. 92-01
Change of Operatorship
Waskada Unit No. 6

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

Attention: Producing Records

Ladies/Gentlemen:

MOTION 1:

"BE IT RESOLVED, that conditional on the closing of the sale of Chevron's share of the Unit to Tundra on or about January 31, 1992, Owners approve the resignation of Chevron Canada Resources effective January 31, 1992 and waive the 90 day notice period, as stipulated in Part XI, Clause 11.02 of the unit agreement."

APPROVED: _____ DISAPPROVED: _____

MOTION 2:

"BE IT RESOLVED, that upon Chevron's resignation as Unit Operator on January 31, 1992, Owners approve the selection of Tundra Oil and Gas Ltd. as the succeeding Unit Operator."

APPROVED: _____ DISAPPROVED: _____

MOTION 3:

"BE IT RESOLVED, that the requirement to cause an audit of the accounts of Chevron Canada Resources, as stipulated in Part XI, Clause 11.05 of the unit agreement, be waived."

APPROVED: _____ DISAPPROVED: _____

_____
(Signature of Designated Representative or Alternate)

WORKING INTEREST OWNER: _____

DATE: _____

Closure Date: **February 18, 1992**

No reply is deemed affirmative.

Manitoba

Action / Route Slip

Date: March 18, 1992

To: H. Clare Moster
Deputy Chairman

From: John N. Fox
Chief Petroleum Engineer

Telephone:

☒ Take Action ☐ Per Your Request ☐ Circulate, Initial and Return ☐ For Approval and Signature ☐ Make ____ Copies

☐ May We Discuss ☐ For Your Information ☐ Return With Comments or Revisions ☐ Draft Reply for Signature ☐ Please File

Comments: Attached is a letter to Chevron acknowledging the change in ownership for Waskada Unit No. 6 (Chevron to Tundra). The unit is approved under Board Unitization Order. No. 32.

MG-1298 PS-f-182

March 18, 1992

Mr. R. Puchniak
Tundra Oil and Gas Ltd.
1313 Richardson Building
One Lombard Place
Winnipeg, Manitoba
R3B OX3

Dear Sir:

RE: Waskada Unit No. 6

The Petroleum Branch has been advised by Chevron Canada Resources that Tundra has acquired its interest in Waskada Unit No. 6 and effective February 1, 1992 Tundra is the new Unit Operator. Please advise the Branch who Tundra's representative as Chairman of the Operating Committee will be.

The Branch will be transferring the well licences, battery operating permits and flowline licences from Chevron to Tundra. The Branch has changed the names of wells in Waskada Unit No. 6 to reflect the change in Unit Operator. The list of new well names is shown on Attachment 1.

If you have any questions in respect of this matter, please contact the undersigned at 945-6574.

Yours truly,

ORIGINAL SIGNED BY
JOHN N. FOX

John N. Fox, P. Eng.
Chief Petroleum Engineer

Encl.

WELL NAME CHANGES

Lic. No.: 2779 From: New Scope S. Waskada 4-7-1-25 (WPM)
To: Waskada Unit No. 6 4-7-1-25 (WPM)

Lic. No.: 2786 From: Newscope Waskada WIW 13-6-1-25 (WPM)
To: Waskada Unit No. 6 WIW 13-6-1-25 (WPM)

Lic. No.: 2817 From: New Scope S. Waskada 16-12LAm-1-26 (WPM)
To: Waskada Unit No. 6 16-12LAm-1-26 (WPM)

Lic. No.: 2855 From: Newscope Waskada WIW 15-12-1-26 (WPM)
To: Waskada Unit No. 6 WIW 15-12-1-26 (WPM)

Lic. No.: 2869 From: Chevron S. Waskada 10-1-1-26 (WPM)
To: Waskada Unit No. 6 10-1-1-26 (WPM)

Lic. No.: 2902 From: New Scope S. Waskada 11-7-1-25 (WPM)
To: Waskada Unit No. 6 11-7-1-25 (WPM)

Lic. No.: 2912 From: New Scope S. Waskada 9-12LAm-1-26 (WPM)
To: Waskada Unit No. 6 9-12LAm-1-26 (WPM)

Lic. No.: 2945 From: Chevron Waskada 4-18-1-25 (WPM)
To: Waskada Unit No. 6 4-18-1-25 (WPM)

Lic. No.: 2969 From: Chevron et al S. Waskada 8-12-1-26 (WPM)
To: Waskada Unit No. 6 8-12-1-26 (WPM)

Lic. No.: 3032 From: New Scope et al Waskada 10-12-1-26 (WPM)
To: Waskada Unit No. 6 10-12-1-26 (WPM)

Lic. No.: 3054 From: Newscope et al Waskada WIW 5-7LAm-1-25 (WPM)
To: Waskada Unit No. 6 WIW 5-7LAm-1-25 (WPM)

Lic. No.: 3055 From: New Scope et al Waskada 12-7LAm-1-25 (WPM)
To: Waskada Unit No. 6 12-7LAm-1-25 (WPM)

Lic. No.: 3092	From:	Chevron Waskada 3-18-1-25 (WPM)
	To:	Waskada Unit No. 6 3-18-1-25 (WPM)
Lic. No.: 3093	From:	Chevron Waskada 1-12-1-26 (WPM)
	To:	Waskada Unit No. 6 1-12-1-26 (WPM)
Lic. No.: 3094	From:	Chevron Waskada 2-12-1-26 (WPM)
	To:	Waskada Unit No. 6 2-12-1-26 (WPM)
Lic. No.: 3101	From:	Chevron Waskada WIW 7-12-1-26 (WPM)
	To:	Waskada Unit No. 6 WIW 7-12-1-26 (WPM)
Lic. No.: 3170	From:	Chevron Waskada 9-1-1-26 (WPM)
	To:	Waskada Unit No. 6 9-1-1-26 (WPM)
Lic. No.: 3171	From:	Chevron Waskada WIW 15-1-1-26 (WPM)
	To:	Waskada Unit No. 6 WIW 15-1-1-26 (WPM)
Lic. No.: 3172	From:	Chevron Waskada 16-1-1-26 (WPM)
	To:	Waskada Unit No. 6 16-1-1-26 (WPM)
Lic. No.: 3178	From:	Chevron Waskada Prov. 3-12-1-26 (WPM)
	To:	Waskada Unit No. 6 Prov. 3-12-1-26 (WPM)
Lic. No.: 3179	From:	Chevron Waskada Prov. 6-12-1-26 (WPM)
	To:	Waskada Unit No. 6 Prov. 6-12-1-26 (WPM)
Lic. No.: 3180	From:	Chevron Waskada WIW 5-18-1-25 (WPM)
	To:	Waskada Unit No. 6 WIW 5-18-1-25 (WPM)
Lic. No.: 3181	From:	Chevron Waskada 6-18-1-25 (WPM)
	To:	Waskada Unit No. 6 6-18-1-25 (WPM)
Lic. No.: 3199	From:	Newscope et al Waskada WIW 13-7LAm-1-25 (WPM)
	To:	Waskada Unit No. 6 WIW 13-7LAm-1-25 (WPM)

Lic. No.: 3200	From:	New Scope et al Waskada 14-7LAm-1-25 (WPM)
	To:	Waskada Unit No. 6 14-7LAm-1-25 (WPM)
Lic. No.: 3229	From:	Chevron Waskada 8-1-1-26 (WPM)
	To:	Waskada Unit No. 6 8-1-1-26 (WPM)
Lic. No.: 3231	From:	Chevron Waskada WIW 7-1-1-26 (WPM)
	To:	Waskada Unit No. 6 WIW 7-1-1-26 (WPM)
Lic. No.: 3240	From:	Chevron Waskada Prov. WIW 5-12-1-26 (WPM)
	To:	Waskada Unit No. 6 Prov. WIW 5-12-1-26 (WPM)
Lic. No.: 3470	From:	Chevron Newscope Waskada WIW 15-7-1-25 (WPM)
	To:	Waskada Unit No. 6 WIW 15-7-1-25 (WPM)
Lic. No.: 3476	From:	Newscope et al Waskada 12-6-1-25 (WPM)
	To:	Waskada Unit No. 6 12-6-1-25 (WPM)
Lic. No.: 3523	From:	Chevron Newscope Waskada 16-7-1-25 (WPM)
	To:	Waskada Unit No. 6 16-7-1-25 (WPM)

April 26, 1991

Mr. J.E. Causgrove, P. Eng.
Area Superintendent
Chevron Canada Resources
Box 100
Virden, Manitoba
ROM 2CO

Dear Sir:

RE: 1991 Pressure Surveys
North Virden Scallion Unit No. 1
Waskada Unit No. 6

Chevron's plans for the 1991 pressure surveys for the subject units as outlined in your letters dated April 18, 1991 are hereby approved.

If you have any questions regarding this matter please contact John N. Fox, Chief Petroleum Engineer at (204) 945-6574.

Yours truly,

Original Signed By
L. R. DUBREUIL

L.R. Dubreuil
Director

Chevron Canada Resources
P.O. Box 100, Virden, Manitoba R0M 2C0
Phone (204) 748-1334 Fax (204) 748-6762

April 18, 1991

Waskada Unit #6
1991 Reservoir Pressure Survey

Department of Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
WINNIPEG, Manitoba
R3C 4E3

ATTENTION: Mr. John Fox

Dear Sir:

Attached is a list of wells Chevron intends to include for the above survey. The survey is comprised of six Spearfish producing wells, two Mission Canyon producing wells, two injection wells and one suspended well. Two MC-3 wells are being included to determine if Spearfish water injection is providing pressure support for MC-3 wells.

The producing wells will be shut-in and sonologged weekly until pressure build-up is less than 5% per week. The injection wells will be surveyed by surface fall off test.

If you have any questions regarding, please contact Tom Ruml or Kevin Anderson at 748-1334 or at the letterhead address.

Yours truly,

for J. E. CAUSGROVE, P. Eng.
Area Superintendent
Virden

TJR/tjs
Attachment

Waskada Unit #6
Proposed Wells for 1991 Pressure Survey

WELLS	TYPE OF SURVEY	WELL STATUS
4-7-1-25	Sonolog	Producing
5-7-1-25 MC-3	Sonolog	Producing
11-7-1-25	Sonolog	Suspended
15-7-1-25 WIW	Fall-off	Injection
6-18-1-25	Sonolog	Producing
9-1-1-26	Sonolog	Producing
3-12-1-26	Sonolog	Producing
7-12-1-26 WIW	Fall-off	Injection
8-12-1-26	Sonolog	Producing
9-12-1-26 MC-3	Sonolog	Producing
16-12-1-26 LAM	Sonolog	Producing

To: Clare Moster, Mar.21/89 → DUBREUIL 241
Charles Kang's office

Chevron Canada Resources
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7 · Phone (403) 234-5000
Fax 234-5947

R. A. Pashelka
General Counsel

1989-03-10

Revised Exhibit "D"
Plan for Unit Operation
Waskada Unit No. 6

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

Attention: Mr. Charles S. Kang, Chairman

Dear Mr. Kang:

The Tract Participations for Colenco and New McManus in Tract No. 16-12 of Exhibit "D" sent to you with our letter of 1989-01-26 were set out incorrectly. We have made the necessary correction to this Tract and enclose copies of corrected page 4 of the exhibit for your records.

If you require further copies of this page please let us know.

Yours very truly,

D. P. LOUGHEED

/ps
Encls.

DEPARTMENT OF ENERGY AND MINES
MAR 23 1989
PETROLEUM BRANCH

DEPARTMENT OF ENERGY AND MINES
Deputy Minister's Office
MAR 20 1989

Tract Number	Land Description (Lsd.)	Working Interest Owner	Working Interest Share (%)	Royalty Interest Owner	Royalty Interest Share
8-12	8-12-1-26 WPM	Chevron	31.25	R. Stead	6.250%
		Newscope	25.00	Hernefield	25.000%
		Gt. Amer.	43.75	M. Ballantyne	6.250%
				Hill Estate	25.000%
				M. Westlie	6.250%
				Smith Estate	6.250%
				C & J Whyte)	
				P & M Boyle)	3.125%
				W & N Witteman	3.125%
				Westlie Estate	12.500%
				P. Boyle	6.250%
9-12	9-12-1-26 WPM	Chevron	50.0	Hernefield	100.000%
		Newscope	27.5		
		Colenco	10.0		
		Can-Am	5.0		
		2277817	7.5		
10-12	10-12-1-26 WPM	Chevron	50.0	Hernefield	100.000%
		Newscope	27.5		
		Colenco	10.0		
		Can-Am	5.0		
		New McManus	7.5		
15-12	15-12-1-26 WPM	Chevron	50.0	Hernefield	100.000%
		Newscope	27.5		
		Colenco	10.0		
		Can-Am	5.0		
		New McManus	7.5		
16-12	16-12-1-26 WPM	Chevron	50.0	Hernefield	100.000%
		Newscope	17.5		
		Colenco	12.5		
		Can-Am	5.0		
		New McManus	5.0		

Corrected 1989-03-09

Manitoba

Energy and Mines | Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

July 13, 1987

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

Attention: Mr. D.P. Lougheed

Re: Board Unitization Order No. 32 - Waskada Unit No. 6

Dear Sir:

Further to your letter of June 22, 1987, requesting four copies of the subject Unitization Order, we suggest that copies of the Regulation as it appeared in the Manitoba Gazette should be adequate for your purposes.

Yours sincerely,

Original Signed
L. R. Dubreuil

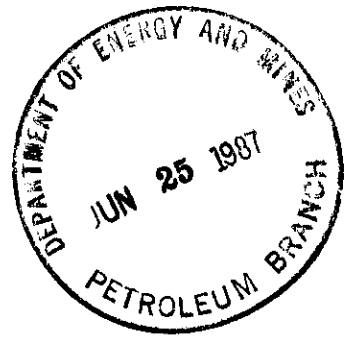
L.R. Dubreuil
Chief Petroleum Engineer
Petroleum Division

LRD:dah

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

R. A. Pashelka
General Counsel

1987-06-22



Plan for Unit Operation
Waskada Unit No. 6
Our File No. 59,293-1

Mr. L. R. Dubreuil,
Chief Petroleum Engineer,
Petroleum Division,
Manitoba Energy and Mines,
555 - 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

Dear Sir:

Please let us have four (4) copies of Unitization Order No. 32 (Waskada Unit No. 6), certified by the Chairman or Deputy Chairman of The Oil and Natural Gas Conservation Board, in order that we may register same with the Land Titles Office and with Manitoba Energy and Mines in accordance with Section 90 (1) of the Mines Act.

Yours very truly,

D. P. LOUGHEED

/ps

Manitoba

Energy and Mines | Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

June 15, 1987

Chevron Canada Resources Limited
Box 100
VIRDEN, Manitoba ROM 2CO

Attention: Mr. K.G. Matieshin
Area Superintendent

Enclosed please find one copy of Oil and Natural Gas Conservation Board Order No. 32 which orders Unit operation in the Waskada Unit No. 6. This Order was filed as Manitoba Regulation 229/87 on June 8, 1987. Pursuant to Clause 1.02 of the Schedule to the Regulations, the effective date of the Unit is June 1, 1987.

Yours sincerely,

Original Signed By
L. R. DUBREUIL

L.R. Dubreuil
Chief Petroleum Engineer
Petroleum Division

LRD:dah

encl

Manitoba

Memorandum

Date June 10, 1987.

To Bob Dubreuil,
Chief Petroleum Engineer,
Energy and Mines,
5nd Floor, 330 Graham Avenue.

From Irene McBeath
Administration Officer
Regulations/Legal Services
3rd Flr., 444 St.Mary Ave.
Telephone 1726

DEPARTMENT OF ENERGY AND MINES
JUN 12 1987
PETROLEUM BRANCH

Subject Regulation Under The Mines Act

Your Regulation under The Mines Act entitled Unitization (Waskada Unit No. 6) Order, approved by Order-in-Council 644/87 on May 27, 1987, was filed on June 8, 1987, at 10:20 in the forenoon as No. 229/87 and will be published in The Manitoba Gazette on June 20, 1987.

A copy of regulation No. 229/87 is enclosed for your information and records.

Irene McBeath

Administration Officer

Encl.
1568N

First | Fold

OIC 229/87
CONFIRMATION

Manitoba

Action / Route Slip

Date: June 4, 1987

To: Executive Council
Room 216
LEGISLATIVE BUILDING

From: L.R. Dubreuil
Chief Petroleum Engineer
Dept. of Energy & Mines - Petroleum

Telephone: 6574

☐ Take Action ☐ Per Your Request ☐ Circulate, Initial and Return ☐ For Approval and Signature ☐ Make ____ Copies

☐ May We Discuss ☐ For Your Information ☐ Return With Comments or Revisions ☐ Draft Reply for Signature ☐ Please File

Comments: Attached are two copies of the regulation entitled "Unitization (Waskada Unit No. 6) Order" for filing and publication in the Manitoba Gazette. Also attached are three copies of the Regulation Certificate (both French and English).

MG-1298 PS-f-182

May 22, 1987

Barbara Carroll
Federal Provincial Relations
and Research Division
2nd Floor, 333 Broadway Ave.

L. R. Dubreuil
Chief Petroleum Engineer
Dept. of Energy & Mines
555 - 330 Graham Ave.

Unitization (Waskada Unit No. 6) Order

Further to your request, the following summarizes reasons that Chevron Canada Resources Limited was unable to obtain unanimous consent to its proposed Waskada Unit No. 6 Unit Agreement:

1. Mineral ownership in part of the Unit Area is extremely fragmented, and a number of minor interests are part of an estate. Two of these estates are the subject of ongoing litigation and legal counsel has advised the beneficiaries not to execute the Unit Agreement.

2. Notice of the public hearing (March 4, 1987) was sent (and receipt acknowledged) to all working and royalty interest owners including the ones who had not consented. No representations were made at the hearing objecting to the proposed Plan for unit operation.

3. The provisions of The Mines Act relating to forced Unitization are designed to permit Unitization to proceed to the benefit of all Working and Royalty Interests and to the Province, in situations like this where a minor interest has, for whatever reason, declined to voluntarily agree to Unit operation.

4. While unitization could be delayed until the litigation had been completed, this delay would in all likelihood result in a substantial loss of recoverable oil reserves.

If you have any further questions, please call (945-6574).

L. R. Dubreuil

LRD/lk

c.c. George H. Ford
Clerk of the Executive Council
Room 204 Legislative Building

Manitoba

Memorandum

Date May 21, 1987.

To George H. Ford,
Clerk of the Executive Council.

From Barbara Carroll,
Federal-Provincial Relations
and Research Division.

Subject **PROPOSED REGULATION UNDER THE MINES ACT** Telephone

First Fold

This proposed regulation under The Mines Act will, if approved, establish a plan of operation whereby oil production income in the Waskada Unit No. 6 will be distributed in accordance with a plan for unitization. This will result in a pooling of royalty and working interest to enable pressure maintenance designed to enhance oil recovery.

Due to an inability of the unit operator to obtain unanimous consent of the royalty and working interests to the plan, the Oil and Natural Gas Conservation Board held a hearing on March 4, 1987. As a result of this hearing, the Board made an order on May 20, 1987 authorizing unitization. It is suggested that the Lieutenant-Governor-in-Council approve the proposed regulation prior to June 1, 1987, to facilitate the plan's operation.

It is probable that pressure maintenance will result in increased oil recovery, and thus more royalties and taxes for the Government.

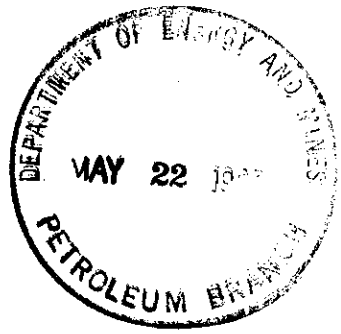
The proposed regulation has been previously translated. Cabinet should review the proposed regulation under The Mines Act no later than the week of May 25, 1987 in consideration of the suggested effective date of June 1, 1987.

I have reviewed this memorandum with Mr. R. Dubreuil, Chief Petroleum Engineer, Department of Energy and Mines.

Barbara Carroll

Barbara Carroll.

c.c. C. Kang,
R. Dubreuil,
G. Devine.



Manitoba

Memorandum

Date May 20, 1987

To L.R. Dubreuil
Chief Petroleum Engineer
Energy & Mines - Petroleum
555 - 330 Graham Avenue

From J.F. Redgwell
Crown Counsel
Regulations/Legal Services
3rd Flr., 444 St. Mary Ave.
945-1739

Subject Unitization Order - Waskada Unit No. 6

Telephone

First | Fold

Enclosed is a copy of the Order in dual column format, incorporating the changes which we discussed on the 15th. A copy of the change annotated pages is also enclosed for reference.

The draft Order in Council should be prepared by your office in final form, following which it should be sent to this office for approval and translation.

.....
J.F. Redgwell
Crown Counsel

JFR:dh
enclosures

May 19, 1987

George Ford
Clerk of the Executive Council
Room 204 Legislative Building

Charles S. Kang
Deputy Minister of
Energy & Mines
309 Legislative Bldg.

Unitization (Waskada Unit No. 6) Order

Enclosed for your review is a draft of a proposed regulation which requires the approval of the Lieutenant Governor in Council.

The regulation, Unitization (Waskada Unit No. 6) Order is currently being approved by The Oil and Natural Gas Conservation Board. The regulation is purely administrative in nature and provides for unit operation in a portion of the Waskada Oil Field. Such approval is required to permit implementation of a project designed to enhance oil recovery in the area.

The regulation provides for an effective date of June 1, 1987 for Waskada Unit No. 6. As there are several physical activities which must be completed on the effective date (inventory determinations, etc.), approval of the regulation by the Lieutenant Governor in Council prior to June 1, 1987 would be desirable. For this reason, a draft copy of the regulation is provided. The final version will be indentical in intent and will merely eliminate several typographic errors.

Also attached are the following:

1. Regulation Impact Statement

2. Submission to Cabinet

3. Order in Council (the French version is currently being prepared).

We request that the subject item be placed on the agenda for the Cabinet meeting of May 27, 1987.

The contact person for this regualtion is Bob Dubreuil (945-6574).

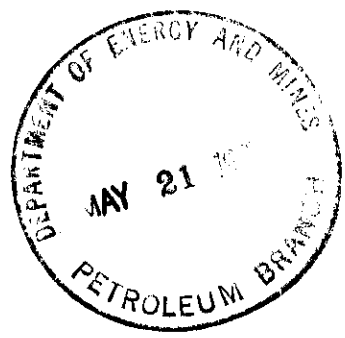
ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang

LRD/lk

b.c. Petroleum Division

cc: **Barbara Carroll**



Manitoba

Action / Route Slip

Date: May 19, 1987

To: Charles S. Kang

From: H. Clare Moster

Telephone:

- ☐ Take Action
- ☐ Per Your Request
- ☐ Circulate, Initial and Return
- ☒ For Approval and Signature
- ☐ Make ____ Copies
- ☐ May We Discuss
- ☐ For Your Information
- ☐ Return With Comments or Revisions
- ☐ Draft Reply for Signature
- ☐ Please File

Comments: **WASKADA UNIT NO. 6**

- To assist the subject Unit to be effective June 1, 1987 requires the Board's Unitization Order (No. 32) to be approved by Cabinet (OIC). The order is currently in the final stages of French translation.

- To accommodate the June 1st effective date, it is recommended that the attached draft material be sent A.S.A.P. to the Clerk of the Executive Council.

MG-1298 PS-f-182

May 7, 1987

The Oil and Natural Gas
Conservation Board

Charles S. Kang - Chairman
Wm. McDonald - Deputy Chairman
B. Ball - Member

H. Clare Moster
Executive Director
Petroleum Division

Re: Waskada Unit No. 6 - Unitization Order

Chevron Canada Resources Limited as operator of the proposed Waskada Unit No. 6, made application dated January 8, 1987, for the Board to order unitized operation of Waskada Unit No. 6. As required pursuant to subsection 76(1) of The Mines Act, the Board held a hearing on March 4, 1987 to consider the application.

Recommendations:

It is recommended that the attached Unitization (Waskada Unit No. 6) Order (Unitization Order No. 32) be approved by the Board and signed by the two Board members who sat at the hearing.

Upon Board approval, it is recommended that the Order, along with the attached submission to cabinet and proposed order-in-council be forwarded through the Clerk of Executive Council to cabinet for approval by the Lieutenant Governor in Council.

Discussion:

Due to ongoing litigation involving certain mineral leases in the proposed Unit Area, Chevron was unable to achieve unanimous consent to the proposed Unit Agreement for the Waskada Unit No. 6. Consequently, Chevron drafted a Plan for unit operation and applied to the Board to initiate steps to effect a Unitization Order. As required under subsection 76(1) of The Mines Act, the Board held a hearing on March 4, 1987 to consider the application.

Section 77 of The Mines Act requires that prior to the Board ordering unitization, a minimum of 75 percent of the working and royalty interest owners must consent to a plan of unit operation. Tables 1 and 2 respectively summarize working and royalty interests that have consented to the plan and demonstrates that the minimum 75 percent levels have been achieved. Note that the calculations on Tables 1 and 2 are made on an area basis as opposed to a tract factor basis as utilized by Chevron. This is done because the tract factors would not be effective until a Unitization Order was made.

Upon the advice of the Regulations Unit, the Plan for Unit Operation is included as a schedule to the Order.

Note that the Unit Plan (Schedule) refers to a Unit effective date of June 1, 1987. Consequently, it will be desirable to have the Order signed and approved by the Lieutenant Governor in Council prior to June 1, 1987.

Original Signed by H. C. Moster

H. Clare Moster

LRD/lk

1251P

Regulation Impact Statement

Re: Unitization (Waskada Unit No. 6) Order

1. Legislative Authority for the Regulation:
   The Mines Act, subsection 76(3)

2. Effective Date of the Regulation:
   June 1, 1987

3. Department Responsible for Administration:
   Energy and Mines - Petroleum Division

4. New Regulation

5. Purpose or Objective of Regulation:
   To order unitization of a portion of the Waskada Lower Amaranth A Pool in order to permit development of a pressure maintenance project intended to enhance oil recovery from the area.

6. Target Group:
   The parties affected by the regulation are the royalty and working interest owners in the area of the proposed Waskada Unit No. 6.

7. Compliance Procedures:
   Production from the Unit area will be allocated to individual tracts based on provisions contained in the regulation. The allocated production will be used as a basis for royalty and tax calculations. These calculations will be administered by the Petroleum Division (Crown royalties) and by Finance's Mining and Use Taxes Branch (Freehold Production Tax).

8. Charter of Rights Compliance:
   The regulation complies with the Charter of Rights.

9. Impact of Compliance on Regulatees:
   The regulation will authorize unit operation and will permit implementation of a project designed to enhance oil recovery and revenue to mineral rights owners, lease holders and the Crown.

10. Jurisdictional Implications:
    No jurisdictional implications are anticipated. Administration provisions related to unitized operations are routine procedures.

11. Estimated Costs and Revenues to Government:
    There will be no additional cost to the government administrative or otherwise. The project, if successful will result in an increase in revenues to the government due to increased oil production levels. As the degree of success that the project will achieve is uncertain, it is not possible to determine to any reasonable degree of accuracy what the additional revenues to the government will be.

SUBMISSION TO CABINET

BY THE

DEPARTMENT OF ENERGY AND MINES

Subject:

Unitization (Waskada Unit No. 6) Order (The Oil and Natural Gas Conservation Board Unitization Order No. 32).

Background:

The Oil and Natural Gas Conservation Board by issuance of Board Order No. PM 44, dated May 13, 1985, approved a project, proposed by Chevron Canada Resources Limited, for enhancement of oil recovery in a portion of the Waskada Lower Amaranth A Pool by injection of water. In that the project involves conversion of specific producing wells for water injection, formation of a Unit to equitably distribute production income from the project is essential.

Discussion:

As a result of ongoing litigation involving certain mineral leases, Chevron has been unable to obtain unanimous consent to its proposed Unitization Agreement. As a result, Chevron prepared a Plan for Unit Operation and requested that The Oil and Natural Gas Conservation Board order unitization pursuant to Section 76 and Section 77 of The Mines Act.

The Mines Act authorizes the Borad to order unitization after a public hearing if a minimum of seventy-five percent of the royalty and working interest owners have agreed in writing to the Plan for unit operation.

The Board held a public hearing on March 4, 1987 to consider the application by Chevron. At the hearing, Chevron submitted affidavits indicating that working interest owners representing in excess of 95 percent of the proposed Unit area and royalty interest owners representing in excess of 80 percent of the proposed Unit Area had agreed in writing to the plan of Unitization. There were no objections to the proposed unitization registered at the hearing.

Following the hearing, Unitization Order No. 32 authorizing operation of the proposed Unit Area as a Unit was made and passed by the Board on May 20, 1987.

Financial Implications:

Unitization should reduce operating expenditures and will result in additional future oil royalty revenue to the Crown depending on the success of the waterflood project.

Communication:

1. Publication of the Unitization Order in the Manitoba Gazette with a copy sent to the applicant.

Recommendation:

That approval be given to Unitization Order No. 32 in accordance with subsection 76(3) of The Mines Act.

Date Typed: May 20, 1987

Wilson Parasiuk
Minister of Energy and Mines

1243P

MANITOBA

Order in Council

No. .....

ON MATTERS OF STATE

To The Honourable the Lieutenant Governor in Council

The undersigned, the Minister of Energy and Mines submits for approval of Council a report setting forth that:

WHEREAS subsection 76(1) of "The Mines Act", being Chapter M160 of the Continuing Consolidation of the Statutes of Manitoba, provides as follows:

"76(1) The board, upon its own motion, may, or, upon the application of a working interest owner of a tract that exceeds a spacing unit in area, and that is within the pool, field, or part thereof, shall hold a hearing to consider the advisability or necessity for the operation of a pool, field, or part thereof, as a unit."

AND WHEREAS subsection 76(3) of the said Act provides as follows:

"76(3) If the board is of the opinion that the operation of the pool, field, or part thereof, as a unit would prevent waste therein having regard

(a) to the production and recovery of oil and gas;
(b) to the gathering, and processing of gas;
(c) to the disposal of salt water produced;
(d) to the rights of each owner to a reasonable opportunity of recovering or receiving the oil and gas in which he has an interest or the equivalent thereof without being required to drill unnecessary wells or to incur other unnecessary expenses therefor; and
(e) to any other circumstances pertaining to the drilling for or production of oil and gas;

the board may, with the approval of the Lieutenant Governor in Council, order that the pool, field, or part thereof, be operated as a unit."

AND WHEREAS The Oil and Natural Gas Conservation Board has received an application, dated January 8, 1987, from Chevron Canada Resources Limited as a working interest owner of a portion of the Waskada Lower Amaranth A Pool requesting that the Board proceed with steps to effect a unitization order for the proposed Waskada Unit No. 6;

AND WHEREAS The Oil and Natural Gas Conservation Board held a hearing on March 4, 1987 to consider the application by Chevron Canada Resources Limited;

AND WHEREAS Chevron Canada Resources Limited submitted, as exhibits at the said hearing a document entitled "Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Waskada Unit No. 6" and documents representing the consent of in excess of seventy-five percent (95.97% by area) of the working interest owners and in excess of seventy-five percent (82.06% by area) of the royalty interest owners;

Initiating Department/Agency	
Department/Agency	Authorized Officer
Approved By C.S.C.	Finance
Approved as to form by: Name _____ Initials	
Civil Litigation Branch: or Legislative Counsel:	

AND WHEREAS it is deemed advisable to approve Unitization (Waskada Unit No. 6) Order (The Oil and Natural Gas Conservation Board Order No. 32) set out in the schedule hereto;

THEREFORE, he, the Minister, recommends:

THAT Unitization (Waskada Unit No. 6) Order (The Oil and Natural Gas Conservation Board Unitization Order No. 32), set out in the Schedule annexed hereto be approved in accordance with subsection 76(3) of The Mines Act.

Signature .....

IN THE EXECUTIVE COUNCIL CHAMBER, WINNIPEG

Upon consideration of the foregoing report and recommendation Council advises that it be done as recommended.

..... Date

..... President or Presiding Member

AT GOVERNMENT HOUSE IN THE CITY OF WINNIPEG

Approved and Ordered this ..... day of..... A.D. .....

..... Lieutenant Governor

Manitoba

Memorandum

Date April 15, 1987

To Gordon Carnegie
Crown Counsel
Regulations, Legal Services
3rd Floor, 444 St. Mary Avenue

From L.R. Dubreuil
Chief Petroleum Engineer
Energy & Mines - Petroleum
555 - 330 Graham Ave.

Subject UNITIZATION ORDER - Waskada Unit No. 6

Telephone 945-6574

Enclosed is a hard copy of the Wang version of the subject Order with a number of minor changes (marked in red). Also enclosed is the Datalife diskette. With these minor modifications, the bulk of the schedule will be ready to go.

To assist in finalizing the entire regulation and preparing it for approval by the Board, we request that you:

1. Make the minor changes to the English version with corresponding changes to the French version.

2. Provide French notations for Exhibits B and C.

3. Complete Exhibit D as provided and translate.

If you have any questions on the foregoing, please contact me.

L.R. Dubreuil

LRD:dah

encl

Manitoba

Memorandum

Date April 9, 1987

To L.R. Dubreuil
Chief Petroleum Engineer
Energy & Mines - Petroleum
555 - 330 Graham Avenue
Winnipeg, Manitoba

From Gordon Carnegie
Crown Counsel
Regulations/Legal Services
3rd Flr., 444 St. Mary Ave.
Telephone 945-1725

Subject **WASKADA UNIT NO. 6 - UNITIZATION ORDER**

First | Fold

Enclosed please find the following:

1. AES diskette (Chevron's version of the Unitization Order).

2. DATALIFE diskette (Regulation's Unit Wang version of the Unitization Order).

3. One hard copy of the Wang version of the Unitization Order.

Please contact me if you have any questions or comments.

.....
Gordon Carnegie
Crown Counsel

GC:kew
Encls.

1525N

DEPARTMENT OF ENERGY AND MINES
APR 13 1987
PETROLEUM BRANCH

Manitoba

Memorandum

Date March 10, 1987

To Gordon Carnegie
Head, Regulations Unit
Dept. of Attorney General
3rd Floor, 444 St. Mary Avenue

From L.R. Dubreuil
Chief Petroleum Engineer
Energy & Mines - Petroleum
555 - 330 Graham Avenue

Subject Waskada Unit No. 6 - Unitization Order

Telephone

First | Fold

Enclosed is the following:

1. Unitization (Waskada Unit No. 6) Order in English. This Order is on the Wang WP System.

2. An AES diskette provided by Chevron (the Unit Operator) of the Unit Plan which is a schedule to the Order. This is being provided further to our discussions in the hope that we may be able to avoid retyping (in English) of the Plan. Note that there are a few minor changes to be made to this version prior to its inclusion in the Regulations.

3. A hard copy of the Schedule (Unit Plan) to be sent for French translation.

Please proceed to have the Plan and Order translated and, if possible, have the Plan adapted to the Wang System. We are trying for a Unit effective date of June 1, 1987 which means the Regulation with attached Plan would have to be approved (through OIC) prior to this date.

Please contact me if you have any questions or comments.

L.R. Dubreuil

LRD:dah

encl

cc: W. McDonald, Deputy Chairman (O&NGCB)
Bruce Ball, Member (O&NGCB)

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

R. A. Pashelka
General Counsel

1987-03-09

DEPARTMENT OF ENERGY AND MINES
MAR 12 1987
PETROLEUM BRANCH

Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6

Department of Energy and Mines,
Petroleum Branch,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

Attention: Mr. Bob Dubreuil

Dear Sirs:

In accordance with Chevron's undertaking given at the hearing on 1987-03-04 we enclose herewith the summary notes of the oral testimony presented by the Chevron witnesses.

I trust the above is satisfactory.

Yours very truly,

D. P. LOUGHEED

DPL/ps
Encls.

CHEVRON'S TESTIMONY AT HEARING

WASKADA UNIT NO. 6

OPENING STATEMENT - K. G. MATIESHIN

Mr. Chairman, Chevron believes that waterflooding and unitization of the proposed Waskada Unit No. 6 area is in all parties best interests. Chevron's waterflood application has been approved by the Conservation Board under Board Order No. PM 44. Incremental oil recovery is estimated at 10% of original-oil-in-place or 85 10^3m^3. This will result in increased revenues for the working interest and royalty owners, increased royalties and taxes to the government, and additional expenditures in times of an ailing oil industry. Tract factors for the unit have been negotiated which we believe are fair to all parties.

Unitization negotiations have taken far longer than anticipated to put such a scheme into effect. Extraordinary circumstances would further delay a voluntary unit and have made it necessary for Chevron, as operator of the proposed Waskada Unit No. 6, to request that the Conservation Board issue a Unitization Order for this area. With the issuance of a Unitization Order, construction of waterflood facilities will be completed in early summer of 1987. We would therefore suggest that an effective date of June 1, 1987 be specified by the Board.

Thank you.

WASKADA UNIT NO. 6

1987-02-18

VOLUNTARY UNITIZATION

Following preliminary discussions with the Manitoba Board and subsequent in-house engineering studies, Chevron and Newscope submitted a joint waterflood application to the Board for this area in late 1984. The Working Interest Owners of the application area then convened to discuss unitization and waterflooding.

An Operating, Technical and Titles Committee were formed to investigate and negotiate unitization terms. By 1985-05, the Working Interest Owners had agreed on the Unit Boundary, a tract participation formula and investment equalization terms. Unit documents were prepared and forwarded to the Board and Working Interest Owners for review. Concurrently, an informational package discussing the waterflooding and unitization process was forwarded to all Royalty Owners. The package explained that tract participation would be used to determine each Owner's share of the Unit and that as the formula was negotiated by all Working Interest Owners, it was considered fair. it also stated that all Royalty Owners must sign the Unit Agreement in order to effect the proposed Unit.

In 1985-08, Hernefield Resources expressed disagreement with the tract participation assigned their tracts. In an effort to appease Hernefield and maintain the voluntary unitization route, the Working Interest Owners agreed to an interim and final tract participation.

Negotiations with Hernefield followed. Hernefield's initial reluctance to the offer prompted the Working Interest Owners to request the Board to set a hearing date in case the compulsory unitization route was necessary. That request was made 1985-10 and was an attempt to keep the unitization

proceedings in motion. Hernefield subsequently agreed to the proposed interim/final tract participation and we began to sign up Royalty Owners.

In 1986-06 we were informed that the Westlie Estate would not sign the agreement - as well we had no response from the Hill Estate; both leases were under litigation. I'd like to add that we contacted the Westlies and they had no objection to unitization or tract participation. On advice of their legal counsel they would not sign the Unit Agreement because they did not want such a consent to affect their position in their litigation.

We then made application to the Board for compulsory unitization and proceeded with preparing the Plan for Unit Operation.

As you are aware Royalty Owners Hill and Westlie have not consented to the Plan; we see as litigation reasons. As well, Royalty Owner Dome and Working Interest Owner PanCanadian have not signed. Dome are currently routing the Plan for consent and we are not aware of any objection to the Plan by Dome. PanCanadian have no objection to the Plan, but are waiting for the execution of lease "side agreements" by another party before consenting.

Waskada Unit No. 6 Unitization Hearing 1987-03-04

RESERVOIR ENGINEERING PRESENTATION

1. On 1984-11-29, CCRL and Newscope Resources as operators in the Waskada area, submitted an application to the Conservation Board for approval of an enhanced oil recovery scheme in the Waskada Lower Amaranth "A" Pool.

2. The proposed waterflood was approved by the Conservation Board on 1985-05-13 (Board Order No. PM44).

3. The approved waterflood will be developed with 16 ha well spacing and 9 spot patterns.
   - The ten injection wells in the waterflood will be on pattern with adjacent waterflood schemes.

4. OOIP in the proposed Waskada Unit No. 6 is 910 000 m^3.
   - Current recovery is 99 000 m^3 or 11% of OOIP.

5. In 1986 the production rate declined from 2 200 m^3/mo to 1 300 m^3/mo.
   - A decline rate of 40%/yr.
   - Extrapolation of the rate versus time curve shows a very short remaining producing life.

6. Ultimate primary recovery was estimated at 100 000 m^3 or 11% of OOIP (from decline curve analysis using data available in 1984).
   - The predicted primary recovery has already been achieved.
   - If the rapid decline observed in 1986 continues, ultimate primary recovery would probably not exceed 13 or 14% of OOIP.

7. Waterflood recovery is estimated at 182 000 m^3 or 20% of OOIP after 15 years.
   - This waterflood peformance prediction was generated by a Chevron Computer model which computes saturation movement along stream lines.

- A 3D model study done by Omega Hydrocarbons on the Waskada Spearfish has generated similar results, i.e., primary recovery of 9% of OOIP and a waterflood recovery of 20% of OOIP after 15 years of waterflooding or an ultimate recovery of 37% after 58 years.

8. A review of available history:
   - The performance of the Waskada waterfloods operated by Omega indicate that oil production stabilizes or declines at a reduced rate after water injection commences.
   - To date WOR performance at these Units has been satisfactory.
   - Similar reservoir is the Newburg Spearfish Charles Unit in North Dakota.
   - Geologic properties are similar.
   - Depletion mechanism is natural water drive and waterflood (started 1969).
   - Recovery as of 1983-09 was 36% of OOIP.
   - Ultimate primary recovery was estimated at 25% of OOIP while ultimate waterflood recovery was estimated at 37% of OOIP (38 years).
   - Waterflood recovery estimate is conservative.

9. The original reservoir pressure in the Waskada Spearfish zone was about 8 400 kPa.
   - The latest reservoir pressure survey was done in 1986-07 and 08.
   - The data from this survey was inconclusive but the possibility exists that the reservoir pressure could be below the bubble point pressure.
   - Water injection would increase or maintain the reservoir pressure and also the production rate.

10. In conclusion, Chevron opines that a waterflood is required for the proposed Waskada Unit No. 6 to maximize oil recovery, and that a waterflood will generate incremental oil reserves of 82 000 m^3 or 9% of OOIP.

D. N. SCHIERMAN

DN/ds

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

R. A. Pashelka
General Counsel

1987-03-05

BY COURIER

Plan for Unit Operation
Waskada Unit No. 6
Our File No. 59,293-1

Department of Energy and Mines,
Petroleum Branch,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

Attention: Mr. Bob Dubreuil

Dear Sirs:

As requested, we enclose AES diskette for the Plan of Unit Operation with respect to the subject Unit.

Yours very truly,

D. P. LOUGHEED

/ps
Encl.

sent to G. Carnegie
March 9/87

DEPARTMENT OF ENERGY AND MINES
MAR 6
PETROLEUM BRANCH

DEPARTMENT OF ENERGY AND MINES
MAR 6 1987
PETROLEUM BRANCH

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

R. A. Pashelka
General Counsel

COPY

DEPARTMENT OF ENERGY AND MINES
FEB 25 1987
PETROLEUM BRANCH

1987-02-23

BY COURIER

Unitization Hearing
Proposed Waskada Unit No. 6

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

Attention: Mr. Charles S. Kang, Chairman

Dear Mr. Kang:

We are advised that no interventions have been received with respect to the above hearing scheduled for March 4th. To assist the Board with its planning for this hearing, we wish to advise that Chevron proposes, subject of course to any contrary directions from the Board, to make a short presentation indicating the benefits of the proposed unitization, briefly explaining the waterflood program by which we hope to achieve those benefits and outlining our attempts to achieve voluntary unitization. A panel of witnesses will be available for the Board's examination consisting of Mr. Matieshin, our Area Superintendent, and engineers from both our Joint Venture and Reservoir Engineering Groups. The writer will be present, acting as counsel.

I trust the Board will find the above satisfactory. If you have any questions or comments regarding the above please do not hesitate to contact me at (403) 234-5881. Please note that Chevron's offices will be closed Friday February 27th and Monday March 2nd and I would accordingly request that you contact me before that time if any special arrangements are required.

Yours very truly,

ORIGINAL SIGNED BY
D. P. LOUGHEED

D. P. LOUGHEED

DPL/ps

cc: Department of Energy and Mines,
Petroleum Branch,
Attention: Mr. Bob Dubreuil,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

PC: Clare Moster (with attachments)
C. Kang's office Feb.19/87

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

R A Pasheika
General Counsel

DEPARTMENT OF ENERGY AND MINES
FEB 20
PETROLEUM B

1987-02-17

BY COURIER

Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6

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

Attention: Mr. Charles S. Kang, Chairman

Dear Mr. Kang:

As requested in your letter of January 19, 1987, we enclose photo-copies of Consent Forms received from Royalty Owners and Working Interest Owners with respect to the subject proposed unitization.

Please accept our apologies for the delay in forwarding this material to you.

Yours very truly,

D. P. LOUGHEED

/ps
Encls.

X-COPIES CONSENT FORMS

THE OIL AND NATURAL GAS
CONSERVATION BOARD
WINNIPEG, MANITOBA
FEB 18 1987
RECEIVED

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

RECEIVED
FEB 03 1987
LEGAL DIV

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

Dear Sirs:

* NEW MCMANUS RED LAKE GOLD MINES LTD., being the owner of a Working Interest in the proposed Waskada Unit No. 6 Unit Area, hereby consents and agrees to the Board approving the "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6" pursuant to Section 76 of The Mines Act.

DATED the 20 day of NOVEMBER, 1986.

Per: _____

Per: _____

*Please insert corporate or personal name.

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

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

Dear Sirs:

*_____, being the owner of a Working Interest in the proposed Waskada Unit No. 6 Unit Area, hereby consents and agrees to the Board approving the "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6" pursuant to Section 76 of The Mines Act.

DATED the 16 day of Dec, 1986.

Per: _____

Per: _____

COLEMAN [illegible]
200, 100 [illegible]
CALGARY, ALBERTA T2P 1X3

*Please insert corporate or personal name.

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

RECEIVED
OCT 2 7 1986
LEGAL DIV

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

Dear Sirs:

* NEWSCOPE RESOURCES LIMITED, being the owner of a Working Interest in the proposed Waskada Unit No. 6 Unit Area, hereby consents and agrees to the Board approving the "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6" pursuant to Section 76 of The Mines Act.

DATED the 23rd day of October, 1986.

Per: _____

Per: _____

*Please insert corporate or personal name.

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

RECEIVED
OCT 2 7 1986
LEGAL DIV

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

Dear Sirs:

* CAN-AM DRILLING LTD., being the owner of a Working Interest in the proposed Waskada Unit No. 6 Unit Area, hereby consents and agrees to the Board approving the "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6" pursuant to Section 76 of The Mines Act.

DATED the 21 day of October, 1986.

Per: J.F. Fraser

Per: _____

*Please insert corporate or personal name.

ORIGINAL

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

RECEIVED
NOV - 4 1986
LEGAL DIV

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

Dear Sirs:
GREAT AMERICAN ENERGY, INC.

*TODD JAMIESON BALLANTYNE and MELVIN W. BALLANTYNE, being the owner of a Working Interest in the proposed Waskada Unit No. 6 Unit Area, hereby consents and agrees to the Board approving the "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6" pursuant to Section 76 of The Mines Act.

DATED the 19th day of NOVEMBER, 1986.

Per: Todd Jamieson Ballantyne

Per: Melvin Ballantyne

*Please insert corporate or personal name.

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

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

Dear Sirs:

* CHEVRON CANADA RESOURCES LIMITED, being the owner of a Working Interest in the proposed Waskada Unit No. 6 Unit Area, hereby consents and agrees to the Board approving the "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6" pursuant to Section 76 of The Mines Act.

DATED the 10th day of December, 1986.

Per: _____
PRESIDENT

Per: _____
VICE PRESIDENT

*Please insert corporate or personal name.

RECEIVED

DEC 3 1 1986

LEGAL DIV

ROYALTY OWNER CONSENT

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

Dear Sirs:

I, Melvin Ballantyne of Minot

in the State of North Dakota, one of the United States of America,

FARMER
(Occupation)

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	6.250%
2-12	6.250%
7-12	6.250%
8-12	6.250%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Rancho Mirage in the ~~Province~~ State of California, this fourth day of December, 1986 in the presence of:

Witness

Melvin Ballantyne

ROYALTY OWNER CONSENT

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

Dear Sirs:

Hernefield Enterprises Ltd. of Waskada

in the Province of Manitoba,

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
3-18	100%
4-18	100%
5-18	100%
6-18	100%
9-12	100%
10-12	100%
15-12	100%
16-12	100%
1-12	25%
2-12	25%
7-12	25%
8-12	25%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at WASKADA in the Province of MANITOBA, this 15th day of DECEMBER, 1986

HERNEFIELD ENTERPRISES LTD.

Per: Ingle Lee Pres

Per: Evelyn Lee Sec. Treas

RECEIVED

DEC 2 2 1986

LEGAL DIV

ROYALTY OWNER CONSENT

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

Dear Sirs:

We, Herbert Joseph Lawrence and Francis Hedley Lawrence, both of _____ of Waskada in the Province of Manitoba, Farmers
(Occupation)

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
12-6	50.000%
13-6	50.000%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at [illegible] in the Province of MANITOBA, this 16th day of DECEMBER, 1986 in the presence of:

Richard Brew
Witness
Richard Brew

Herbert Lawrence
Herbert Lawrence

Frank Lawrence
Frank Lawrence

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DEC 2 2 1986

LEGAL DIV

ROYALTY OWNER CONSENT

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

Dear Sirs:

I, Marilyn R. Davis, formerly Marilyn R. Westlie of Bismark, in the State of North Dakota, one of the United States of America, Housewife (Occupation)

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	6.250%
2-12	6.250%
7-12	6.250%
8-12	6.250%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at _____ in the Province of _____, this 11 day of December, 1986 in the presence of:

Bertha A. Feist
Witness

Marilyn R. Davis

ROYALTY OWNER CONSENT

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

Dear Sirs:

I, Paul Boyle of Mohall

in the State of North Dakota, one of the United States of America,

(Occupation)

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	6.250%
2-12	6.250%
7-12	6.250%
8-12	6.250%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at MESA in the ~~Province~~ STATE of N. DAK., this 7TH day of DECEMBER, 1986 in the presence of:

Lillian Warney Lowell
Witness

Paul C. Boyle

ROYALTY OWNER CONSENT

The Oil and Natural Gas Conservation Board,
Room 309 Legislative Building,
Winnipeg, Manitoba.
R3C OV8

Dear Sirs:

J.C.B. pre.B

We, Paul Boyle and ~~Mary~~ MARGARET E. Boyle of Mohall in the State of North Dakota, one of the United States of America,

_____
(Occupation)

being the owner with Carl Whyte and Jean Whyte of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	3.125%
2-12	3.125%
7-12	3.125%
8-12	3.125%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at MESA in the ~~Province~~ STATE of ARIZONA, this 9TH day of DECEMBER, 1986 in the presence of:

Witness

Paul C. Boyle

Margaret E. Boyle

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DEC 1 6 1986

LEGAL DIV

ROYALTY OWNER CONSENT

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

Dear Sirs:

I, Robert Stead of Westhope

in the State of North Dakota, one of the United States of America,

(Occupation)

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	6.250%
2-12	6.250%
7-12	6.250%
8-12	6.250%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Westhope in the State of North Dakota, this 9th day of December, 1986 in the presence of:

Witness

Robert S Stead

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DEC 1 0 1986
LEGAL DIV

ROYALTY OWNER CONSENT

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

Dear Sirs:

Rushton Resources Ltd. of Virden

in the Province of Manitoba,

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
11-7	50.000%
12-7	50.000%
13-7	50.000%
14-7	50.000%
15-7	50.000%
16-7	50.000%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Virden in the Province of Manitoba, this 4 day of December, 1986

RUSHTON RESOURCES LTD.

Per: [signature]

Per: G. J. Rushton - Sec. Treas.

RECEIVED

DEC 1 0 1986

LEGAL DIV

ROYALTY OWNER CONSENT

The Oil and Natural Gas Conservation Board,
Room 309 Legislative Building,
Winnipeg, Manitoba.
R3C OV8

Dear Sirs:

We, William Witteman and Nellie Witteman of Mohall in the State of North Dakota, one of the United States of America, Farmer
(Occupation)

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	3.125%
2-12	3.125%
7-12	3.125%
8-12	3.125%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Mohall in the State Province of N Dak, this 22 day of November, 1986 in the presence of:

Betty Mann
Witness

Nellie Witteman

Wm B Witteman

ROYALTY OWNER CONSENT

The Oil and Natural Gas Conservation Board,
Room 309 Legislative Building,
Winnipeg, Manitoba.
R3C OV8

Dear Sirs:

Her Majesty the Queen, in Right of the Province of Manitoba, being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
3-12	100%
5-12	100%
6-12	100%

HEREBY AGREES to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and CONSENTS AND AGREES to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at WINNIPEG in the Province of MANITOBA, this 24th day of NOVEMBER, 1986 in the presence of:

C. Pawasick

Minister of Energy and Mines

ROYALTY OWNER CONSENT

RECEIVED
DEC 0 8 1986
LEGAL DIV

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

Dear Sirs:

Smart Oils Ltd. of Waskada

in the Province of Manitoba,

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
7-1	100%
8-1	100%
9-1	100%
10-1	100%
15-1	100%
16-1	100%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Deloraine in the Province of Manitoba, this 2 day of December, 1986

SMART OILS LTD.

Per: H E Smart

Per: [illegible]

ROYALTY OWNER CONSENT

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NOV 2 6 1986

LEGAL DIV

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

Dear Sirs:

I, Roy Ovey Young of Kakabeka Falls

in the Province of Ontario, Business Owner
(Occupation)

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
4-7	25.000%
5-7	25.000%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Thunder Bay in the Province of Ontario, this 14 day of November, 1986 in the presence of:

D. Bruyeston
Witness

R. O. Young

ROYALTY OWNER CONSENT

The Oil and Natural Gas Conservation Board,
Room 309 Legislative Building,
Winnipeg, Manitoba.
R3C OV8

Dear Sirs:

59643 Manitoba Ltd. of The Pas

in the Province of Manitoba,

being the owner of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
4-7	75.000%
5-7	75.000%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at The Pas in the Province of Manitoba, this 14th day of November, 1986 in the presence of:

59643 MANITOBA LTD.

Per: L. R. Crowley

Per: J. M. Halcrow

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NOV 2 1 1986

LEGAL DIV

ROYALTY OWNER CONSENT

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

Dear Sirs:

The Estate of Dorothy Ebba Smith, being the holder of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	25.000%
2-12	25.000%
7-12	25.000%
8-12	25.000%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and I CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Sitka, Alaska in the ~~Province of~~ City & Borough of Sitka, this 13th day of November, 1986 in the presence of:

Witness

Richard H. Friedman
Personal Representative of the
Estate of Dorothy Ebba Smith

ROYALTY OWNER CONSENT

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

Dear Sirs:

We, Carl Whyte and Jean Whyte, of Fargo in the State of North Dakota, one of the United States of America,

_____
(Occupation)

being the owner with Paul Boyle and Mary Boyle of a Royalty Interest of a head lessor in the proposed Waskada Unit No. 6, as hereinafter set out:

Tract No.	Royalty Owner's Interest
1-12	3.125%
2-12	3.125%
7-12	3.125%
8-12	3.125%

HEREBY AGREE to the Proposed Plan of Unit Operation entitled "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6", a copy of which Plan has been provided me by Chevron Canada Resources Limited, and CONSENT AND AGREE to the Board making an Order pursuant to Section 76 of The Mines Act of the Revised Statutes of Manitoba, 1970 and Amendments thereto, ordering that a portion of the Waskada Field as described in the said Plan be operated as a Unit in accordance with the Plan of Unit Operation.

SIGNED at Fargo in the Province of _____, this 15 day of February, 1986 in the presence of:

_____
Witness

Carl T. Whyte

Jean J. Whyte

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

R. A. Pashelka
General Counsel

1987-02-09

DEPARTMENT OF ENERGY AND MINES
FEB 24 1987
PETROLEUM BRANCH

Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6

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

Attention: Mr. Charles S. Kang, Chairman

Dear Mr. Kang:

We enclose a photo-copy of the executed Consent Form received from New McManus Red Lake Gold Mines Ltd. with respect to the subject Plan for Unitization.

Yours very truly,

D. P. LOUGHEED

/ps
Encl.

cc: Department of Energy and Mines,
Petroleum Branch,
Attention: Mr. Clare Moster,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

pc: C. Moster(attachment)
C. Kang's office, Feb.24/87

THE OIL AND NATURAL GAS
CONSERVATION BOARD
WINNIPEG MANITOBA
FEB 17 1987
RECEIVED

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

RECEIVED
FEB 03 1987
LEGAL DIV

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

Dear Sirs:

* NEW MCMANUS RED LAKE GOLD MINES LTD., being the owner of a Working Interest in the proposed Waskada Unit No. 6 Unit Area, hereby consents and agrees to the Board approving the "PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6" pursuant to Section 76 of The Mines Act.

DATED the 20 day of NOVEMBER, 1986.

Per: _____

Per: _____

*Please insert corporate or personal name.

A fee of $50.00 shall accompany the Statement of Opposition.

No Statement of Opposition will be accepted after the date of Monday, March 2, 1987.

All Respondents will immediately receive from the Board a copy of the relevant application and supporting documents.

All Respondents shall also file with the Document Control Officer further statements and other documents certified true and correct, which together with the Statement of Opposition, if unanswered, are sufficient to demonstrate that the public convenience will not be promoted by the granting of the authority in question. Such further material shall be filed within 14 days of receipt of the copy of the application and supporting documents or, on or before Monday, March 16, 1987, whichever is later.

If the Board is not satisfied sufficient evidence has been filed by a Respondent, his Statement of Opposition will be struck. All applications in which a Statement of Opposition has been accepted will be set for public hearing.

Take notice that The Motor Transport Board has received the following application for authority to transport handicapped persons in Rural Manitoba.

Docket 13212
Town of Steinbach,
Steinbach, Manitoba.

Application for Public Service Vehicle Certificate for the transportation of handicapped persons in Rural Manitoba, pursuant to Manitoba Regulation No. 110/84, being Bod Order 38/84.

Any interested party wishing to oppose the above application shall file a Statement of Opposition setting forth the grounds of his opposition with the Secretary of the Board, 200-301 Weston Street, Winnipeg, Manitoba, before 4:30 p.m., Monday, February 23, 1987. Late opposition will not be accepted.

L. G. OLIJNEK,
Secretary.
THE MANITOBA MOTOR
—6 TRANSPORT BOARD.

UNDER THE MINES ACT

NOTICE

A public hearing will be held in the boardroom of the Department of Energy and Mines located in Room 544 on the fifth floor of Eaton Executive Place, 300 Graham Avenue, Winnipeg, Manitoba on March 4, 1987 commencing at 9:00 A.M. for the purpose of hearing representations with regard to an application by Chevron Canada Resources Limited requesting that the Board order the operation of a portion of the Waskada Lower Amaranth A Pool as a Unit (proposed Waskada Unit No. 6).

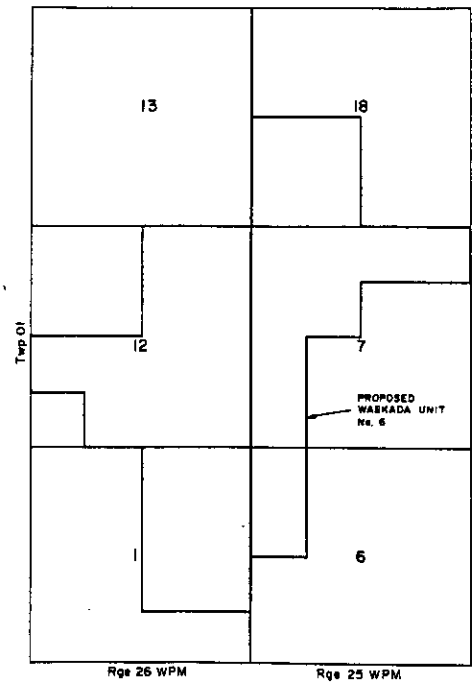
The proposed Unit Area is as shown on the attached plan.

Anyone wishing to intervene in this matter shall notify the Board in writing of such intentions and shall, prior to February 20, 1987, provide to the Board, at its address set out below, a summary or outline of the intervention.

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

Dated this 22nd day of January, 1987.

CHARLES S. KANG,
Chairman.



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Friends of the late Mr. Ben Howden attended his funeral in Boissevain Monday last. Ben was a former resident of this community. We extend sympathy to his family.

Jack and Donalda Whetter have returned from Thompson where they have spent the last three weeks. They visited with family. Jack and Nancy Lou Almeida and baby Katherine. En route home they visited with Bill and Gertrude Whetter of Winnipeg.

Francis and Mary Dwain, Shirley and girls, Murray and Adrienne Teetaert and boys, Dave Morningstar and Lori Teetaert were Sunday dinner guests of Dave and Lisa Hamilton, Brandon. The occasion being Frances Birthday.

Elgin news

by BETH EFFORD

Mr. Joe Barnes is a Winnipeg visitor receiving medical attention.

Get well wishes to Mr. A.J. More, a patient in Souris Hospital.

Bob and Beth Efford and families attended to all the Thom and Howden families at this time.

Ilda Hawden, Wayne and Dolores attended the funeral of Ben Howden at Boissevain on Monday.

The ladies are busy making quilt for the New Horizons bazaar next fall.

Allan and Ruth Burr are home from their holiday in Hawaii.

Larry and Nola Meggison are home after visiting their daughter Faye and husband in Toronto, Faye accompanied

ITS' MEETINGS

chool Division invites parents to an in-
n the new recenlty approved

ife Education Option

to be held

February 12, 7:30 p.m.

:tney Collegiate

will be held at Souris and Wawanesa in the
unit may be added to the Health Curriculum at
88 or thereafter.

ave decided on a process whereby parents will
ear about and see the curriculum, and then
school in grades 5, 7 and 9 for 1987/88 will be
or not. A final Board decision on implementa-
tion will depend on parental support and our
present the curriculum.

like to announce that any parent wishing to
iculum document can borrow a copy from the
, within the Division, wanting a presentation
ntact the Division Office, phone 483-2128.

SALES TAX CREDIT

New this year is a federal sales tax credit for which you may be eligible. Come in and find out how our tax preparers can determine the largest sales tax credit to which you are entitled.

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THE INCOME TAX SPECIALISTS

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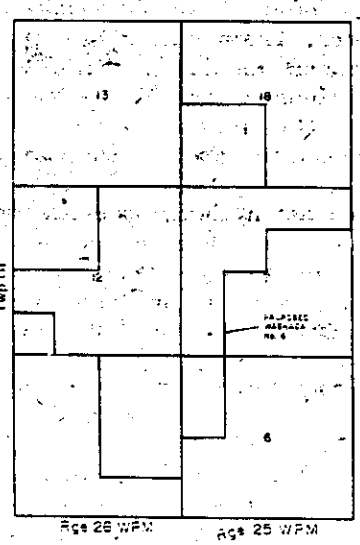
(M & M Plumbing)
Monday-Wednesday-Friday

127 SOURIS STREET
MELITA
Monday-Friday
9:00 a.m to 6:00 p.m.
Saturday
9:00 a.m. - 5:00 p.m.

PH 522-3234

NOTICE

A public hearing will be held in the boardroom of the Department of Energy and Mines located in Room 544 on the fifth floor of Eaton Executive Place, 300 Graham Avenue, Winnipeg, Manitoba on March 4, 1987 commencing at 9:00 a.m. for the purpose of hearing representations with regard to an application by Chevron Canada Resources Limited requesting that the Board order the operation of a portion of the Waskada Lower Amaranth A Pool as a Unit (proposed Waskada Unit No. 6).



Anyone wishing to intervene in this matter shall notify the Board in writing of such intentions and shall, prior to February 20, 1987, provide to the Board, at its address set out below, a summary or outline of the intervention.

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

Dated this 22 day of January, 1987.

Charles S. Kang,
Chairman

January 22, 1987

Queen's Printer
Statutory Publications
200 Vaughan Street

Bob Dubreuil
Chief Petroleum Engineer
Petroleum Division
Dept. of Energy and Mines
555 - 330 Graham Avenue

MANITOBA GAZETTE

Please have the attached Notice appear in the next issue of the Manitoba Gazette Under The Mines Act.

Bob Dubreuil

CH/ch
Attachment

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

NOTICE

A public hearing will be held in the boardroom of the Department of Energy and Mines located in Room 544 on the fifth floor of Eaton Executive Place, 300 Graham Avenue, Winnipeg, Manitoba on March 4, 1987 commencing at 9:00 A.M. for the purpose of hearing representations with regard to an application by Chevron Canada Resources Limited requesting that the Board order the operation of a portion of the Waskada Lower Amaranth A Pool as a Unit (proposed Waskada Unit No. 6).

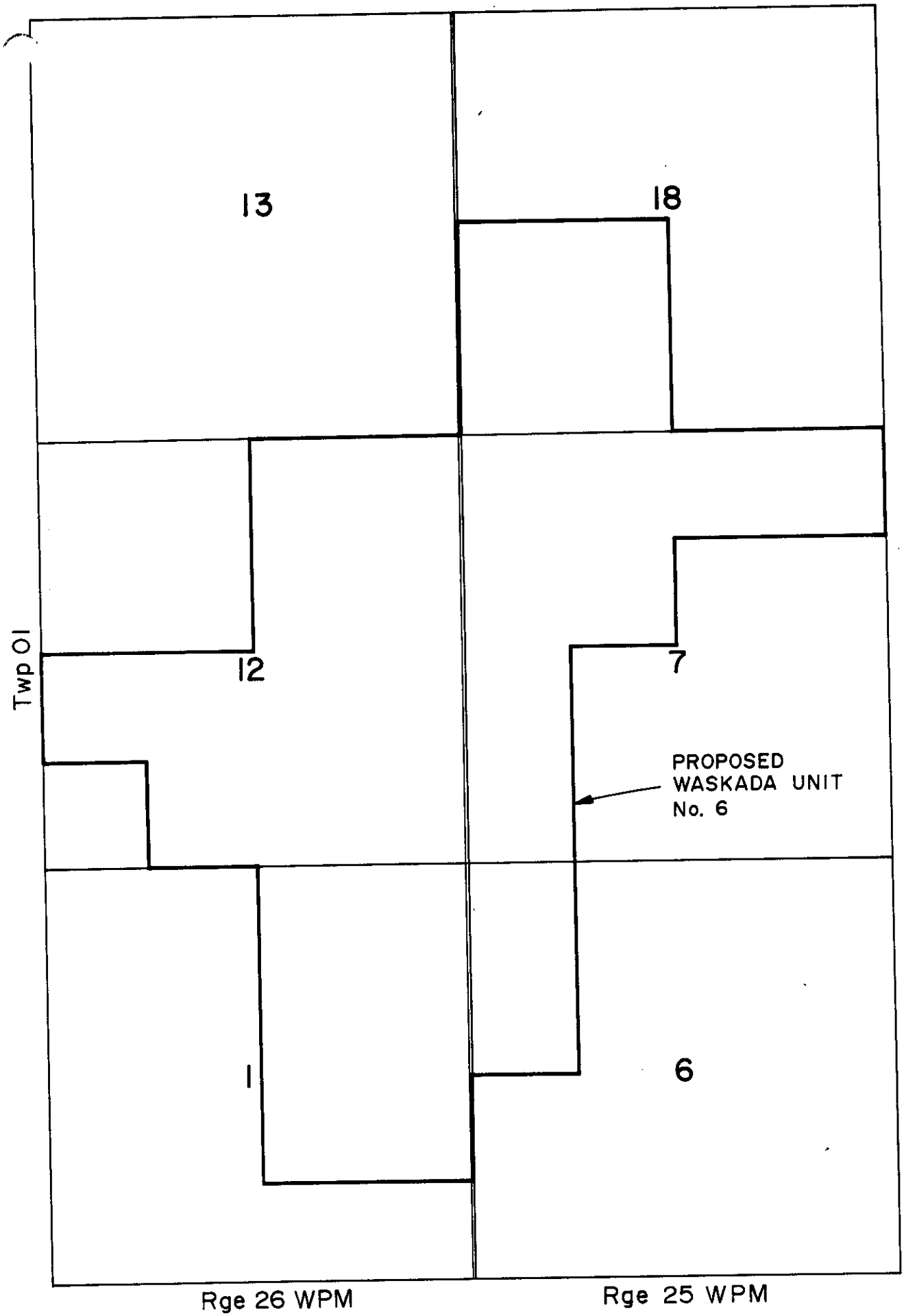
The proposed Unit Area is as shown on the attached plan.

Anyone wishing to intervene in this matter shall notify the Board in writing of such intentions and shall, prior to February 20, 1987, provide to the Board, at its address set out below, a summary or outline of the intervention.

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

DATED THIS 22 DAY OF January , 1987.

Charles S. Kang,
Chairman


13
18
12
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PROPOSED
WASKADA UNIT
No. 6
1
6
Twp 01
Rge 26 WPM
Rge 25 WPM

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

JAN 19 1987

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

Attention: Mr. D.P. Lougheed

Dear Sirs:

Re: Waskada Unit No. 6

Your letter of January 8, 1987 and attached copies of the proposed Plan for Unit Operation for Waskada Unit No. 6 is acknowledged.

In order to assist the Board in verifying that the minimum royalty and working interests required pursuant to Section 77 of The Mines Act have consented to the Plan, you are requested to submit copies of the consents received to date.

You will be advised in due course concerning the Board's disposition of your application.

Sincerely yours,

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang,
Chairman

LRD/lk

b.c. Wm. McDonald
B. Ball
Petroleum

DEPARTMENT OF ENERGY AND MINES
JAN 19 1987
PETROLEUM BRANCH

→ Bob

Manitoba

Memorandum

D. January 13, 1987

To The Oil and Natural Gas Conservation Board

Charles S. Kang - Chairman
Wm. McDonald - Deputy Chairman
Bruce Ball - Member

From H. Clare Moster
Executive Director
Petroleum Division

Telephone

Subject

Re: Waskada Unit No. 6 - Unitization Order

First | Fold

Chevron Canada Resources Limited, as Operator of the proposed Waskada Unit No. 6, has made application pursuant to subsection 76(1) of The Mines Act for the Board to order operation of the area as a Unit (i.e. Unitization Order).

Recommendation:

- It is recommended that the Board hold a hearing to consider the application.

- A draft of a proposed Notice of Hearing (with date left blank) is enclosed. A suggested date for the Hearing is on a Tuesday, Wednesday or Thursday, during either of the first two weeks of March. Please advise this office of the Board's preferred date and a final Notice will be prepared for signature.

- It is recommended that the Board send the attached letter of acknowledgement to the applicant in the meantime.

Discussion:

Chevron Canada Resources Limited has been attempting to form a unit in the southern part (see Figure 1) of the Waskada Lower Amaranth A Pool for more than two years. Such a unit is required to permit implementation of a pressure maintenance by water injection project in the area (the technical project was previously approved through Board Order No. PM 44 - Manitoba Regulation 119/85). As a result of ongoing litigation involving certain mineral leases in the proposed Unit Area, Chevron has been unable to obtain the consent of all royalty and working interest owners. It is, however, imperative that pressure maintenance be initiated as soon as possible to avoid loss of recoverable oil.

Section 74 of The Mines Act requires the Board's approval of a voluntary Unit Agreement but prohibits the Board from approving a Unit Agreement where all royalty interests involved have not become party to the agreement. In such instances, the Board may, upon application and after

holding a hearing, order unitization (Section 76). Section 77 of The Mines Act, however, restricts the Board form issuing such an order unless a minimum of 75% of the royalty and working interest owners have indicated concurrence to the plan of unitization.

Chevron has, in its letter of January 8, 1987, indicated that it has obtained the minimum required 75% consent and has therefore requested the Board to proceed with the required hearing.

Tables 1 and 2 summarize the working and royalty owner consents given and verify that the minimum percentages have been achieved. Note that the information regarding royalty owner consents was provided verbally by Chevron on January 9, 1987. Attached is a draft letter of acknowledgement requesting that Chevron provide, at this time, copies of the signature pages of all consents to enable the Board to verify that the minimum percentage royalty interest has been achieved.

Attached is a proposed Notice of Hearing. It is suggested that the hearing be held in the large boardroom at Eaton Place. The date of the hearing is left blank for the Board's discretion. It is suggested that the Notice be published in the Manitoba Gazette and sent to each working interest and royalty interest owner involved.

Original Signed by H. C. Moster

H. Clare Moster

LRD/lk

Table 1

Working Interest Owners

Consents

Working Interest Owner	Gross Area (Acres)	Net Area (Acres)	% of Total
Can Am	480	30	2.42
Chevron	1 200	780	62.90
Colenco	480	70	5.65
Great American	160	70	5.65
Newscope	720	205	16.53
New McManus	480	35	2.82
		1 190	95.97%

Total Unit Area 1 240 acres

Table 2

Royalty Interest Owners

Consents

Royalty Interest Owner	Gross Area (Acres)	Net Area (Acres)	% of Total
H. & F. Lawrence	80	40	3.23
R. O. Young	80	20	1.61
59643 Manitoba Ltd.	80	60	4.84
Rushton	240	120	9.68
Hernefield	480	360	29.03
Smart	240	240	19.35
R. Stead	160	10	0.81
M. Ballantyne	160	10	0.81
M. Westlie	160	10	0.81
Smith Estale	160	10	0.81
C. & J. Whyte)	160	5	0.40
P. & M. Boyle)			
W. & N. Witteman	160	5	0.40
P. Boyle	160	10	0.81
Crown	120	120	9.68
		1 020	82.26

1251P

~~DRAFT~~

NOTICE

A public hearing will be held in the boardroom of the Department of Energy and Mines located in Room 544 on the fifth floor of Eaton Executive Place, 300 Graham Avenue, Winnipeg, Manitoba on MARCH 4, 1987 commencing at 9:00 A.M. for the purpose of hearing representations with regard to an application by Chevron Canada Resources Limited requesting that the Board order the operation of a portion of the Waskada Lower Amaranth A Pool as a Unit (proposed Waskada Unit No. 6).

Anyone wishing to intervene in this matter shall notify the Board in writing of such intentions and shall, prior to Feb 20, 1987, provide to the Board, at its address set out below, a summary or outline of the intervention.

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

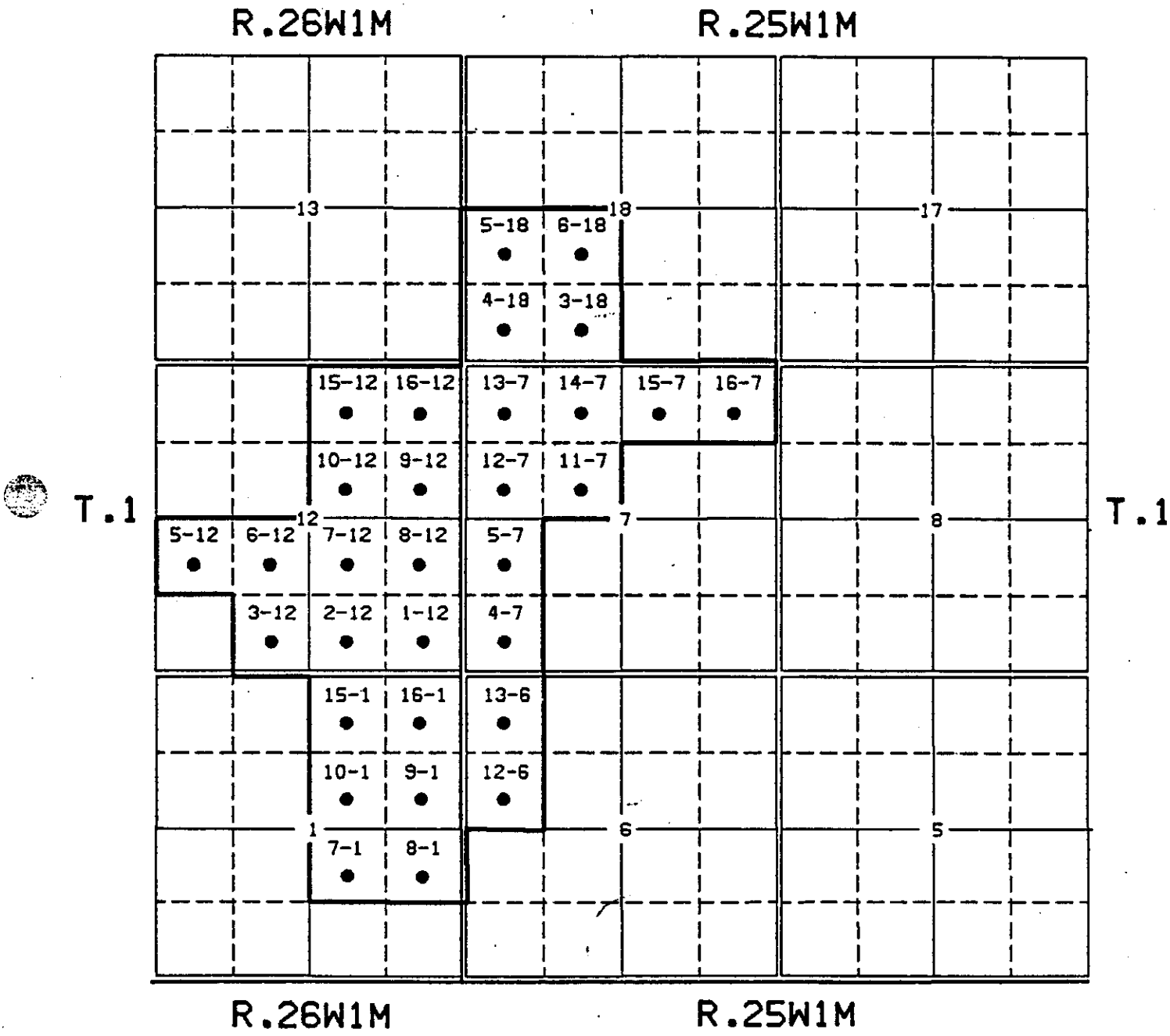
Charles S. Kang,
Chairman

0913P

FIG. 1

~~EXHIBIT A~~

ATTACHED TO AND MADE PART OF A PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6"



LEGEND

- ● - OILWELL
- o - LOCATION OR DRILLING WELL
- 13-6 - NUMBERED TRACT
- ——— - UNIT BOUNDARY

Consents Received based on Interim and Final Proposed Tract Factors

Royalty Owner	IP	FP
Crown	10.8900	7.7359
H + F Lawrence	2.0455	2.2030
R.O. Young	1.0546	1.2019
59643 Man.	3.1638	3.6056
Rushton	9.7025	11.1811
Herne field	39.0310 ~~35.5582~~	34.5993 ~~31.6547~~
Smart	11.9467	15.7861
R Stead	.8682	.8349
Smith Estate	.8682	.8349
P + M Boyle	.2171	.2087
Witteman	.41341	.4174
	80.2217	78.6088

TRACT	ITF	FFF	Royalty Owner	Interest	IPF	FPF
12-6	3.0287	3.1186	Dome	50%	1.5144	1.5593
			H + F Lawrence	50%	1.5144	1.5593
13-6	1.0621	1.2874	Dome	50%	0.5311	0.6437
			H + F Lawrence	50%	0.5311	0.6437
4-7	0.4658	1.0347	R.O. Young	25%	0.1165	0.2587
			59643 Man.	75%	0.3494	0.7760
5-7	3.7525	3.7728	RO Young	25%	0.9381	0.9432
			59643 Man	75%	2.8144	2.8296
11-7	0.9792	1.6078	Rushton	50%	0.4896	0.8039
			Pan Canadian	50%	0.4896	0.8039
12-7	2.8486	6.5387	Rushton	50%	1.4243	3.2694
			Pan Canadian	50%	1.4243	3.2694
13-7	2.8272	3.1379	Rushton	50	1.4136	1.5690
			Pan Canadian	50	1.4136	1.5690
14-7	5.4691	4.0914	Rushton	50	6.3750	5.5388
15-7	2.1235	3.3804	Pan Canadian	50	6.3750	5.5388
16-7	5.1574	3.6057				
3-18	2.9755	5.1391	Hernefield	100	6.5893	10.6190
4-18	1.3794	1.7664				
5-18	1.6329	2.5048				
6-18	0.6015	1.2087				
7-1	0.2761	1.6224	Smart	100	11.9467	15.7861
8-1	1.4894	1.6856				
9-1	1.2979	3.0059				
10-1	2.5993	2.7255				
15-1	3.1988	2.2590				
16-1	3.0902	4.4877				

1-12	2.9072	3.2093	R Staud	6.25	.8682	.8349
2-12	7.2547	3.7575	Hernefield	25	3.4728	3.3396
7-12	2.5585	3.4868	M Ballentyne	6.25	.8682	.8349
8-12	1.1706	3.1893	Hill	25	3.4728	3.3396
	13.8910	13.3582	Westlie	6.25	.8682	.8349
			Smith	6.25	.8682	.8349
			White/Boyle	3.125	.4341	.4174
			Witteman	3.125	.4341	.4174
			Westlie Estate	12.5	1.7364	1.6698
			Boyle	6.25	.8682	.8349
3-12	6.0402	4.0556	Crown	100	10.8900	7.7359
5-12	0.0001	0.4638				
6-12	4.8497	3.2165				
9-12	9.1546	4.7848	Hernefield	100	28.9689	20.6407
10-12	8.6616	5.7960				
15-12	3.7403	4.0447				
16-12	7.4124	6.0152				

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

R A Pashelka
General Counsel

1987-01-08

THE OIL AND NATURAL GAS CONSERVATION BOARD
WINNIPEG, MANITOBA
JAN - 9 1987
RECEIVED

Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6

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

Attention: Mr. Charles S. Kang, Chairman

Dear Mr. Kang:

Chevron Canada Resources Limited is pleased to advise that we have now received the consents required from the minimum number of royalty owners for the proposed Plan for Unit Operation for Waskada Unit No. 6. We also advise that we have received consents from all working interest owners in the proposed unit other than PanCanadian Petroleum Limited and New McManus Red Lake Gold Mines.

Accordingly, we request a unitization order pursuant to section 76(3) of the Mines Act and request that an early date be set for the hearing under section 76(1). We enclose herewith ten (10) copies of the proposed Plan for Unit Operation.

As we anticipate that we will continue to receive consents to the Plan, we propose to simply file all the consents received at the hearing, if that is satisfactory to the Board.

We also enclose herewith the prima facie Exhibit "D" listing Working Interest Owners and Royalty Owners in the proposed unit area. This prima facie Exhibit "D" was also forwarded to persons listed therein along with the copy of the proposed Plan for Unit Operation. As a result, we received representations as to corrections which we enclose as an addendum to the prima facie Exhibit "D". This prima facie Exhibit "D" and addendum are forwarded only for informational purposes to assist the Board with notices of hearing. Should the Plan be approved, the actual Exhibit "D" list would of course then be prepared in accordance with Part XX and clause 2.02. Note that the prima facie list also indicates holders of overriding royalties. Again, this is for informational purposes only and since the consent of such persons is not required pursuant to section 77, we would not propose to include them on the final Exhibit "D" once it is prepared.

If you have any questions or concerns regarding the above, or require any further information, please do not hesitate to contact David P. Lougheed at (403) 234-5881 or Kevin G. Matieshin, in Virden, at (204) 748-1334.

Yours very truly,

R. A. PASHELKA

DPL/ps
Encls.

cc: Department of Energy and Mines,
Petroleum Branch,
Attention: Mr. Clare Moster, (w/cc/encl.)
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

Manitoba

Energy and Mines | Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

CERTIFIED MAIL

November 27, 1986

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

Attention: Mr. D.P. Lougheed

Re: Waskada Unit No. 6

Dear Sir:

Enclosed for your information and use is one copy of a form executed by the Minister of Energy and Mines on behalf of the Crown as a royalty owner indicating consent to and agreement with the document entitled "Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Waskada Unit No. 6".

Yours sincerely,

L.R. Dubreuil
Chief Petroleum Engineer
Petroleum Division

LRD:dah

encl

PS-1-25

Bob file

Manitoba

Memorandum

Da.. November 19, 1986

To Charles S. Kang, Deputy Minister
Energy and Mines
Room 309, Legislative Building

From H. Clare Moster
Executive Director
Petroleum

Telephone

Subject Waskada Unit No. 6
Proposed Plan for Unit Operation

First | Fold

Attached and recommended for the Minister's signature are two copies of a form indicating consent to the document entitled "Plan For Unit Operation Governing the Unitized Management and Further Development of Waskada Unit No. 6" (the "Plan"). Also attached for reference only is a copy of the Plan.

The Minister, with the approval of the Lieutenant Governor in Council (OIC 584/86 dated May 28, 1986) has indicated concurrence with the concept of Unit Operation in the area and specifically has executed the document "Unit Agreement - Waskada Unit No. 6".

However, Chevron has been unable to obtain the concurrence of all royalty owners involved and, consequently, has asked The Oil and Natural Gas Conservation Board to hold a hearing and order unitization. Prior to proceeding in this matter, the Board requested that Chevron demonstrate that in excess of 75% of the royalty and working interest owners in the proposed Unit Area had agreed to unit operation. To achieve this, Chevron has prepared the attached Plan and is requesting concurrence of all royalty owners.

The Petroleum Division has reviewed the Plan and has found it to be reasonable and acceptable. The tract participation factors proposed in the Plan are idential to those in the Unit Agreement document which the Minister has previously executed.

Please return both copies of the consent form and the copy of the Plan to this office for disposition.

Original Signed by H. C. Moster

H. Clare Moster

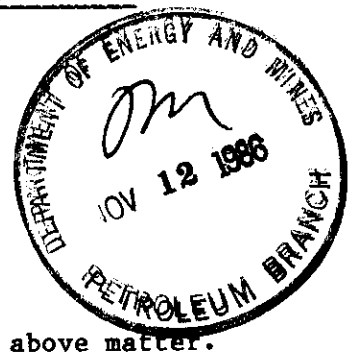
→ Bob check & file

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

1986-11-06

COPY

Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6



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

Attention: Mr. Charles S. Kang, Chairman

Dear Mr. Kang:

Thank you for your letter of 1986-10-28 with respect to the above matter.

We have amended the proposed Waskada Unit No. 6 Plan as suggested in your letter by comments numbered 1, 3 and 4. With respect to comment number 2, the date September 1, 1985 was an error and has been changed to September 1, 1984. As to the different interval used for the interim tract factors, this interval was agreed upon in order to satisfy the royalty owner Hernefield Enterprises Ltd. As set out in our letter to the Board dated 1986-02-20 Hernefield Enterprises wished to change the tract participation formula to use a higher percentage current production factor with 1985-08 data. The working interest owners agreed to use an interim tract participation based on 100% current productivity within the production interval suggested by Hernefield Enterprises and this was accepted by Hernefield.

We enclose for your information substitute pages incorporating your suggested amendments for the proposed Waskada Unit No. 6 Plan previously forwarded. Please also note that clause 8.04 (a) has been changed to have voting interests based on final Unit Participations. These changes have been submitted to the working interest owners for consent and the Plan, as amended, is now being submitted to the royalty owners for consent.

Yours very truly,

ORIGINAL SIGNED BY
D. P. LOUGHEED

DAVID P. LOUGHEED

DPL/ps
Encls.

cc: Mr. Clare Moster, (w/cc/encl.)
Department of Energy and Mines,
Petroleum Branch,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

(r) "Unitized Strata" means the Lower Amaranth Red Beds member of the Amaranth Formation, of Jurassic Age underlying the lands described in Exhibit "A", as same is shown on the sonic log of Chevron Newscope Waskada 15-7-1-25 WPM well in Legal Subdivision Fifteen (15) of Section Seven (7), Township One (1), Range Twenty-five (25), West of the First (W.1st) Meridian, in the Province of Manitoba between the interval 895 metres and 929 metres as measured from the Kelly Bushing. The Amaranth Formation consists of an upper evaporitic member, known as the Upper Amaranth Anhydrite and a lower interbedded shale, siltstone, and sandstone member known as the Lower Amaranth Red Beds. The principal reservoir of the Lower Amaranth Red Beds is the lower sandy zone which is commonly referred to as the Spearfish zone. The Amaranth Formation is correlative with the Amaranth Formation of North Dakota. It unconformably overlies the Mississippian Mission Canyon Formation which in turn overlies the Mississippian Lodgepole Formation and is conformably overlain by carbonates of the Jurassic Reston Formation.

(s) "Unit Facilities" means all real and personal property of every kind, nature and description (excepting Unitized Substances, the Unitized Strata, rental equipment and Unit Operator's solely owned equipment) in the possession of Unit Operator pursuant to this Plan;

(t) "Unit Operations" means any operations authorized and provided for in this Plan for or in respect of the development and operation of the Unitized Strata for the production of Unitized Substances;

(u) "Unit Operator" means the person who is so appointed to manage and conduct the operations hereunder;

(v) "Unit Participation" of a Working Interest Owner means the sum of the Working Interest Owner's share of effective Tract Participations;

(w) "Unit Well" means a well listed in Exhibit "E" and any well drilled or acquired for the Joint Account.

expiry of a one year period from the Effective Date at which time the final Tract Participation shall become effective.

5.03 Interim Tract Participation

The interim Tract Participation is the Tract's current oil rate factor.

The current oil rate factor is the fraction calculated by dividing the oil rate of the Tract during an interval of at least thirty (30) consecutive days on production, or as close to thirty (30) consecutive days as possible, by the sum of the oil rates for all Tracts.

The oil rate is calculated by dividing the oil production from at least thirty (30) consecutive days on production by the number of consecutive days on production.

The production data for this calculation is from the time period May 1, 1985 to August 31, 1985, where possible.

5.04 Final Tract Participation

The final Tract Participation of each Tract is the sum of:

(a) Three-tenths (3/10ths) of the current oil rate factor.

The current oil rate factor is the fraction calculated by dividing the oil rate of the Tract during an interval of at least thirty (30) consecutive days on production, or as close to thirty (30) days as possible, by the sum of the oil rates for all Tracts.

(i) The oil rate for all Tracts except Tracts 12-6, 13-6, 4-7, 5-7, 11-7, 12-7, 13-7, 14-7, 15-7, 9-12, 10-12, 15-12 and 16-12 was obtained from production tests.

(ii) The oil rate for Tracts 12-6, 13-6, 4-7, 5-7, 11-7, 12-7, 13-7, 14-7, 15-7, 9-12, 10-12, 15-12 and 16-12 is calculated by dividing the oil production from at least thirty (30) consecutive days on production by the number of consecutive days on production.

The production data for this calculation is from the time period September 1, 1984 to November 30, 1984, where possible.

8.03 Meetings

The Operating Committee shall hold meetings whenever called by Unit Operator, or if there is no Unit Operator, by Working Interest Owners having Unit Participations totalling five percent (5%) or more. Unit Operator may call meetings at any time on its own motion, and shall call meetings whenever requested to do so by Working Interest Owners having Unit Participations totalling five percent (5%) or more. Unless the representatives of all Working Interest Owners in writing waive their right to notice, at least ten (10) days' notice of each meeting shall be given to the Working Interest Owners, with an agenda attached. Reasonable details of matters on the agenda involving proposed expenditures and enlargements of the Unit Area shall be given. Matters not on the agenda may be voted upon only if the representatives of all Working Interest Owners, whether or not present at the meeting, unanimously agree.

8.04 Voting Procedure

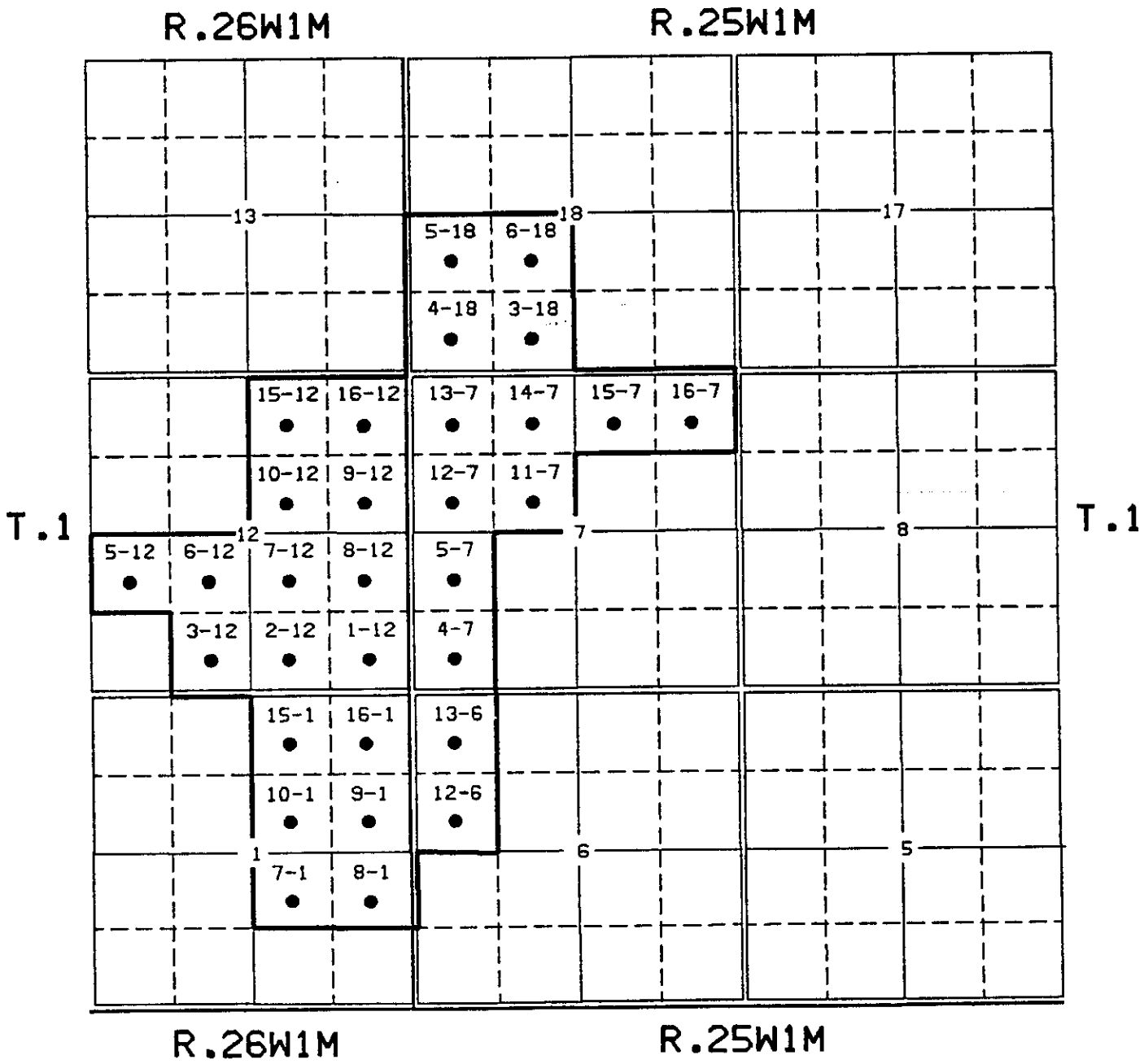
The representatives of the Working Interest Owners shall determine all matters properly coming before the Operating Committee as follows:

(a) Voting Interest. Except as otherwise provided in this clause, in voting on any matter each Working Interest Owner shall have a voting interest equal to its final Unit Participation;

(b) Vote Required - Generally. Except as otherwise provided in this Plan, the Operating Committee shall determine matters by the affirmative vote of three (3) or more Working Interest Owners having voting interests totalling seventy-five percent (75%) or more, but if a Working Interest Owner having a voting interest of twenty-five percent (25%) or more is the only one voting negatively, the motion shall be carried even though the voting interests of the Working Interest Owners

EXHIBIT "B"

ATTACHED TO AND MADE PART OF A PLAN FOR UNIT OPERATION
GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER
DEVELOPMENT OF WASKADA UNIT NO. 6"



LEGEND

- ● - OILWELL
- o - LOCATION OR DRILLING WELL
- 13-6 - NUMBERED TRACT
- —— - UNIT BOUNDARY

HR475

EXHIBIT " C "

ATTACHED TO AND MADE PART OF A PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6

SONIC LOG
CHEVRON NEWSCOPE WASKADA
15–7–1–25 WIM

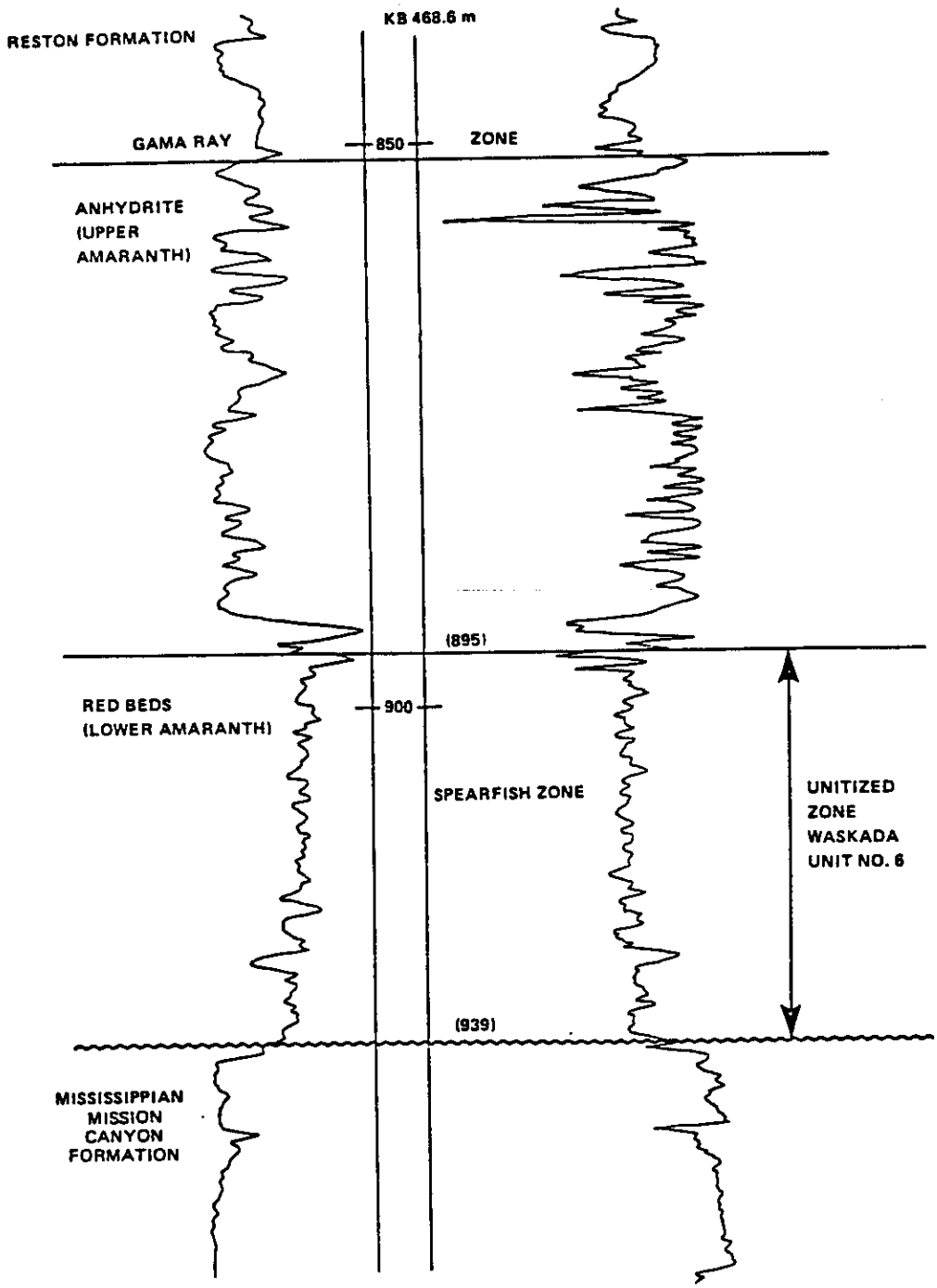


EXHIBIT "E"
ATTACHED TO AND MADE PART OF A PLAN FOR UNIT OPERATION GOVERNING THE UNITIZED MANAGEMENT OPERATION AND FURTHER DEVELOPMENT OF WASKADA UNIT NO. 6"

LIST OF UNIT WELLS

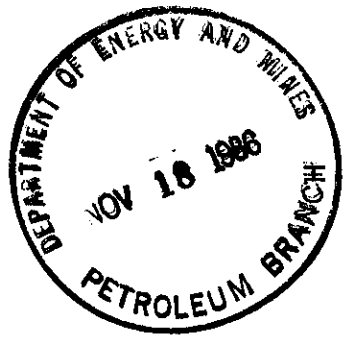
Well Name	Location
Newscope et al Waskada 12-6-1-25	Lsd. 12, Sec. 6, 1-25-WPM
New Scope S. Waskada 13-6-1-25	Lsd. 23, Sec. 6, 1-25 WPM
New Scope S. Waskada 4-7-1-25	Lsd. 4, Sec. 7, 1-25-WPM
New Scope S. Waskada 5-7-1-25	Lsd. 5, Sec. 7, 1-25-WPM
New Scope S. Waskada 11-7-1-25	Lsd. 11, Sec. 7, 1-25 WPM
New Scope S. Waskada 12-7-1-25	Lsd. 12, Sec. 7, 1-25-WPM
New Scope South Waskada 13-7-1-25	Lsd. 13, Sec. 7, 1-25-WPM
New Scope S. Waskada 14-7-1-25	Lsd. 14, Sec. 7, 1-25-WPM
Chevron Newscope Waskada 15-7-1-25	Lsd. 15, Sec. 7, 1-25-WPM
Chevron Newscope Waskada 16-7-1-25	Lsd. 16, Sec. 7, 1-25-WPM
Chevron Waskada 3-18-1-25	Lsd. 3, Sec. 18, 1-25-WPM
Chevron Waskada 4-18-1-25	Lsd. 4, Sec. 18, 1-25-WPM
Chevron Waskada 5-18-1-25	Lsd. 5, Sec. 18, 1-25-WPM
Chevron Waskada 6-18-1-25	Lsd. 6, Sec. 18, 1-25-WPM
Chevron Waskada 7-1-1-26	Lsd. 7, Sec. 1, 1-26-WPM
Chevron Waskada 8-1-1-26	Lsd. 8, Sec. 1, 1-26-WPM
Chevron Waskada 9-1-1-26	Lsd. 9, Sec. 1, 1-26-WPM
Chevron S. Waskada 10-1-1-26	Lsd. 10, Sec. 1, 1-26-WPM
Chevron Waskada 15-1-1-26	Lsd. 15, Sec. 1, 1-26-WPM
Chevron Waskada 16-1-1-26	Lsd. 16, Sec. 1, 1-26-WPM
Chevron Waskada 1-12-1-26	Lsd. 1, Sec. 12, 1-26-WPM
Chevron Waskada 2-12-1-26	Lsd. 2, Sec. 12, 1-26-WPM
Chevron Waskada Prov 3-12-1-26	Lsd. 3, Sec. 12, 1-26-WPM
Chevron Waskada Prov 5-12-1-26	Lsd. 5, Sec. 12, 1-26-WPM
Chevron Waskada Prov 6-12-1-26	Lsd. 6, Sec. 12, 1-26-WPM
Chevron Waskada 7-12-1-26	Lsd. 7, Sec. 12, 1-26-WPM
Chevron et al S. Waskada 8-12-1-26	Lsd. 8, Sec. 12, 1-26-WPM
New Scope S. Waskada 9-12-1-26	Lsd. 9, Sec. 12, 1-26-WPM
New Scope et al Waskada 10-12-1-26	Lsd. 10, Sec. 12, 1-26-WPM
New Scope S. Waskada 15-12-1-26	Lsd. 15, Sec. 12, 1-26-WPM
New Scope S. Waskada 16-12-1-26	Lsd. 16, Sec. 12, 1-26-WPM

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

1986-11-06

R. A. Pashelka
Acting General Counsel

Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6



Manitoba Energy and Mines,
Petroleum Branch,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

Attention: Mr. Clare Moster

Dear Mr. Moster

We enclose one (1) copy of the subject Plan for Unit Operation, together with "Consent Form", in duplicate, for execution by the Manitoba Crown.

If you require further copies of the Plan or have any questions with respect thereto please contact David Lougheed at the letterhead address or by telephone at (403) 234-5881.

Yours very truly,

R. A. PASHELKA

/ps
Encls.

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

OCT 28 1986

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

DEPARTMENT OF ENERGY AND MINES
OCT 29 1986
PETROLEUM BRANCH

Attention: Mr. D. P. Lougheed

Dear Sirs:

Re: Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6

Your letter of October 7, 1986 with attached "Proposed Plan for Unit Operation, Proposed Waskada Unit No. 6" is acknowledged.

Upon review of this document, we note the following:

1. Refer P. 3 and Exhibit C. The geological terminology used is inconsistent with Manitoba geological terminology. The following list indicates the proper terminology which should be used in Manitoba.

Terminology Used in "Plan"	Proper Manitoba Terminology
Watrous Red Beds	Lower Amaranth Red Beds
Watrous Formation	Amaranth Formation
Watrous Anhydrite	Upper Amaranth Anhydrite

Further, it is indicated that the "unitized strata" unconformably overlies the Mississippian Lodgepole Formation. However, in the Waskada area, the Lower Amaranth overlies the Mississippian Mission Canyon Formation which in turn overlies the Mississippian Lodgepole Formation.

2. Refer P. 8 & P. 9

The interval used to calculate the current oil rate factor and the current oil cut factor (September 1, 1985 to November 30, 1984 and September 1, 1984 to November 30, 1984 respectively) appear to be inconsistent.

In addition, the interval used to determine the interim tract factors (which is also defined as the current oil rate factor) also differs from the above mentioned intervals (May 1, 1985 to August 31, 1985). What is the reason for this difference?

3. Refer Exhibit "B"

The well status on this map is out of date (e.g. 3-18, 5-12 and 6-12 are shown as "Location or Drilling Well").

4. Refer Exhibit "E"

Well names for all wells licensed to Newscope Resources Limited, except Newscope et al Waskada 12-6-1-25 (WPM), should show the company name as "New Scope" instead of "Newscope", to coincide with the official well name register.

We suggest that your proposed plan be amended to include the above considerations.

Sincerely yours

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang
Chairman

LRD/lk

b.c. Wm. McDonald
B. Ball
Petroleum

→ Bob
– review
eg - Man. geol. termin

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

R. A. Pashelka
Acting General Counsel

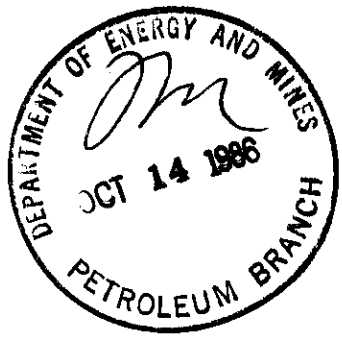
1986-10-07

COPY

Proposed Plan for Unit Operation
Proposed Waskada Unit No. 6

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

Attention: Mr. Charles S. Kang,
Chairman



Dear Mr. Kang:

We enclose for your information a copy of the proposed Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Waskada Unit No. 6 which has been forwarded to the Working Interest Owners for their approval and consent. As soon as we have approval of the Working Interest Owners the Plan will be sent to Royalty Owners for consent.

Yours very truly,

ORIGINAL SIGNED BY
D. P. LOUGHEED

R. A. PASHELKA

D.P.Lougheed/ps
Encl.

cc: Mr. Clare Moster, (w/cc/encl.)
Department of Energy and Mines,
Petroleum Branch,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

JUL 21 1986

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

Attention: Mr. R. A. Pashelka,
Acting General Counsel

Dear Sirs:

Re: Proposed Waskada Unit No. 6

Your letter of July 9, 1986 regarding the subject proposed Unit is acknowledged. Upon receipt of working interest and royalty owner consents representing a minimum of 75% of the proposed Unit, arrangements for a hearing (as required under subsection 76(1) of The Mines Act) may be considered.

Yours sincerely,

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang

LRD/lk

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

DEPARTMENT OF ENERGY AND MINES
JUL 22 1986
PETROLEUM BRANCH

Manitoba

Action / Route Slip

Date: July 14, 1986

To: Clare Moster
Petroleum Branch

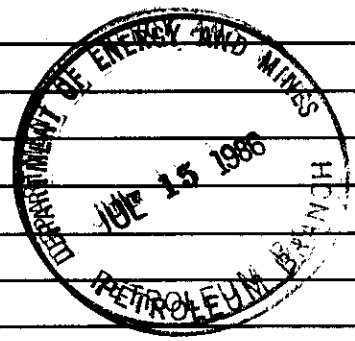
From: **Office of the Deputy Minister**
Manitoba Energy and Mines
Room 309
Legislative Building
Winnipeg, Manitoba
R3C 0V8

- ☐ Take Action
- ☐ Per Your Request
- ☐ Circulate, Initial and Return
- ☐ For Approval and Signature
- ☐ Make _____ Copies
- ☐ May We Discuss
- ☐ For Your Information
- ☐ Return With Comments or Revisions
- ☒ Draft Reply for Signature
- ☐ Please File

Comments: Chairman

Thanks

Rose



MG-1298 PS-I-182

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

R. A. Peshelka
Acting General Counsel

1986-07-09

Proposed Waskada Unit No. 6

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

Attention: Mr. Charles S. Kang,
Chairman

Dear Mr. Kang:

This will acknowledge receipt of your letter of 1986-06-18 with respect to the above matter.

Your letter makes reference to the requirement of Section 77 of The Mines Act that at least 75% of working interest and royalty owners consent to the plan of unitization and you requested that we submit by 1986-07-18 copies of executed signature pages representing these minimum interests. I attempted to contact you on 1986-07-08 regarding this request and was referred to, and discussed the matter with, Mr. Clare Moster of the Petroleum Branch. Chevron has obtained executed signature pages (or been advised that such would be provided) to the proposed unit documents sufficient to meet the 75% requirement but we are of the view that these are no longer adequate for the Board's purposes. As you may be aware, the unit agreements had a July 1st release date and of course none of the parties are now bound by those signatures. Further, the documents were set up for voluntary unitization and are no longer applicable. We will now be submitting a Plan of Unitization to working interest owners and royalty owners and believe it is the written consent to that document that is required under Section 77. We will, of course, submit consent forms to the Board as soon as we receive them.

I trust the above is satisfactory. Please do not hesitate to contact the writer at (403) 234-5881 with respect to any of the above.

Yours very truly,

R. A. PASHELKA

DPL/ps

cc: Mr. Clare Moster,
Department of Energy and Mines,
Petroleum Branch,
555, 330 Graham Avenue,
Winnipeg, Manitoba.
R3C 4E3

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

JUN 1 0 1986

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

Attention: Mr. D. R. Lougheed

Dear Sirs:

Re: Unitization Order - Proposed Waskada Unit No. 6

Your letter of June 12, 1986 requesting the Board to order the implementation of the subject proposed Unit pursuant to subsection 76(3) of The Mines Act is acknowledged.

You will note that Section 77 of The Mines Act prohibits the Board from making a Unitization Order, following application and hearing, unless in excess of seventy-five percent of the working interest and royalty owners have agreed in writing to the proposed plan of unit operation. In view of this restriction, you are requested to submit, prior to July 18, 1986, copies of executed signature pages representing these minimum interests.

Upon receipt of the above noted documentation and a copy of the proposed plan of Unit Operation (as required by subsection 76(2) of The Mines Act), the Board will schedule a hearing as required under subsection 76(1) to consider your application.

....2

DEPARTMENT OF ENERGY AND MINES
JUN 20 1986
PETROLEUM BRANCH

The Board is greatly concerned that further delays in implementing pressure maintenance in the Unit Area may jeopardize ultimate recovery. Consequently, you are requested to submit, prior to August 1, 1986 the results of a reservoir pressure survey including a minimum of three wells in the proposed Unit area. You are directed to submit your detailed plans for this survey to the Petroleum Branch for its review and prior approval.

BF

Yours sincerely,

THE OIL AND NATURAL GAS
CONSERVATION BOARD

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang
Chairman

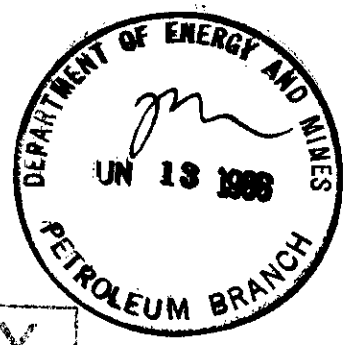
LRD/HCM/lk

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

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

R. A. Pashelka
Acting General Counsel

1986-06-12



COPY

BY COURIER

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

Dear Sirs:

We refer you to previous correspondence with respect to the proposed Waskada Unit No. 6 ("the proposed Unit"). Chevron Canada Resources Limited ("Chevron"), on behalf of the working interest owners of the proposed Unit, advises that it has been unable to obtain the agreement of all the royalty owners to the proposed Unit.

On the advice of counsel, the executor of the estate of Henry Westlie has advised that he will not execute the unit agreement. It is our understanding that the estate or beneficiaries of Henry Westlie dispute the validity of the lease held by Great American Energy, Inc. from the Westlie estate. The question of the validity of this lease is currently the subject of litigation.

One other lease in the proposed Unit is also currently the subject of litigation. The estate or beneficiaries of William Jennings Hill dispute the validity of the lease granted by Hill and presently held by Chevron. The proposed unit agreement has been forwarded to the solicitors for the plaintiff in this litigation with the request that it be executed but we have, as yet, had no indication of whether or not it will be executed.

We are aware of no problems with obtaining the agreement of any other royalty owners to the proposed Unit.

It is our understanding that, pursuant to section 74(2) of the Mines Act, CCSM Cap. MI60, the unit operation provided for in the agreement for the proposed Unit cannot be put into effect without the approval of the Board and further that, pursuant to section 74(3), the Board is unable to give

such approval without the agreement of all royalty owners in the proposed Unit. It appears to us that the proposed unit operations cannot be implemented except by order of the Board pursuant to section 76(3) and accordingly Chevron hereby makes application for such an order.

We are in the course of revising our current documentation into a form appropriate for this application. If you have any questions or comments with regard to the above, please do not hesitate to contact the writer at (403) 234-5881.

Yours very truly,

R. A. PASHELKA

DPL/nw

c.c. Manitoba Department of Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3
Attention: Mr. H. Clare Moster

Manitoba

Energy and Mines | Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

June 10, 1986

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

Attention: Ms. R.I. Zygocki, Chairman
Operating Committee, Waskada Unit No. 6

Dear Sirs:

Re: Waskada Unit No. 6

Enclosed is a copy of the Waskada Unit No. 6 Agreement which has been executed by the Minister of Energy and Mines on behalf of the Crown as a royalty owner.

Yours sincerely,

Original Signed
L. R. DUBREUIL

L.R. Dubreuil
Chief Petroleum Engineer
Petroleum Branch

LRD:dah

→ Bob file. C.C.C. Master

MANITOBA

Order in Council

No. 584

ON MATTERS OF STATE

To The Honourable the Lieutenant Governor in Council

The undersigned, the Minister of Energy and Mines submits for approval of Council a report setting forth that:

WHEREAS Section 75 of "The Mines Act", being Chapter M160 of the Revised Statutes of Manitoba, provides as follows:

"75(1) Where the Crown is a working interest owner or royalty owner of a tract of land, the Lieutenant Governor in Council may authorize the minister, on behalf of the Crown, to enter into a unitization agreement for the unit operation of the pool or field, or part thereof, within which the tract is situated.

75(2) Notwithstanding any other provision of this Act or of an agreement or other disposition made under this Act, the Lieutenant Governor in Council may authorize the minister, on behalf of the Crown, to enter into an agreement for the calculation of the royalty payable to the Crown on the oil and gas produced from a unit area that includes a tract that is subject to the payment of a royalty to the Crown."

AND WHEREAS Chevron Canada Resources Limited is the holder of Crown Oil and Natural Gas Lease No. L 791-002 covering the SW 1/4 of Section 12-1-26 WPM;

AND WHEREAS Chevron Canada Resources Limited is proposing to unitize its operations in part of the Waskada Lower Amaranth A Pool as Waskada Unit No.6, which unit includes the tracts described as Legal Subdivisions 3, 5 and 6 of Section 12, in Township 1, Range 26, WPM;

AND WHEREAS Chevron Canada Resources Limited has requested agreement for the proposed unitization from the Crown as the royalty owner of the subject tracts;

AND WHEREAS in order to accomplish the more efficient and economical development and production of the oil and gas resources of the Waskada Lower Amaranth A Pool, it is deemed advisable for the Crown to enter into the said unitization agreement;

THEREFORE, he, the Minister, recommends:

THAT the Minister of Energy and Mines be authorized to enter into the Unit Agreement for Waskada Unit No. 6 in the form hereto annexed and marked as Schedule "A", or any form to the like effect.

Initiating Department/Agency	
Department/Agency Authorized Officer	
Approved By C.S.C.	Finance
Approved as to form by: Name	
Civil ~~Litigation~~ Branch: or Legislative Counsel:	Initials

4 860605

Signature .....

IN THE EXECUTIVE COUNCIL CHAMBER, WINNIPEG

Upon consideration of the foregoing report and recommendation Council advises that it be done as recommended.

28 May 1986
Date

Howard Pawley
President ~~or Presiding Member~~

AT GOVERNMENT HOUSE IN THE CITY OF WINNIPEG

Approved and Ordered this 28th day of May A.D. 1986

Lieutenant Governor

PSF 40 (GOV) 14

→ Bob
forwarded on May 16th

Manitoba

Memorandum

Date May 15, 1986

To Charles S. Kang
Deputy Minister of Energy & Mines
309 Legislative Building

From H. Clare Moster
Director, Petroleum Branch

Telephone

Subject Crown Consent to Waskada Unit No. 6

First | Fold

Chevron Canada Resources Limited is proposing to unitize its operations in the Waskada Lower Amaranth A Pool. The proposed Unit Agreement for Waskada Unit No. 6 includes an area which takes in 3 tracts (Lsd's) for which the Crown is the royalty interest owner (i.e. - mineral rights owner). Section 74 of The Mines Act states that before a Unitization Agreement may be put into effect, it must be approved by The Oil and Natural Gas Conservation Board. It further states that the Board shall not approve an Agreement unless the royalty owners have agreed to the unit operation. Therefore, Chevron has submitted three (3) copies of the proposed Unit Agreement for Waskada Unit No. 6 for approval (execution) by the Minister as an affected royalty owner.

Section 75 of The Mines Act states that the Minister, with the authorization of the Lieutenant Governor in Council, may enter such agreements on behalf of the Crown as a royalty owner.

Recommendation:

It is recommended to the Minister that he

1. Request authorization from Cabinet to permit him to enter into the Waskada Unit No. 6 unitization agreement on behalf of the Crown (draft OIC attached) with respect to Lsd's 3, 5 and 6 of Section 12-1-26 WPM.

2. Execute the attached two (2) copies of the Unit Agreement for Waskada Unit No. 6 as a royalty owner.

Discussion:

The only tracts containing Crown owned mineral rights in the proposed Waskada Unit No. 6 are Lsd's 3, 5 and 6 of Section 12-1-26 WPM. The subject tracts are held under Crown Oil and Natural Gas Lease No. L791-002 covering ths southwest quarter of Section 12 by Chevron Canada Resources Limited. Chevron drilled three wells on the Lease (Lsd's 3, 5 and 6). The wells located in Lsd 3-12-1-26 WPM and 6-12-1-26 WPM are currently producing at a combined rate of approximately 5 m^3 oil per day and a water-oil ratio of 2.8. The well 5-12-1-26 WPM has never recovered load oil and is a good water injection candidate.

....2

By inclusion of these three tracts in the Unit, the Crown will receive royalties based on allocated Unit production. The Branch has reviewed the Tract Participation Factors proposed for the tracts and feels they are reasonable.

Clause 1301 of the proposed Unit Agreement specifically states that execution of the Agreement by the Minister is strictly as an owner of Royalty Interest (i.e. - similar to any freehold mineral owner). Therefore, by such execution, the Minister is not approving the Unit Agreement. Such approval may only be done by the Board pursuant to Section 74 of The Mines Act.

H. Clare Moster

HCM/lk

Manitoba

Energy and Mines Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

March 10, 1986

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

Attention: Ms. R. I. Zygocki, Chairman
Operating Committee, Waskada Unit No. 6

Dear Sirs:

Re: Waskada Unit No. 6

Your letters of February 13, 1986 and February 20, 1986 relating to the subject proposed Unit are acknowledged.

With respect to the inclusion of Lsd.16 of Section 7-1-25 (WPM) in the Unit, we concur with your proposal.

With respect to the determination of the interim tract participation factors, we are still in disagreement with the assignment of a non zero factor to the 13-6 well. Although physical limitations may have prevented production from the subject well during 1985, we maintain that similar restrictions may have also prevented production of the 5-12-1-26 (WPM) well (which has been assigned a zero interim factor). We do not question that 13-6 will have an immediate contribution to the Unit through its use as an injector. However, the 5-12 well will also serve a similar purpose and it is our feeling that the two tracts should be treated in a consistent manner.

Notwithstanding our stated concerns, because of the relatively minor interim tract factor being assigned to 13-6 and our desire to see the lengthy unitization procedure concluded as soon as possible, we will be reluctantly prepared to make a recommendation that the Minister execute the Unit Agreement on behalf of the Crown.

Yours sincerely,

Original Signed by H. C. Moster

H. Clare Moster, P. Eng.
Director, Petroleum Branch

LRD/HCM/lk

b.c. Charles S. Kang

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

J.M. Taylor
Coordinator
Units & Joint Ventures
Producing Department

BY COURIER

DEPARTMENT OF ENERGY AND MINES
1986-02-
EB 21 1986
PETROLEUM BRANCH

RECEIVED
FEB 21 1986
MANITOBA ENERGY & MINES
ENERGY MANAGEMENT

Proposed Waskada Unit No. 6

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

Attention: Mr. Wm. McDonald

Gentlemen:

In response to your letter dated 1986-02-07 regarding interim tract participation factors, Chevron Canada Resources Limited offers the following comments:

1. The Working Interest Owners of the proposed Waskada Unit No. 6 have approved an interim tract participation factor formula as follows:

   - Interim Tract Participation Factor

     ITPF = 100% (current oil rate)

   "Current oil rate" is defined as "for the period 1985-05-01 to 1985-08-31, 30 consecutive producing days or greater". In determining the definition of current productivity, the Working Interest Owners satisfied the request of Hernefield Enterprises by selecting the most current production data available. This definition is also consistent in principle with the current oil rate term of the final tract participation factor, defined as "for the period 1984-09-01 to 1984-11-01, 30 consecutive producing days or greater".

   OK

   It is our contention that consecutive producing days is a fairer measurement of current producitivty then total producing days within a given time period, alleviating any bias towards wells having the advantage of pressure buildup during shut-in periods.

2. With respect to well 13-6-1-25 W1M, the Working Interest Owners recommend the assignment of an interim tract participation factor based on the most recent 30 consecutive days production; occurring in 1984-06. This well was shut-in due to the inability of the operator to handle produced water. We opine this well will contribute to the unit upon the start of the waterflood and therefore should not be penalized by the physical limitations of the existing production facilities.

   do too will 5-12 (a Crown well) but it gets no interim factor

   Interim factor should relate to current cash flow that the well generates for the unit and as 13-6 is currently not producible due to physical limitations it generates no cash flow (i.e. same 5-12)

3. The well identifiers for 12-6-1-25 W1M and 13-6-1-25 W1M have been corrected.

4. In determining the number of producing days for calculation of the interim tract participation factors, any portion of a day in which a well was produced was considered one producing day; 4, 8, 16 or 24 producing hours would all be considered one producing day. This approach accounts for the effect shut-in time may have on production rates, where a well with a large amount of shut-in time may receive an erroneously high current productivity factor.

5. Production data for all the wells has been reviewed, and errors corrected.

Chevron concurs with the Board that this unitization effort has been a lengthly process. We emphasize however that with resolution of the Hernefield Enterprises tract factor problem in hand, unitization proceedings are being continued in a timely manner. As stated in correspondence to you dated 1986-02-13, we propose to include 16-7-1-25 W1M in the unit area prior to the unit being effective. Distribution of the Unit Agreement for execution is scheduled for 1986-03-17.

Revised interim and final tract participation factors are attached, replacing those attached to correspondence dated 1986-02-13.

Inquiries on this matter may be directed to Rhonda Zygocki at (403) 234-5026.

Yours very truly,

R. I. ZYGOCKI
Operating Committee
Proposed Waskada Unit No. 6

RIZ/db
Attach.

FEBRUARY 19, 1986

WASKADA UNIT NO. 6
WORKING INTEREST SENSITIVITY

COMPANY	CASE 1		(INTERIM) CASE 2	
CAN-AM	0.0263870	0.0263870	0.0281600	0.0281600
CHEVRON	0.5878260	0.5878254	0.5734800	0.5734794
COLENCO	0.0608860	0.0608859	0.0633990	0.0633989
GREAT AMERICAN	0.0596880	0.0596879	0.0607730	0.0607729
NEWSCOPE	0.2031510	0.2031508	0.2157860	0.2157858
NEW MCMANUS	0.0314680	0.0314680	0.0351610	0.0351610
PANCANADIAN	0.0305950	0.0305950	0.0232420	0.0232420
	1.0000010	1.0000000	1.0000010	1.0000000

FEBRUARY 19, 1986

WASKADA UNIT # 6 CURRENT OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
INTERIM TRACT FACTOR DATA

	OIL PROD m3	WATER PROD m3	TIME ON days	CONSECUTIVE PRODUCING PERIOD	OIL RATE m3/d	OIL CUT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR
12-06-01-25W1	85.0	156.5	31	08-01 to 08-31	2.7	0.35	0.030287	0.026737
13-06-01-25W1	25.0	660.8	26	06-05 to 06-30	1.0	0.04	0.010621	0.002769
04-07-01-25W1	19.4	626.5	46	07-17 to 08-31	0.4	0.03	0.004658	0.002282
05-07-01-25W1	241.2	822.9	71	06-22 to 08-31	3.4	0.23	0.037525	0.017219
11-07-01-25W1	32.8	802.4	37	07-26 to 08-31	0.9	0.04	0.009792	0.002983
12-07-01-25W1	183.1	1207.7	71	06-22 to 08-31	2.6	0.13	0.028486	0.010001
13-07-01-25W1	107.5	623.5	42	07-20 to 08-31	2.6	0.15	0.028272	0.011171
14-07-01-25W1	203.0	436.0	41	07-22 to 08-31	5.0	0.32	0.054691	0.024133
15-07-01-25W1	94.2	61.1	49	07-14 to 08-31	1.9	0.61	0.021235	0.046078
16-07-01-25W1	196.1	193.8	42	07-05 to 08-15	4.7	0.50	0.051574	0.038207
03-18-01-25W1	129.3	271.6	48	07-15 to 08-31	2.7	0.32	0.029755	0.024501
04-18-01-25W1	153.6	141.8	123	05-01 to 08-31	1.2	0.52	0.013794	0.039500
05-18-01-25W1	170.0	77.9	115	05-09 to 08-31	1.5	0.69	0.016329	0.052094
06-18-01-25W1	50.1	79.0	92	05-01 to 07-31	0.5	0.39	0.006015	0.029480
07-01-01-25W1	4.5	129.5	18	05-24 to 06-10	0.3	0.03	0.002761	0.002551
08-01-01-26W1	41.8	141.4	31	06-12 to 07-12	1.3	0.23	0.014894	0.017333
09-01-01-26W1	142.8	49.0	122	05-01 to 08-31	1.2	0.74	0.012929	0.056558
10-01-01-26W1	145.9	243.5	62	07-01 to 08-31	2.4	0.37	0.025993	0.028463
15-01-01-26W1	353.3	1497.8	122	05-01 to 08-31	2.9	0.19	0.031988	0.014499
16-01-01-26W1	344.1	53.6	123	05-01 to 08-31	2.8	0.87	0.030902	0.065727
01-12-01-26W1	321.1	65.9	122	05-01 to 08-31	2.6	0.83	0.029072	0.063029
02-12-01-26W1	203.6	271.2	31	08-01 to 08-31	6.6	0.43	0.072547	0.032575
03-12-01-26W1	224.2	474.5	41	07-02 to 08-11	5.5	0.32	0.060402	0.024376
06-12-01-26W1	184.4	475.1	42	07-01 to 08-11	4.4	0.28	0.048497	0.021240
07-12-01-26W1	284.9	68.4	123	05-01 to 08-31	2.3	0.81	0.025585	0.061258
08-12-01-26W1	97.5	43.1	92	05-01 to 07-31	1.1	0.69	0.011706	0.052678
09-12-01-26W1	339.8	96.4	41	07-22 to 08-31	8.3	0.78	0.091546	0.059177
10-12-01-26W1	964.5	151.7	123	05-01 to 08-31	7.8	0.86	0.086616	0.065641
15-12-01-26W1	416.5	164.9	123	05-01 to 08-31	3.4	0.72	0.037403	0.054419
16-12-01-26W1	825.4	350.5	123	05-01 to 08-31	6.7	0.70	0.074124	0.053322
				TOTAL	90.5	13.16	1.000000	1.000000
				AVERAGE	3.0	0.44		

FEBRUARY 19.1986

WASKADA UNIT NO. 6 TRACT FACTORS
INTERIM TRACT FACTORS
CURRENT PRODUCTIVITY

TRACT	CURRENT OIL RATE FACTOR	ADJUSTED CURRENT OIL RATE FACTOR	CHEVRON TRACT INTEREST	CHEVRON UNIT WORKING INTEREST
12-06-01-25-W1	0.030287	0.030287	0.250000	0.007572
13-06-01-25-W1	0.010621	0.010621	0.250000	0.002655
04-07-01-25-W1	0.004658	0.004658	0.500000	0.002329
05-07-01-25-W1	0.037525	0.037525	0.500000	0.018762
11-07-01-25-W1	0.009792	0.009792	0.250000	0.002448
12-07-01-25-W1	0.028486	0.028486	0.250000	0.007121
13-07-01-25-W1	0.028272	0.028272	0.000000	0.000000
14-07-01-25-W1	0.054691	0.054691	0.250000	0.013673
15-07-01-25-W1	0.021235	0.021235	0.500000	0.010618
16-07-01-25-W1	0.051574	0.051574	0.500000	0.025787
03-18-01-25-W1	0.029755	0.029755	1.000000	0.029755
04-18-01-25-W1	0.013794	0.013794	1.000000	0.013794
05-18-01-25-W1	0.016329	0.016329	1.000000	0.016329
06-18-01-25-W1	0.006015	0.006015	1.000000	0.006015
07-01-01-26-W1	0.002761	0.002761	1.000000	0.002761
08-01-01-26-W1	0.014894	0.014894	1.000000	0.014894
09-01-01-26-W1	0.012929	0.012929	1.000000	0.012929
10-01-01-26-W1	0.025993	0.025993	1.000000	0.025993
15-01-01-26-W1	0.031988	0.031988	1.000000	0.031988
16-01-01-26-W1	0.030902	0.030902	1.000000	0.030902
01-12-01-26-W1	0.029072	0.029072	0.312500	0.009085
02-12-01-26-W1	0.072547	0.072546	0.312500	0.022671
03-12-01-26-W1	0.060402	0.060402	1.000000	0.060402
05-12-01-26-W1	0.000001	0.000001	1.000000	0.000001
06-12-01-26-W1	0.048497	0.048497	1.000000	0.048497
07-12-01-26-W1	0.025585	0.025585	0.312500	0.007995
08-12-01-26-W1	0.011706	0.011706	0.312500	0.003658
09-12-01-26-W1	0.091546	0.091546	0.500000	0.045773
10-12-01-26-W1	0.086616	0.086616	0.500000	0.043308
15-12-01-26-W1	0.037403	0.037403	0.500000	0.018702
16-12-01-26-W1	0.074124	0.074124	0.500000	0.037062
	1.000001	1.000000	19.500000	0.573480

FEBRUARY 19,1986

PROPOSED WASKADA UNIT NO. 6
COMPANY WORKING INTEREST

WELL	TOTAL TRACT FACTOR	NEWSCOPE TRACT WORKING INTEREST	NEWSCOPE UNIT WORKING INTEREST	PANCANADIAN TRACT WORKING INTEREST	PANCANADIAN UNIT WORKING INTEREST	GREAT AMERICAN TRACT WORKING INTEREST	GREAT AMERICAN UNIT WORKING INTEREST	COLENCO TRACT WORKING INTEREST	COLENCO UNIT WORKING INTEREST	CAN-AM TRACT WORKING INTEREST	CAN-AM UNIT WORKING INTEREST	NEW MCMANUS TRACT WORKING INTEREST	NEW MCMANUS UNIT WORKING INTEREST
12-06-01-25-W1	0.030287	0.300000	0.009086	0.000000	0.000000	0.000000	0.000000	0.250000	0.007572	0.100000	0.003029	0.100000	0.003029
13-06-01-25-W1	0.010621	0.300000	0.003186	0.000000	0.000000	0.000000	0.000000	0.250000	0.002655	0.100000	0.001062	0.100000	0.001062
04-07-01-25-W1	0.004658	0.275000	0.001281	0.000000	0.000000	0.000000	0.000000	0.125000	0.000582	0.050000	0.000233	0.050000	0.000233
05-07-01-25-W1	0.037525	0.275000	0.010319	0.000000	0.000000	0.000000	0.000000	0.125000	0.004691	0.050000	0.001876	0.050000	0.001876
11-07-01-25-W1	0.009792	0.275000	0.002693	0.250000	0.002448	0.000000	0.000000	0.100000	0.000979	0.050000	0.000490	0.075000	0.000734
12-07-01-25-W1	0.028486	0.275000	0.007834	0.250000	0.007121	0.000000	0.000000	0.125000	0.003561	0.050000	0.001424	0.050000	0.001424
13-07-01-25-W1	0.028272	0.550000	0.015550	0.000000	0.000000	0.000000	0.000000	0.250000	0.007068	0.100000	0.002827	0.100000	0.002827
14-07-01-25-W1	0.054691	0.275000	0.015040	0.250000	0.013673	0.000000	0.000000	0.100000	0.005469	0.050000	0.002735	0.075000	0.004102
15-07-01-25-W1	0.021235	0.500000	0.010618	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-07-01-25-W1	0.051574	0.500000	0.025787	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-18-01-25-W1	0.029755	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
04-18-01-25-W1	0.013794	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-18-01-25-W1	0.016329	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-18-01-25-W1	0.006015	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-01-01-26-W1	0.002761	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-01-01-26-W1	0.014894	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-01-01-26-W1	0.012929	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10-01-01-26-W1	0.025993	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15-01-01-26-W1	0.031988	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-01-01-26-W1	0.030902	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
01-12-01-26-W1	0.029072	0.250000	0.007268	0.000000	0.000000	0.437500	0.012719	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
02-12-01-26-W1	0.072547	0.250000	0.018137	0.000000	0.000000	0.437500	0.031739	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-12-01-26-W1	0.060402	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-12-01-26-W1	0.000001	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-12-01-26-W1	0.048497	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-12-01-26-W1	0.025585	0.250000	0.006396	0.000000	0.000000	0.437500	0.011193	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-12-01-26-W1	0.011706	0.250000	0.002927	0.000000	0.000000	0.437500	0.005121	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-12-01-26-W1	0.091546	0.275000	0.025175	0.000000	0.000000	0.000000	0.000000	0.100000	0.009155	0.050000	0.004577	0.075000	0.006866
10-12-01-26-W1	0.086616	0.275000	0.023819	0.000000	0.000000	0.000000	0.000000	0.100000	0.008662	0.050000	0.004331	0.075000	0.006496
15-12-01-26-W1	0.037403	0.275000	0.010286	0.000000	0.000000	0.000000	0.000000	0.100000	0.003740	0.050000	0.001870	0.075000	0.002805
16-12-01-26-W1	0.074124	0.275000	0.020384	0.000000	0.000000	0.000000	0.000000	0.125000	0.009266	0.050000	0.003706	0.050000	0.003706
	1.000001	5.625000	0.215786	0.750000	0.023242	1.750000	0.060773	1.750000	0.063399	0.750000	0.028160	0.875000	0.035161

JANUARY 20, 1986

PROPOSED WASKADA UNIT NO. 6
COMPANY WORKING INTEREST

WELL	TOTAL TRACT FACTOR	NEWSCOPE TRACT WORKING INTEREST	NEWSCOPE UNIT WORKING INTEREST	PANCANADIAN TRACT WORKING INTEREST	PANCANADIAN UNIT WORKING INTEREST	GREAT AMERICAN TRACT WORKING INTEREST	GREAT AMERICAN UNIT WORKING INTEREST	COLENCO TRACT WORKING INTEREST	COLENCO UNIT WORKING INTEREST	CAN-AM TRACT WORKING INTEREST	CAN-AM UNIT WORKING INTEREST	NEW MEXAMUS TRACT WORKING INTEREST	NEW MEXAMUS UNIT WORKING INTEREST
12-06-01-25-N1	0.031184	0.300000	0.009356	0.000000	0.000000	0.000000	0.000000	0.250000	0.007797	0.100000	0.003119	0.100000	0.003119
13-06-01-25-N1	0.012874	0.300000	0.003862	0.000000	0.000000	0.000000	0.000000	0.250000	0.003219	0.100000	0.001287	0.100000	0.001287
04-07-01-25-N1	0.010347	0.275000	0.002845	0.000000	0.000000	0.000000	0.000000	0.125000	0.001293	0.050000	0.000517	0.050000	0.000517
05-07-01-25-N1	0.037728	0.275000	0.010375	0.000000	0.000000	0.000000	0.000000	0.125000	0.004716	0.050000	0.001886	0.050000	0.001886
11-07-01-25-N1	0.016078	0.275000	0.004421	0.250000	0.004019	0.000000	0.000000	0.100000	0.001608	0.050000	0.000804	0.075000	0.001206
12-07-01-25-N1	0.065387	0.275000	0.017981	0.250000	0.016347	0.000000	0.000000	0.125000	0.008173	0.050000	0.003269	0.050000	0.003269
13-07-01-25-N1	0.031379	0.550000	0.017258	0.000000	0.000000	0.000000	0.000000	0.250000	0.007845	0.100000	0.003138	0.100000	0.003138
14-07-01-25-N1	0.040914	0.275000	0.011251	0.250000	0.010228	0.000000	0.000000	0.100000	0.004091	0.050000	0.002046	0.075000	0.003069
15-07-01-25-N1	0.033804	0.500000	0.016902	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-07-01-25-N1	0.036057	0.500000	0.018029	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-18-01-25-N1	0.051391	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
04-18-01-25-N1	0.017644	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-18-01-25-N1	0.025048	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-18-01-25-N1	0.012087	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-01-01-26-N1	0.016224	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-01-01-26-N1	0.016856	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-01-01-26-N1	0.030059	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10-01-01-26-N1	0.027255	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15-01-01-26-N1	0.022590	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-01-01-26-N1	0.044877	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
01-12-01-26-N1	0.032093	0.250000	0.008023	0.000000	0.000000	0.437500	0.014041	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
02-12-01-26-N1	0.037575	0.250000	0.009394	0.000000	0.000000	0.437500	0.016439	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-12-01-26-N1	0.040554	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-12-01-26-N1	0.004638	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-12-01-26-N1	0.032165	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-12-01-26-N1	0.034868	0.250000	0.008717	0.000000	0.000000	0.437500	0.015255	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-12-01-26-N1	0.031993	0.250000	0.007973	0.000000	0.000000	0.437500	0.013953	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-12-01-26-N1	0.047848	0.275000	0.013158	0.000000	0.000000	0.000000	0.000000	0.100000	0.004785	0.050000	0.002392	0.075000	0.003589
10-12-01-26-N1	0.057960	0.275000	0.015939	0.000000	0.000000	0.000000	0.000000	0.100000	0.005796	0.050000	0.002898	0.075000	0.004347
15-12-01-26-N1	0.040447	0.275000	0.011123	0.000000	0.000000	0.000000	0.000000	0.100000	0.004045	0.050000	0.002022	0.075000	0.003033
16-12-01-26-N1	0.060152	0.275000	0.016542	0.000000	0.000000	0.000000	0.000000	0.125000	0.007519	0.050000	0.003008	0.050000	0.003008
	1.000000	5.625000	0.203151	0.750000	0.030595	1.750000	0.059688	1.750000	0.060086	0.750000	0.026387	0.875000	0.031468

JANUARY 22,1986

WASKADA UNIT NO. 6 TRACT FACTORS
PARTICIPATION FORMULA APPROVED BY W.I.O.

TRACT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR	FIRST FOUR MONTHS OIL RATE FACTOR	FIRST FOUR MONTHS OIL CUT FACTOR	ϕ_n FACTOR	TOTAL TRACT FACTOR	CHEVRON TRACT INTEREST	CHEVRON UNIT WORKING INTEREST
12-06-01-25-W1	0.012356	0.003473	0.007087	0.003244	0.005027	0.031186	0.250000	0.007797
13-06-01-25-W1	0.002640	0.000253	0.001238	0.000245	0.008498	0.012874	0.250000	0.003219
04-07-01-25-W1	0.001373	0.000208	0.000732	0.000194	0.007840	0.010347	0.500000	0.005174
05-07-01-25-W1	0.012630	0.003404	0.013702	0.004013	0.003980	0.037728	0.500000	0.018864
11-07-01-25-W1	0.003569	0.000347	0.002424	0.000372	0.009366	0.016078	0.250000	0.004019
12-07-01-25-W1	0.016200	0.002362	0.032641	0.005567	0.008618	0.065387	0.250000	0.016347
13-07-01-25-W1	0.012356	0.002014	0.006415	0.001258	0.009336	0.031379	0.000000	0.000000
14-07-01-25-W1	0.022515	0.003959	0.004607	0.002083	0.007750	0.040914	0.250000	0.010228
15-07-01-25-W1	0.010983	0.004723	0.007383	0.003863	0.006852	0.033804	0.500000	0.016902
16-07-01-25-W1	0.012905	0.003473	0.009018	0.003629	0.007032	0.036057	0.500000	0.018029
03-18-01-25-W1	0.017573	0.004237	0.018107	0.004801	0.006673	0.051391	1.000000	0.051391
04-18-01-25-W1	0.004393	0.004168	0.001032	0.001130	0.006942	0.017664	1.000000	0.017664
05-18-01-25-W1	0.004119	0.003820	0.007087	0.004396	0.005625	0.025048	1.000000	0.025048
06-18-01-25-W1	0.000824	0.001042	0.003210	0.002403	0.004608	0.012087	1.000000	0.012087
07-01-01-26-W1	0.006590	0.001250	0.001536	0.000594	0.006254	0.016224	1.000000	0.016224
08-01-01-26-W1	0.005766	0.001459	0.003019	0.001346	0.005266	0.016856	1.000000	0.016856
09-01-01-26-W1	0.005766	0.005835	0.006697	0.004700	0.007062	0.030059	1.000000	0.030059
10-01-01-26-W1	0.005491	0.001598	0.011448	0.002973	0.005745	0.027255	1.000000	0.027255
15-01-01-26-W1	0.005766	0.001042	0.006234	0.001918	0.007630	0.022590	1.000000	0.022590
16-01-01-26-W1	0.015101	0.005765	0.012878	0.005058	0.006074	0.044877	1.000000	0.044877
01-12-01-26-W1	0.006590	0.005487	0.010296	0.005022	0.004698	0.032093	0.312500	0.010029
02-12-01-26-W1	0.014278	0.003473	0.008963	0.003321	0.007540	0.037575	0.312500	0.011742
03-12-01-26-W1	0.015651	0.002987	0.009920	0.002962	0.009037	0.040556	1.000000	0.040556
05-12-01-26-W1					0.004638	0.004638	1.000000	0.004638
06-12-01-26-W1	0.014003	0.002292	0.008806	0.002276	0.004788	0.032165	1.000000	0.032165
07-12-01-26-W1	0.006864	0.006252	0.012084	0.005329	0.004339	0.034868	0.312500	0.010896
08-12-01-26-W1	0.003569	0.006738	0.010066	0.005655	0.005865	0.031893	0.312500	0.009967
09-12-01-26-W1	0.014278	0.004723	0.017724	0.004151	0.006972	0.047848	0.500000	0.023924
10-12-01-26-W1	0.016474	0.005904	0.023016	0.005893	0.006673	0.057960	0.500000	0.028980
15-12-01-26-W1	0.010434	0.003820	0.014488	0.005900	0.005805	0.040447	0.500000	0.020223
16-12-01-26-W1	0.018945	0.003890	0.028142	0.005704	0.003471	0.060152	0.500000	0.030076
	0.300000	0.100000	0.300000	0.100000	0.200000	√1.000000	19.500000	0.587826

JANUARY 27, 1986

WEIGHTING OF CURRENT APPROVED PRODUCTIVITY TRACT FACTORS

CURRENT APPROVED FACTORS		FACTORS X WEIGHTING	
OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
0.041186	0.034731	0.012355	0.003473
0.008800	0.002532	0.002640	0.000253
0.004576	0.002084	0.001372	0.000208
0.042101	0.034036	0.012630	0.003403
0.011898	0.003473	0.003569	0.000347
0.053999	0.023617	0.016199	0.002361
0.041186	0.020144	0.012355	0.002014
0.075049	0.039593	0.022514	0.003959
0.036609	0.047234	0.010982	0.004723
0.043016	0.034731	0.012904	0.003473
0.058575	0.042372	0.017572	0.004237
0.014644	0.041677	0.004393	0.004167
0.013729	0.038204	0.004118	0.003820
0.002746	0.010419	0.000823	0.001041
0.021966	0.012503	0.006589	0.001250
0.019220	0.014587	0.005765	0.001458
0.019220	0.058348	0.005765	0.005834
0.018305	0.015976	0.005491	0.001597
0.019220	0.010419	0.005765	0.001041
0.050338	0.057653	0.015101	0.005765
0.021966	0.054875	0.006589	0.005487
0.047592	0.034731	0.014277	0.003473
0.052168	0.029868	0.015650	0.002986
0.046677	0.022922	0.014003	0.002292
0.022881	0.062515	0.006864	0.006251
0.011898	0.067378	0.003569	0.006737
0.047592	0.047234	0.014277	0.004723
0.054914	0.059042	0.016474	0.005904
0.034779	0.038204	0.010433	0.003820
0.063151	0.038898	0.018945	0.003889
1.000000	1.000000	0.300000	0.100000

JANUARY 27, 1986

WAEKADA UNIT # 6 CURRENT OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
APPROVED DATA

	OIL PROD m3	WATER PROD m3	TIME ON days	CONSECUTIVE PRODUCING PERIOD	OIL RATE m3/d	OIL CUT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR
12-06-02-25W1	121.2	121.4	27	03-20 to 04-17	4.5	0.50	0.041186	0.034731
13-06-02-25W1	25.0	660.8	26	06-05 to 06-30	1.0	0.04	0.008800	0.002532
04-07-01-25W1	31.0	923.1	60	10-02 to 11-30	0.5	0.03	0.004576	0.002084
05-07-01-25W1	421.8	439.9	91	09-01 to 11-30	4.6	0.49	0.042101	0.034036
11-07-01-25W1	58.0	1025.0	44	10-17 to 11-30	1.3	0.05	0.011898	0.003473
12-07-01-25W1	532.5	1047.3	91	09-01 to 11-30	5.9	0.34	0.053999	0.023617
13-07-01-25W1	274.8	683.7	61	10-01 to 11-30	4.5	0.29	0.041186	0.020144
14-07-01-25W1	368.3	275.1	45	10-17 to 11-30	8.2	0.57	0.075049	0.039593
15-07-01-25W1	119.1	55.4	30	05-26 to 06-24	4.0	0.68	0.036609	0.047234
16-07-01-25W1	196.1	193.9	42	07-05 to 08-15	4.7	0.50	0.043016	0.034731
03-18-01-25W1			29	09-16 to 10-13	6.4	0.61	0.058575	0.042372
04-18-01-25W1			30	10-01 to 10-30	1.6	0.60	0.014644	0.041677
05-18-01-25W1			30	09-28 to 10-27	1.5	0.55	0.013729	0.038204
06-18-01-25W1			30	10-03 to 11-01	0.3	0.15	0.002746	0.010419
07-01-01-25W1			30	09-03 to 10-02	2.4	0.18	0.021966	0.012503
08-01-01-25W1				09-01 to 09-13			0.000000	0.000000
			18	09-29 to 10-02	2.1	0.21	0.019220	0.014587
09-01-01-25W1			30	09-01 to 09-30	2.1	0.84	0.019220	0.058348
10-01-01-25W1			30	09-28 to 10-28	2.0	0.23	0.018305	0.015976
15-01-01-25W1			31	11-10 to 12-09	2.1	0.15	0.019220	0.010419
16-01-01-25W1			30	09-14 to 10-13	3.3	0.93	0.030338	0.057633
01-12-01-25W1			29	10-01 to 10-30	2.4	0.79	0.021966	0.034875
02-12-01-25W1			30	09-15 to 10-15	5.2	0.50	0.047592	0.034731
03-12-01-25W1			27	11-01 to 11-30	3.7	0.43	0.033868	0.029868
06-12-01-25W1			29	11-01 to 11-30	5.1	0.33	0.046677	0.022922
07-12-01-25W1			30	09-22 to 10-21	2.5	0.90	0.022881	0.062518
08-12-01-25W1			30	09-22 to 11-21	1.3	0.97	0.011898	0.067378
09-12-01-25W1	137.1	75.3	36	11-01 to 11-30	5.2	0.68	0.047592	0.047234
10-12-01-25W1	349.6	94.3	91	09-01 to 11-30	6.0	0.85	0.054914	0.059042
15-12-01-25W1	213.2	176.0	56	09-01 to 10-27	3.8	0.53	0.034779	0.036204
16-12-01-25W1	269.7	216.2	39	09-26 to 11-04	6.9	0.56	0.063131	0.038898
					109.3	14.40	1.000000	1.000000

ADJUSTMENT OF FIRST FOUR MONTHS PRODUCTIVITY TRACT FACTORS

FIRST FOUR MONTHS FACTORS		ADJUSTED FIRST FOUR MONTHS		ADJUSTED FACTORS X WEIGHTING	
OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
0.023720	0.032516	0.023622	0.032436	0.007086	0.003243
0.004145	0.002452	0.004127	0.002446	0.001238	0.000244
0.002449	0.001948	0.002439	0.001944	0.000731	0.000194
0.045861	0.040224	0.045672	0.040125	0.013701	0.004012
0.008112	0.003725	0.008079	0.003716	0.002423	0.000371
0.109253	0.055809	0.108802	0.055672	0.032640	0.005567
0.021471	0.012610	0.021382	0.012580	0.006414	0.001258
0.015419	0.020883	0.015355	0.020832	0.004606	0.002083
0.024711	0.038727	0.024609	0.038632	0.007382	0.003863
0.030186	0.036379	0.030061	0.036290	0.009018	0.003629
0.060607	0.048131	0.060356	0.048013	0.018107	0.004801
0.003453	0.011323	0.003439	0.011296	0.001031	0.001129
0.023721	0.044072	0.023623	0.043964	0.007087	0.004396
0.010744	0.024091	0.010700	0.024032	0.003210	0.002403
0.005142	0.005953	0.005121	0.005938	0.001536	0.000593
0.010104	0.013495	0.010062	0.013462	0.003018	0.001346
0.022414	0.047114	0.022321	0.046999	0.006696	0.004699
0.038318	0.029802	0.038160	0.029729	0.011448	0.002972
0.020866	0.019229	0.020780	0.019181	0.006234	0.001918
0.043103	0.050705	0.042926	0.050581	0.012877	0.005058
0.034462	0.050344	0.034319	0.050221	0.010295	0.005022
0.030000	0.033287	0.029876	0.033205	0.008962	0.003320
0.033202	0.029697	0.033065	0.029624	0.009919	0.002962
0.029474	0.022819	0.029353	0.022764	0.008805	0.002276
0.040447	0.053423	0.040280	0.053293	0.012084	0.005329
0.033693	0.056685	0.033554	0.056547	0.010066	0.005654
0.059326	0.041610	0.059081	0.041508	0.017724	0.004150
0.077039	0.059070	0.076721	0.058926	0.023016	0.005892
0.048493	0.059139	0.048293	0.058995	0.014488	0.005899
0.094194	0.057174	0.093806	0.057035	0.028141	0.005703
1.004145	1.002452	1.000000	1.000000	0.300000	0.100000

JANUARY 27, 1986

WASKADA UNIT 6 OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
FIRST FOUR MONTHS OF CUMULATIVE PRODUCTION

	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL CUT	FIRST FOUR MONTHS FACTORS: OIL RATE FACTOR	FIRST FOUR MONTHS FACTORS: OIL CUT FACTOR
12-06-01-25-W1	287.2	301.1	70	4.10	0.49	0.023720	0.032516
13-06-01-25-W1	0.0	0.0	0				
04-07-01-25-W1	51.7	1715.2	122	0.42	0.03	0.002449	0.001948
05-07-01-25-W1	801.2	525.5	101	7.93	0.60	0.045861	0.040224
11-07-01-25-W1	129.1	2178.8	92	1.40	0.06	0.008112	0.003725
12-07-01-25-W1	1549.6	299.8	82	18.90	0.84	0.109253	0.055809
13-07-01-25-W1	241.4	1033.6	65	3.71	0.19	0.021471	0.012610
14-07-01-25-W1	202.7	443.8	76	2.67	0.31	0.015419	0.020883
15-07-01-25-W1	316.3	227.7	74	4.27	0.58	0.024711	0.038727
16-07-01-25-W1	490.8	407.8	94	5.22	0.55	0.030186	0.036379
03-18-01-25-W1	1184.6	454.7	113	10.48	0.72	0.060607	0.048131
04-18-01-25-W1	46.6	227.5	78	0.60	0.17	0.003453	0.011323
05-18-01-25-W1	402.1	205.6	98	4.10	0.66	0.023721	0.044072
06-18-01-25-W1	174.7	308.3	94	1.86	0.36	0.010744	0.024091
07-01-01-26-W1	76.5	779.4	86	0.89	0.09	0.005142	0.005953
08-01-01-26-W1	153.8	605.3	88	1.75	0.20	0.010104	0.013495
09-01-01-26-W1	387.7	160.4	100	3.88	0.71	0.022414	0.047114
10-01-01-26-W1	662.8	818.5	100	6.63	0.45	0.038318	0.029802
15-01-01-26-W1	350.1	862.6	97	3.61	0.29	0.020866	0.019229
16-01-01-26-W1	723.2	226.8	97	7.46	0.76	0.043103	0.050705
01-12-01-26-W1	655.7	211.8	110	5.96	0.76	0.034462	0.050344
02-12-01-26-W1	622.7	623.3	120	5.19	0.50	0.030000	0.033287
03-12-01-26-W1	654.7	813.7	114	5.74	0.45	0.033202	0.029697
06-12-01-26-W1	581.2	1115.2	114	5.10	0.34	0.029474	0.022819
07-12-01-26-W1	741.6	183	106	7.00	0.80	0.040447	0.053423
08-12-01-26-W1	437.1	76.5	75	5.83	0.85	0.033693	0.056685
09-12-01-26-W1	1149.3	690.4	112	10.26	0.62	0.059326	0.041610
10-12-01-26-W1	1305.9	166.6	98	13.33	0.89	0.077039	0.059070
15-12-01-26-W1	696.2	87.9	83	8.39	0.89	0.048493	0.059139
16-12-01-26-W1	1596.7	263.4	98	16.29	0.86	0.094194	0.057174
	16673.2	16014.2	2757	172.97	15.01	1.000000	1.000000

AVERAGE OIL CUT 0.510080

JANUARY 27, 1986

WASKADA UNIT 6 OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
FIRST MONTH OF CUMULATIVE PRODUCTION

TRACT	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL CUT	FIRST MONTH FACTORS OIL RATE FACTOR	FIRST MONTH FACTORS OIL CUT FACTOR
12-06-01-25-W1	33.5	62.8	6	5.58	0.35	0.024069	0.023402
13-06-01-25-W1	25	660.8	26	0.96	0.04	0.004145	0.002452
04-07-01-25-W1	9.7	456.6	30	0.32	0.02	0.001393	0.001399
05-07-01-25-W1	176.3	71.5	15	11.75	0.71	0.050668	0.047862
11-07-01-25-W1	2.5	542.6	2	1.25	.00	0.005388	0.000308
12-07-01-25-W1	143.6	0.2	5	28.72	1.00	0.123812	0.067179
13-07-01-25-W1	34.1	228.5	5	6.82	0.13	0.029401	0.008735
14-07-01-25-W1	23	145.6	15	1.53	0.14	0.006610	0.009177
15-07-01-25-W1	155.9	103.8	30	5.20	0.60	0.022402	0.040384
16-07-01-25-W1	85.8	52.1	10	8.58	0.62	0.036988	0.041856
03-18-01-25-W1	392.3	212.3	21	18.68	0.65	0.080533	0.043651
04-18-01-25-W1	10.7	40.8	15	0.71	0.21	0.003075	0.013977
05-18-01-25-W1	130	93	16	8.13	0.58	0.035027	0.039217
06-18-01-25-W1	59.3	24.4	12	4.94	0.71	0.021303	0.047662
07-01-01-26-W1	59.5	262.5	25	2.38	0.18	0.010260	0.012430
08-01-01-26-W1	49.9	191.6	24	2.08	0.21	0.008963	0.013900
09-01-01-26-W1	106.3	52.1	16	6.64	0.67	0.028641	0.045146
10-01-01-26-W1	51.7	35.3	11	4.70	0.59	0.020261	0.039977
15-01-01-26-W1	18.3	62.9	19	0.96	0.23	0.004152	0.015161
16-01-01-26-W1	36.7	61	21	1.75	0.38	0.007534	0.025270
01-12-01-26-W1	246.6	90.2	18	13.70	0.73	0.059060	0.049256
02-12-01-26-W1	158.6	165.5	30	5.29	0.49	0.022790	0.032920
03-12-01-26-W1	78.8	104	22	3.58	0.43	0.015441	0.028999
06-12-01-26-W1	18.3	62.9	19	0.96	0.23	0.004152	0.015161
07-12-01-26-W1	284	72.2	19	14.95	0.80	0.064438	0.053637
08-12-01-26-W1	45.4	13.7	4	11.35	0.77	0.048930	0.051678
09-12-01-26-W1	323.2	156.8	23	14.05	0.67	0.060579	0.045297
10-12-01-26-W1	224.8	48	8	28.10	0.82	0.121139	0.055436
15-12-01-26-W1	175	0	24	7.29	1.00	0.031434	0.067273
16-12-01-26-W1	208.9	20.8	19	10.99	0.91	0.047398	0.061181
TOTAL	3367.7	4094.5	510	231.96	14.86	1.000000	1.000000
AVERAGE				8.00	0.51		

JANUARY 27, 1986

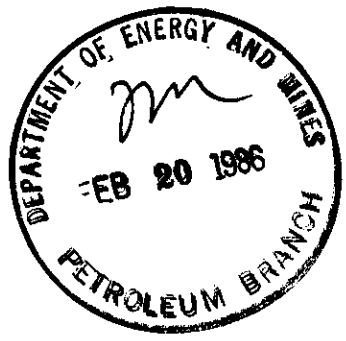
WASKADA UNIT & MULVAN ϕh TRACT AND PARTICIPATION FACTORS

	POROSITY*h (m)	ϕh TRACT FACTOR	✓ FACTOR X WEIGHTING
12-06-01-25-W1	1.68	0.025135	0.005027
13-06-01-25-W1	2.84	0.042490	0.008498
04-07-01-25-W1	2.62	0.039198	0.007840
05-07-01-25-W1	1.33	0.019898	0.003980
11-07-01-25-W1	3.13	0.046828	0.009366
12-07-01-25-W1	2.88	0.043088	0.008618
13-07-01-25-W1	3.12	0.046679	0.009336
14-07-01-25-W1	2.59	0.038749	0.007750
15-07-01-25-W1	2.29	0.034261	0.006852
16-07-01-25-W1	2.35	0.035159	0.007032
03-18-01-25-W1	2.23	0.033363	0.006673
04-18-01-25-W1	2.32	0.034710	0.006942
05-18-01-25-W1	1.88	0.028127	0.005625
06-18-01-25-W1	1.54	0.023040	0.004608
07-01-01-26-W1	2.09	0.031269	0.006254
08-01-01-26-W1	1.76	0.026332	0.005266
09-01-01-26-W1	2.36	0.035308	0.007062
10-01-01-26-W1	1.92	0.028725	0.005745
15-01-01-26-W1	2.55	0.038151	0.007630
16-01-01-26-W1	2.03	0.030371	0.006074
01-12-01-26-W1	1.57	0.023489	0.004698
02-12-01-26-W1	2.52	0.037702	0.007540
03-12-01-26-W1	3.02	0.045183	0.009037
05-12-01-26-W1	1.55	0.023190	0.004638
06-12-01-26-W1	1.60	0.023938	0.004788
07-12-01-26-W1	1.45	0.021694	0.004339
08-12-01-26-W1	1.96	0.029324	0.005865
09-12-01-26-W1	2.33	0.034859	0.006972
10-12-01-26-W1	2.23	0.033363	0.006673
15-12-01-26-W1	1.94	0.029025	0.005805
16-12-01-26-W1	1.16	0.017355	0.003471
	66.94	1.000000	0.200000

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

J.M. Taylor
Coordinator
Units & Joint Ventures
Producing Department

1986-02-13



Proposed Waskada Unit No. 6
Inclusion of Tract 16-7-1-25 W1M

Manitoba Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Clare Moster

Gentlemen:

Chevron Canada Resources Limited recommends the inclusion of tract 16-7-1-25 W1M in the proposed Waskada Unit No. 6. Attached for your information is the supporting data.

Inquiries on this matter may be directed to Rhonda Zygocki at (403) 234-5026.

Yours very truly,

R. I. ZYGOCKI, Chairman
Operating Committee
Proposed Waskada Unit No. 6

RIZ/db
Attach.

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

1986-02-13

J M Taylor
Coordinator
Units & Joint Ventures
Producing Department

Proposed Waskada Unit No. 6
Inclusion of Tract 16-7-1-25 W1M

TO: ALL WORKING INTEREST OWNERS
PROPOSED WASKADA UNIT NO. 6

Gentlemen:

Enclosed for your consideration is interim and final tract factor participation data for the proposed Waskada Unit No. 6; revised to include tract 16-7-1-25 W1M.

Tract 16-7-1-25 W1M lies immediately east of the currently proposed Waskada Unit No. 6 boundary. Extending the boundary to include 16-7 will complete the waterflood pattern which selects 15-7-1-25 W1M as a water injector. This in turn will satisfy the preference of the Manitoba Oil and Gas Conservation Board of having all Waskada wells brought into a unit and waterflood scheme.

The reservoir and production parameters of the 16-7 well compared to the average unit well are as follows:

Parameter	16-7-1-25 W1M	Proposed Unit Average
Drill Date	1985-05-02	-
Spearfish Pay (m)	3.5	3.0
Initial Oil Production (m^3/d)	5.6	6.2
Current Oil Production (m^3/d)	2.5 (after 6 mons.)	3.7 (after 12 mons.)
Oil Cut (Fraction)	.51	.51

The interim and final tract participation factors for 16-7-1-25 W1M are calculated as follows:

1. Interim Tract Participation Factor (100% current productivity):
   ITPF = 0.051645.

2. Final Tract Participation Factor [20% Øh + 10%(initial oil cut + current oil cut) + 30%(initial oil rate + current oil rate)]:
   FTPF = 0.036057.

86-2-13

Chevron Canada Resources Limited recommends tract 16-7-1-25 W1M be included in the proposed Waskada Unit No. 6, adopting the attached interim and final tract participation factors and working interest as the approved participations. Unless queried by the Working Interest Owners, Unit and Unit Operating agreements will be revised to include 16-7-1-25 W1M and distributed for execution on 1986-03-17.

Please direct any inquiries on this matter to Rhonda Zygocki at 234-5026.

Yours very truly,

R. I. ZYGOCKI, Chairman
Operating Committee

RIZ/db
Attach.

ATTACHMENT NO. 1

WASKADA UNIT NO. 6
WORKING INTEREST

Company	Interim Participation (%)	Final Participation (%)
Can-Am Drilling Ltd.	0.0281949	0.0263870
Chevron Canada Resources Limited	0.5730928	0.5878254
Colenco Petroleum Ltd.	0.0634789	0.0608859
Great American Energy, Inc.	0.0607539	0.0596879
New McManus Red Lake Gold Mines	0.0352039	0.0314680
Newscope Resources Limited	0.2160016	0.2031508
PanCanadian Petroleum Limited	0.0232740	0.0305950
	1.0000000	1.0000000

JANUARY 28, 1986

WASKADA UNIT # 6 CURRENT OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
INTERIM TRACT FACTOR DATA

	OIL PROD m3	WATER PROD m3	TIME ON days	CONSECUTIVE PRODUCING PERIOD	OIL RATE m3/d	OIL CUT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR
12-06-02-25W1	85.0	156.5	31	08-01 to 08-31	2.7	0.35	0.030329	0.027340
13-06-02-25W1	25.0	660.8	26	06-05 to 06-30	1.0	0.04	0.010636	0.002832
04-07-01-25W1	19.4	626.5	46	07-17 to 08-31	0.4	0.03	0.004665	0.002333
05-07-01-25W1	241.2	822.9	71	06-22 to 08-31	3.4	0.23	0.037577	0.017607
11-07-01-25W1	32.8	802.4	37	07-26 to 08-31	0.9	0.04	0.009806	0.003051
12-07-01-25W1	183.1	1207.7	71	06-22 to 08-31	2.6	0.13	0.028525	0.010226
13-07-01-25W1	107.5	623.5	42	07-20 to 08-31	2.6	0.15	0.028311	0.011423
14-07-01-25W1	203.0	436.0	41	07-22 to 08-31	5.0	0.32	0.054766	0.024677
15-07-01-25W1	94.2	61.1	49	07-14 to 08-31	1.9	0.61	0.021264	0.047116
16-07-01-25W1	196.1	193.8	42	07-05 to 08-15	4.7	0.50	0.051645	0.039067
03-18-01-25W1	129.3	271.6	48	07-15 to 08-31	2.7	0.32	0.029796	0.025053
04-18-01-25W1	153.6	141.8	123	05-01 to 08-31	1.2	0.52	0.013813	0.040390
05-18-01-25W1	170.0	77.9	123	05-01 to 08-31	1.4	0.69	0.015288	0.053268
06-18-01-25W1	50.1	79.0	92	05-01 to 07-31	0.5	0.39	0.006024	0.030144
07-01-01-25W1	4.5	129.5	18	05-24 to 06-10	0.3	0.03	0.002765	0.002609
08-01-01-26W1	41.8	141.4	31	06-12 to 07-12	1.3	0.23	0.014915	0.017723
09-01-01-26W1	142.8	49.0	122	05-01 to 08-31	1.2	0.74	0.012947	0.057832
10-01-01-26W1	145.9	243.5	62	07-01 to 08-31	2.4	0.37	0.026029	0.029104
15-01-01-26W1	353.3	1497.8	122	05-01 to 08-31	2.9	0.19	0.032032	0.014825
16-01-01-26W1	344.1	53.6	123	05-01 to 08-31	2.8	0.87	0.030944	0.067208
01-12-01-26W1	321.1	65.9	123	05-01 to 08-31	2.6	0.83	0.028876	0.064450
02-12-01-26W1	203.6	271.2	31	08-01 to 08-31	6.6	0.43	0.072647	0.033309
03-12-01-26W1	224.2	474.5	41	07-02 to 08-11	5.5	0.32	0.060486	0.024925
06-12-01-26W1	184.4	475.1	42	07-01 to 08-11	4.4	0.28	0.048564	0.021719
07-12-01-26W1	284.9	68.4	123	05-01 to 08-31	2.3	0.81	0.025620	0.062638
08-12-01-26W1	97.5	43.1	92	05-01 to 07-31	1.1	0.69	0.011722	0.053865
09-12-01-26W1	339.8	96.4	41	07-22 to 08-31	8.3	0.78	0.091673	0.060510
10-12-01-26W1	964.5	151.8	123	05-01 to 08-31	7.8	0.86	0.086736	0.067114
15-12-01-26W1	415.5	164.9	123	05-01 to 08-31	3.4	0.72	0.037365	0.055608
16-12-01-26W1	825.5	1176.0	123	05-01 to 08-31	6.7	0.41	0.074236	0.032037
				TOTAL	90.4	12.87	1.000000	1.000000
				AVERAGE	3.0	0.43		

JANUARY 28, 1986

WASKADA UNIT NO. 6 TRACT FACTORS
INTERIM TRACT FACTORS
CURRENT PRODUCTIVITY

TRACT	CURRENT OIL RATE FACTOR	ADJUSTED CURRENT OIL RATE FACTOR	CHEVRON TRACT INTEREST	CHEVRON UNIT WORKING INTEREST
12-06-01-25-W1	0.030329	0.030329	0.250000	0.007582
13-06-01-25-W1	0.010636	0.010636	0.250000	0.002659
04-07-01-25-W1	0.004665	0.004665	0.500000	0.002332
05-07-01-25-W1	0.037577	0.037577	0.500000	0.018788
11-07-01-25-W1	0.009806	0.009806	0.250000	0.002451
12-07-01-25-W1	0.028525	0.028525	0.250000	0.007131
13-07-01-25-W1	0.028311	0.028311	0.000000	0.000000
14-07-01-25-W1	0.054766	0.054766	0.250000	0.013692
15-07-01-25-W1	0.021264	0.021264	0.500000	0.010632
16-07-01-25-W1	0.051645	0.051645	0.500000	0.025822
03-18-01-25-W1	0.029796	0.029796	1.000000	0.029796
04-18-01-25-W1	0.013813	0.013813	1.000000	0.013813
05-18-01-25-W1	0.015288	0.015288	1.000000	0.015288
06-18-01-25-W1	0.006024	0.006024	1.000000	0.006024
07-01-01-26-W1	0.002765	0.002765	1.000000	0.002765
08-01-01-26-W1	0.014915	0.014915	1.000000	0.014915
09-01-01-26-W1	0.012947	0.012947	1.000000	0.012947
10-01-01-26-W1	0.026029	0.026029	1.000000	0.026029
15-01-01-26-W1	0.032032	0.032032	1.000000	0.032032
16-01-01-26-W1	0.030944	0.030944	1.000000	0.030944
01-12-01-26-W1	0.028876	0.028876	0.312500	0.009024
02-12-01-26-W1	0.072647	0.072647	0.312500	0.022702
03-12-01-26-W1	0.060486	0.060485	1.000000	0.060486
05-12-01-26-W1	0.000001	0.000001	1.000000	0.000001
06-12-01-26-W1	0.048564	0.048564	1.000000	0.048564
07-12-01-26-W1	0.025620	0.025620	0.312500	0.008006
08-12-01-26-W1	0.011722	0.011722	0.312500	0.003663
09-12-01-26-W1	0.091673	0.091672	0.500000	0.045836
10-12-01-26-W1	0.086736	0.086735	0.500000	0.043368
15-12-01-26-W1	0.037365	0.037365	0.500000	0.018683
16-12-01-26-W1	0.074236	0.074235	0.500000	0.037118
	1.000001	1.000000	19.500000	0.573094

JANUARY 28, 1986

PROPOSED HASKADA UNIT NO. 6
COMPANY WORKING INTEREST
INTERIM TRACT FACTORS

WELL	TOTAL TRACT FACTOR	NEWSCOPE TRACT WORKING INTEREST	NEWSCOPE UNIT WORKING INTEREST	PANCANADIAN TRACT WORKING INTEREST	PANCANADIAN UNIT WORKING INTEREST	GREAT AMERICAN TRACT WORKING INTEREST	GREAT AMERICAN UNIT WORKING INTEREST	COLENCO TRACT WORKING INTEREST	COLENCO UNIT WORKING INTEREST	CAN-AM TRACT WORKING INTEREST	CAN-AM UNIT WORKING INTEREST	NEW MEXAMCO TRACT WORKING INTEREST	NEW MEXAMCO UNIT WORKING INTEREST
12-06-01-25-W1	0.030329	0.300000	0.009099	0.000000	0.000000	0.000000	0.000000	0.250000	0.007582	0.100000	0.003033	0.100000	0.003033
13-06-01-25-W1	0.010636	0.300000	0.003191	0.000000	0.000000	0.000000	0.000000	0.250000	0.002659	0.100000	0.001064	0.100000	0.001064
04-07-01-25-W1	0.004665	0.275000	0.001283	0.000000	0.000000	0.000000	0.000000	0.125000	0.000583	0.050000	0.000233	0.050000	0.000233
05-07-01-25-W1	0.037577	0.275000	0.010334	0.000000	0.000000	0.000000	0.000000	0.125000	0.004697	0.050000	0.001879	0.050000	0.001879
11-07-01-25-W1	0.009806	0.275000	0.002697	0.250000	0.002451	0.000000	0.000000	0.100000	0.000981	0.050000	0.000490	0.075000	0.000735
12-07-01-25-W1	0.028525	0.275000	0.007844	0.250000	0.007131	0.000000	0.000000	0.125000	0.003566	0.050000	0.001426	0.050000	0.001426
13-07-01-25-W1	0.020311	0.550000	0.011171	0.000000	0.000000	0.000000	0.000000	0.250000	0.005078	0.100000	0.002031	0.100000	0.002031
14-07-01-25-W1	0.054766	0.275000	0.015061	0.250000	0.013692	0.000000	0.000000	0.100000	0.005477	0.050000	0.002738	0.075000	0.004107
15-07-01-25-W1	0.021264	0.500000	0.010632	0.600000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-07-01-25-W1	0.051445	0.500000	0.025722	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-18-01-25-W1	0.029796	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
04-18-01-25-W1	0.013813	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-18-01-25-W1	0.015268	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-18-01-25-W1	0.006024	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-01-01-26-W1	0.002765	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-01-01-26-W1	0.014915	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-01-01-26-W1	0.012947	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10-01-01-26-W1	0.026029	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15-01-01-26-W1	0.032032	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-01-01-26-W1	0.030944	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
01-12-01-26-W1	0.026876	0.250000	0.006719	0.000000	0.000000	0.437500	0.011753	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
02-12-01-26-W1	0.072647	0.250000	0.018162	0.000000	0.000000	0.437500	0.031783	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-12-01-26-W1	0.020485	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-12-01-26-W1	0.000001	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-12-01-26-W1	0.048564	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-12-01-26-W1	0.025620	0.250000	0.006405	0.000000	0.000000	0.437500	0.011209	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-12-01-26-W1	0.011722	0.250000	0.002931	0.000000	0.000000	0.437500	0.005129	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-12-01-26-W1	0.091672	0.275000	0.025210	0.000000	0.000000	0.000000	0.000000	0.100000	0.009167	0.050000	0.004584	0.075000	0.006875
10-12-01-26-W1	0.086735	0.275000	0.023852	0.000000	0.000000	0.000000	0.000000	0.100000	0.008674	0.050000	0.004337	0.075000	0.006505
15-12-01-26-W1	0.037365	0.275000	0.010275	0.000000	0.000000	0.000000	0.000000	0.100000	0.003737	0.050000	0.001868	0.075000	0.002802
16-12-01-26-W1	0.074235	0.275000	0.020415	0.000000	0.000000	0.000000	0.000000	0.125000	0.009279	0.050000	0.003712	0.050000	0.003712
	1.000000	5.625000	0.216002	0.750000	0.023274	1.750000	0.060754	1.750000	0.063479	0.750000	0.028195	0.875000	0.035204

JANUARY 28, 1986

PROPOSED WASKADA UNIT NO. 6
COMPANY WORKING INTEREST

WELL	TOTAL TRACT FACTOR	NEWSCOPE TRACT WORKING INTEREST	NEWSCOPE UNIT WORKING INTEREST	PANCANADIAN TRACT WORKING INTEREST	PANCANADIAN UNIT WORKING INTEREST	GREAT AMERICAN TRACT WORKING INTEREST	GREAT AMERICAN UNIT WORKING INTEREST	COLENCO TRACT WORKING INTEREST	COLENCO UNIT WORKING INTEREST	CAN-AM TRACT WORKING INTEREST	CAN-AM UNIT WORKING INTEREST	NEW MEXAMCO TRACT WORKING INTEREST	NEW MEXAMCO UNIT WORKING INTEREST
12-06-01-25-N1	0.031186	0.300000	0.009356	0.000000	0.000000	0.000000	0.000000	0.250000	0.007797	0.100000	0.003119	0.100000	0.003119
13-06-01-25-N1	0.012874	0.300000	0.003862	0.000000	0.000000	0.000000	0.000000	0.250000	0.003219	0.100000	0.001287	0.100000	0.001287
04-07-01-25-N1	0.010347	0.275000	0.002845	0.000000	0.000000	0.000000	0.000000	0.125000	0.001293	0.050000	0.000517	0.050000	0.000517
05-07-01-25-N1	0.037720	0.275000	0.010373	0.000000	0.000000	0.000000	0.000000	0.125000	0.004716	0.050000	0.001886	0.050000	0.001886
11-07-01-25-N1	0.016078	0.275000	0.004421	0.250000	0.004019	0.000000	0.000000	0.100000	0.001608	0.050000	0.000804	0.075000	0.001206
12-07-01-25-N1	0.045387	0.275000	0.012481	0.250000	0.011347	0.000000	0.000000	0.125000	0.005673	0.050000	0.002269	0.050000	0.002269
13-07-01-25-N1	0.031379	0.550000	0.017258	0.000000	0.000000	0.000000	0.000000	0.250000	0.007845	0.100000	0.003138	0.100000	0.003138
14-07-01-25-N1	0.044914	0.275000	0.011251	0.250000	0.010228	0.000000	0.000000	0.100000	0.004491	0.050000	0.002246	0.075000	0.003369
15-07-01-25-N1	0.033804	0.500000	0.016902	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-07-01-25-N1	0.036057	0.500000	0.018029	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-18-01-25-N1	0.651391	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
04-18-01-25-N1	0.017664	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-18-01-25-N1	0.625048	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-18-01-25-N1	0.012087	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-01-01-26-N1	0.016224	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-01-01-26-N1	0.016856	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-01-01-26-N1	0.030059	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10-01-01-26-N1	0.027258	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15-01-01-26-N1	0.022590	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-01-01-26-N1	0.044877	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
01-12-01-26-N1	0.032093	0.250000	0.008023	0.000000	0.000000	0.437500	0.014041	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
02-12-01-26-N1	0.037575	0.250000	0.009394	0.000000	0.000000	0.437500	0.016439	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-12-01-26-N1	0.046556	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-12-01-26-N1	0.004638	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.050000	0.000000	0.000000	0.000000	0.000000	0.000000
06-12-01-26-N1	0.032165	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-12-01-26-N1	0.034868	0.250000	0.008717	0.000000	0.000000	0.437500	0.015255	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-12-01-26-N1	0.031993	0.250000	0.007973	0.000000	0.000000	0.437500	0.013953	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-12-01-26-N1	0.047048	0.275000	0.013150	0.000000	0.000000	0.000000	0.000000	0.100000	0.004705	0.050000	0.002352	0.075000	0.003529
10-12-01-26-N1	0.057960	0.275000	0.015939	0.000000	0.000000	0.000000	0.000000	0.100000	0.005796	0.050000	0.002898	0.075000	0.004347
15-12-01-26-N1	0.040447	0.275000	0.011123	0.000000	0.000000	0.000000	0.000000	0.100000	0.004045	0.050000	0.002022	0.075000	0.003033
16-12-01-26-N1	0.046152	0.275000	0.016542	0.000000	0.000000	0.000000	0.000000	0.125000	0.007519	0.050000	0.003008	0.050000	0.003008
	1.000000	5.625000	0.203151	0.750000	0.030595	1.750000	0.059688	1.750000	0.068084	0.750000	0.026387	0.875000	0.031448

JANUARY 22,1986

WASKADA UNIT NO. 6 TRACT FACTORS
PARTICIPATION FORMULA APPROVED BY W.I.O.

TRACT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR	FIRST FOUR MONTHS OIL RATE FACTOR	FIRST FOUR MONTHS OIL CUT FACTOR	ϕ_n FACTOR	TOTAL TRACT FACTOR	CHEVRON TRACT INTEREST	CHEVRON UNIT WORKING INTEREST
12-06-01-25-W1	0.012356	0.003473	0.007087	0.003244	0.005027	0.031186	0.250000	0.007797
13-06-01-25-W1	0.002640	0.000253	0.001238	0.000245	0.008498	0.012874	0.250000	0.003219
04-07-01-25-W1	0.001373	0.000208	0.000732	0.000194	0.007840	0.010347	0.500000	0.005174
05-07-01-25-W1	0.012630	0.003404	0.013702	0.004013	0.003980	0.037728	0.500000	0.018864
11-07-01-25-W1	0.003569	0.000347	0.002424	0.000372	0.009366	0.016078	0.250000	0.004019
12-07-01-25-W1	0.016200	0.002362	0.032641	0.005567	0.008618	0.065387	0.250000	0.016347
13-07-01-25-W1	0.012356	0.002014	0.006415	0.001258	0.009336	0.031379	0.000000	0.000000
14-07-01-25-W1	0.022515	0.003959	0.004607	0.002083	0.007750	0.040914	0.250000	0.010228
15-07-01-25-W1	0.010983	0.004723	0.007383	0.003863	0.006852	0.033804	0.500000	0.016902
16-07-01-25-W1	0.012905	0.003473	0.009018	0.003629	0.007032	0.036057	0.500000	0.018029
03-18-01-25-W1	0.017573	0.004237	0.018107	0.004801	0.006673	0.051391	1.000000	0.051391
04-18-01-25-W1	0.004393	0.004168	0.001032	0.001130	0.006942	0.017664	1.000000	0.017664
05-18-01-25-W1	0.004119	0.003820	0.007087	0.004396	0.005625	0.025048	1.000000	0.025048
06-18-01-25-W1	0.000824	0.001042	0.003210	0.002403	0.004608	0.012087	1.000000	0.012087
07-01-01-26-W1	0.006590	0.001250	0.001536	0.000594	0.006254	0.016224	1.000000	0.016224
08-01-01-26-W1	0.005766	0.001459	0.003019	0.001346	0.005266	0.016856	1.000000	0.016856
09-01-01-26-W1	0.005766	0.005835	0.006697	0.004700	0.007062	0.030059	1.000000	0.030059
10-01-01-26-W1	0.005491	0.001598	0.011448	0.002973	0.005745	0.027255	1.000000	0.027255
15-01-01-26-W1	0.005766	0.001042	0.006234	0.001918	0.007630	0.022590	1.000000	0.022590
16-01-01-26-W1	0.015101	0.005765	0.012878	0.005058	0.006074	0.044877	1.000000	0.044877
01-12-01-26-W1	0.006590	0.005487	0.010296	0.005022	0.004698	0.032093	0.312500	0.010029
02-12-01-26-W1	0.014278	0.003473	0.008963	0.003321	0.007540	0.037575	0.312500	0.011742
03-12-01-26-W1	0.015651	0.002987	0.009920	0.002962	0.009037	0.040556	1.000000	0.040556
05-12-01-26-W1					0.004638	0.004638	1.000000	0.004638
06-12-01-26-W1	0.014003	0.002292	0.008806	0.002276	0.004788	0.032165	1.000000	0.032165
07-12-01-26-W1	0.006864	0.006252	0.012084	0.005329	0.004339	0.034868	0.312500	0.010896
08-12-01-26-W1	0.003569	0.006738	0.010066	0.005655	0.005865	0.031893	0.312500	0.009967
09-12-01-26-W1	0.014278	0.004723	0.017724	0.004151	0.006972	0.047848	0.500000	0.023924
10-12-01-26-W1	0.016474	0.005904	0.023016	0.005893	0.006673	0.057960	0.500000	0.028980
15-12-01-26-W1	0.010434	0.003820	0.014488	0.005900	0.005805	0.040447	0.500000	0.020223
16-12-01-26-W1	0.018945	0.003890	0.028142	0.005704	0.003471	0.060152	0.500000	0.030076
	0.300000	0.100000	0.300000	0.100000	0.200000	✓1.000000	19.500000	0.587826

JANUARY 27, 1986

WEIGHTING OF CURRENT APPROVED PRODUCTIVITY TRACT FACTORS

CURRENT APPROVED FACTORS		FACTORS X WEIGHTING	
OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
0.041186	0.034731	0.012355	0.003473
0.008800	0.002532	0.002640	0.000253
0.004576	0.002084	0.001372	0.000208
0.042101	0.034036	0.012630	0.003403
0.011898	0.003473	0.003569	0.000347
0.053999	0.023617	0.016199	0.002361
0.041186	0.020144	0.012355	0.002014
0.075049	0.039593	0.022514	0.003959
0.036609	0.047234	0.010982	0.004723
0.043016	0.034731	0.012904	0.003473
0.058575	0.042372	0.017572	0.004237
0.014644	0.041677	0.004393	0.004167
0.013729	0.038204	0.004118	0.003820
0.002746	0.010419	0.000823	0.001041
0.021966	0.012503	0.006589	0.001250
0.019220	0.014587	0.005765	0.001458
0.019220	0.058348	0.005765	0.005834
0.018305	0.015976	0.005491	0.001597
0.019220	0.010419	0.005765	0.001041
0.050338	0.057653	0.015101	0.005765
0.021966	0.054875	0.006589	0.005487
0.047592	0.034731	0.014277	0.003473
0.052168	0.029868	0.015650	0.002986
0.046677	0.022922	0.014003	0.002292
0.022881	0.062515	0.006864	0.006251
0.011898	0.067378	0.003569	0.006737
0.047592	0.047234	0.014277	0.004723
0.054914	0.059042	0.016474	0.005904
0.034779	0.038204	0.010433	0.003820
0.063151	0.038898	0.018945	0.003889
1.000000	1.000000	0.300000	0.100000

JANUARY 27, 1986

WASKADA UNIT # 6 CURRENT OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
APPROVED DATA

	OIL PROD m3	WATER PROD m3	TIME ON days	CONSECUTIVE PRODUCING PERIOD	OIL RATE m3/d	OIL CUT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR
12-06-02-25W1	121.2	121.4	27	03-20 to 04-17	4.5	0.50	0.041186	0.034731
13-06-02-25W1	25.0	660.8	26	06-05 to 06-30	1.0	0.04	0.008800	0.002532
04-07-01-25W1	31.0	923.1	60	10-02 to 11-30	0.5	0.03	0.004576	0.002084
05-07-01-25W1	421.8	439.9	91	09-01 to 11-30	4.6	0.49	0.042101	0.034036
11-07-01-25W1	58.0	1025.0	44	10-17 to 11-30	1.3	0.05	0.011898	0.003473
12-07-01-25W1	532.8	1043.3	91	09-01 to 11-30	5.9	0.34	0.053999	0.023617
13-07-01-25W1	274.8	683.7	61	10-01 to 11-30	4.5	0.29	0.041186	0.020144
14-07-01-25W1	368.3	275.1	45	10-17 to 11-30	8.2	0.57	0.075049	0.039593
15-07-01-25W1	119.1	55.4	30	05-26 to 06-24	4.0	0.68	0.036609	0.047234
16-07-01-25W1	196.1 ✓	193.8 ✓	42 ✓	07-05 to 08-15 ✓	4.7 ✓	0.50 ✓	0.043016	0.034731
03-18-01-25W1			29	09-16 to 10-15	6.4	0.61	0.058575	0.042372
04-18-01-25W1			30	10-01 to 10-30	1.6	0.60	0.014644	0.041677
05-18-01-25W1			30	09-28 to 10-27	1.5	0.55	0.013729	0.038204
06-18-01-25W1			30	10-03 to 11-01	0.3	0.15	0.002746	0.010419
07-01-01-25W1			30	09-03 to 10-02	2.4	0.18	0.021966	0.012503
08-01-01-26W1				09-01 to 09-13			0.000000	0.000000
			18	09-28 to 10-02	2.1	0.21	0.019220	0.014587
09-01-01-26W1			30	09-01 to 09-30	2.1	0.84	0.019220	0.058348
10-01-01-26W1			30	09-28 to 10-28	2.0	0.23	0.018305	0.015976
15-01-01-26W1			31	11-10 to 12-09	2.1	0.15	0.019220	0.010419
16-01-01-26W1			30	09-14 to 10-13	5.5	0.83	0.050338	0.057653
01-12-01-26W1			29	10-01 to 10-30	2.4	0.79	0.021966	0.054875
02-12-01-26W1			30	09-15 to 10-15	5.2	0.50	0.047592	0.034731
03-12-01-26W1			27	11-01 to 11-30	5.7	0.43	0.052168	0.029868
06-12-01-26W1			29	11-01 to 11-30	5.1	0.33	0.046677	0.022922
07-12-01-26W1			30	09-22 to 10-21	2.5	0.90	0.022881	0.062515
08-12-01-26W1			30	09-22 to 11-21	1.3	0.97	0.011898	0.067378
09-12-01-26W1	157.1	75.3	30	11-01 to 11-30	5.2	0.68	0.047592	0.047234
10-12-01-26W1	549.6	94.3	91	09-01 to 11-30	6.0	0.85	0.054914	0.059042
15-12-01-26W1	214.2	176.0	56	09-01 to 10-27	3.8	0.55	0.034779	0.038204
16-12-01-26W1	269.7	216.2	39	09-26 to 11-04	6.9	0.56	0.063151	0.038898
					109.3	14.40	1.000000	1.000000

ADJUSTMENT OF FIRST FOUR MONTHS PRODUCTIVITY TRACT FACTORS

FIRST FOUR MONTHS FACTORS		ADJUSTED FIRST FOUR MONTHS		ADJUSTED FACTORS X WEIGHTING	
OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
0.023720	0.032516	0.023622	0.032436	0.007086	0.003243
0.004145	0.002452	0.004127	0.002446	0.001238	0.000244
0.002449	0.001948	0.002439	0.001944	0.000731	0.000194
0.045861	0.040224	0.045672	0.040125	0.013701	0.004012
0.008112	0.003725	0.008079	0.003716	0.002423	0.000371
0.109253	0.055809	0.108802	0.055672	0.032640	0.005567
0.021471	0.012610	0.021382	0.012580	0.006414	0.001258
0.015419	0.020883	0.015355	0.020832	0.004606	0.002083
0.024711	0.038727	0.024609	0.038632	0.007382	0.003863
0.030186	0.036379	0.030061	0.036290	0.009018	0.003629
0.060607	0.048131	0.060356	0.048013	0.018107	0.004801
0.003453	0.011323	0.003439	0.011296	0.001031	0.001129
0.023721	0.044072	0.023623	0.043964	0.007087	0.004396
0.010744	0.024091	0.010700	0.024032	0.003210	0.002403
0.005142	0.005953	0.005121	0.005938	0.001536	0.000593
0.010104	0.013495	0.010062	0.013462	0.003018	0.001346
0.022414	0.047114	0.022321	0.046999	0.006696	0.004699
0.038318	0.029802	0.038160	0.029729	0.011448	0.002972
0.020866	0.019229	0.020780	0.019181	0.006234	0.001918
0.043103	0.050705	0.042926	0.050581	0.012877	0.005058
0.034462	0.050344	0.034319	0.050221	0.010295	0.005022
0.030000	0.033287	0.029876	0.033205	0.008962	0.003320
0.033202	0.029697	0.033065	0.029624	0.009919	0.002962
0.029474	0.022819	0.029353	0.022764	0.008805	0.002276
0.040447	0.053423	0.040280	0.053293	0.012084	0.005329
0.033693	0.056685	0.033554	0.056547	0.010066	0.005654
0.059326	0.041610	0.059081	0.041508	0.017724	0.004150
0.077039	0.059070	0.076721	0.058926	0.023016	0.005892
0.048493	0.059139	0.048293	0.058995	0.014488	0.005899
0.094194	0.057174	0.093806	0.057035	0.028141	0.005703
1.004145	1.002452	1.000000	1.000000	0.300000	0.100000

JANUARY 27, 1986

WASKADA UNIT 6 OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
FIRST FOUR MONTHS OF CUMULATIVE PRODUCTION

	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL CUT	FIRST FOUR MONTHS FACTORS: OIL RATE FACTOR	FIRST FOUR MONTHS FACTORS: OIL CUT FACTOR
12-06-01-25-W1	287.2	301.1	70	4.10	0.49	0.023720	0.032516
13-06-01-25-W1	0.0	0.0	0				
04-07-01-25-W1	51.7	1715.2	122	0.42	0.03	0.002449	0.001948
05-07-01-25-W1	801.2	525.5	101	7.93	0.60	0.045861	0.040224
11-07-01-25-W1	129.1	2178.8	92	1.40	0.06	0.008112	0.003725
12-07-01-25-W1	1549.6	299.8	82	18.90	0.84	0.109253	0.055809
13-07-01-25-W1	241.4	1033.6	65	3.71	0.19	0.021471	0.012410
14-07-01-25-W1	202.7	443.8	76	2.67	0.31	0.015419	0.020883
15-07-01-25-W1	316.3	227.7	74	4.27	0.58	0.024711	0.038727
16-07-01-25-W1	490.8	407.8	94	5.22	0.55	0.030186	0.036379
03-18-01-25-W1	1184.6	454.7	113	10.48	0.72	0.060607	0.048131
04-18-01-25-W1	46.6	227.5	78	0.60	0.17	0.003453	0.011323
05-18-01-25-W1	402.1	205.6	98	4.10	0.66	0.023721	0.044072
06-18-01-25-W1	174.7	308.3	94	1.86	0.36	0.010744	0.024091
07-01-01-26-W1	76.5	779.4	86	0.89	0.09	0.005142	0.005953
08-01-01-26-W1	153.8	605.3	88	1.75	0.20	0.010104	0.013495
09-01-01-26-W1	387.7	160.4	100	3.88	0.71	0.022414	0.047114
10-01-01-26-W1	662.8	818.5	100	6.63	0.45	0.038318	0.029802
15-01-01-26-W1	350.1	862.6	97	3.61	0.29	0.020866	0.019229
16-01-01-26-W1	723.2	226.8	97	7.46	0.76	0.043103	0.050705
01-12-01-26-W1	655.7	211.8	110	5.96	0.76	0.034462	0.050344
02-12-01-26-W1	622.7	623.3	120	5.19	0.50	0.030000	0.033287
03-12-01-26-W1	654.7	813.7	114	5.74	0.45	0.033202	0.029697
06-12-01-26-W1	581.2	1115.2	114	5.10	0.34	0.029474	0.022819
07-12-01-26-W1	741.6	183	106	7.00	0.80	0.040447	0.053423
08-12-01-26-W1	437.1	76.5	75	5.83	0.85	0.033693	0.056685
09-12-01-26-W1	1149.3	690.4	112	10.26	0.62	0.059326	0.041610
10-12-01-26-W1	1305.9	166.6	98	13.33	0.89	0.077039	0.059070
15-12-01-26-W1	696.2	87.9	83	8.39	0.89	0.048493	0.059139
16-12-01-26-W1	1596.7	263.4	98	16.29	0.86	0.094194	0.057174
	16673.2	16014.2	2757	172.97	15.01	1.000000	1.000000

AVERAGE OIL CUT 0.510080

JANUARY 27, 1986

WASKADA UNIT 6 OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
FIRST MONTH OF CUMULATIVE PRODUCTION

TRACT	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL CUT	FIRST MONTH FACTORS OIL RATE FACTOR	FIRST MONTH FACTORS OIL CUT FACTOR
12-06-01-25-W1	33.5	62.8	6	5.58	0.35	0.024069	0.023402
13-06-01-25-W1	25	660.8	26	0.96	0.04	0.004145	0.002452
04-07-01-25-W1	9.7	456.6	30	0.32	0.02	0.001393	0.001399
05-07-01-25-W1	176.3	71.5	15	11.75	0.71	0.050668	0.047862
11-07-01-25-W1	2.5	542.6	2	1.25	.00	0.005388	0.000308
12-07-01-25-W1	143.6	0.2	5	28.72	1.00	0.123812	0.067179
13-07-01-25-W1	34.1	228.5	5	6.82	0.13	0.029401	0.008735
14-07-01-25-W1	23	145.6	15	1.53	0.14	0.006610	0.009177
15-07-01-25-W1	155.9	103.8	30	5.20	0.60	0.022402	0.040384
16-07-01-25-W1	85.8	52.1	10	8.58	0.62	0.036988	0.041856
03-18-01-25-W1	392.3	212.3	21	18.68	0.65	0.080533	0.043651
04-18-01-25-W1	10.7	40.8	15	0.71	0.21	0.003075	0.013977
05-18-01-25-W1	130	93	16	8.13	0.58	0.035027	0.039217
06-18-01-25-W1	59.3	24.4	12	4.94	0.71	0.021303	0.047662
07-01-01-26-W1	59.5	262.5	25	2.38	0.18	0.010260	0.012430
08-01-01-26-W1	49.9	191.6	24	2.08	0.21	0.008963	0.013900
09-01-01-26-W1	106.3	52.1	16	6.64	0.67	0.028641	0.045146
10-01-01-26-W1	51.7	35.3	11	4.70	0.59	0.020261	0.039977
15-01-01-26-W1	18.3	62.9	19	0.96	0.23	0.004152	0.015161
16-01-01-26-W1	36.7	61	21	1.75	0.38	0.007534	0.025270
01-12-01-26-W1	246.6	90.2	18	13.70	0.73	0.059060	0.049256
02-12-01-26-W1	158.6	165.5	30	5.29	0.49	0.022790	0.032920
03-12-01-26-W1	78.8	104	22	3.58	0.43	0.015441	0.028999
06-12-01-26-W1	18.3	62.9	19	0.96	0.23	0.004152	0.015161
07-12-01-26-W1	284	72.2	19	14.95	0.80	0.064438	0.053637
08-12-01-26-W1	45.4	13.7	4	11.35	0.77	0.048930	0.051678
09-12-01-26-W1	323.2	156.8	23	14.05	0.67	0.060579	0.045297
10-12-01-26-W1	224.8	48	8	28.10	0.82	0.121139	0.055436
15-12-01-26-W1	175	0	24	7.29	1.00	0.031434	0.067273
16-12-01-26-W1	208.9	20.8	19	10.99	0.91	0.047398	0.061181
TOTAL	3367.7	4094.5	510	231.96	14.86	1.000000	1.000000
AVERAGE				8.00	0.51		

JANUARY 27, 1986

WASKADA UNIT & MULVAN ϕh TRACT AND PARTICIPATION FACTORS

	POROSITY*h (m)	ϕh TRACT FACTOR	✓ FACTOR X WEIGHTING
12-06-01-25-W1	1.68	0.025135	0.005027
13-06-01-25-W1	2.84	0.042490	0.008498
04-07-01-25-W1	2.62	0.039198	0.007840
05-07-01-25-W1	1.33	0.019898	0.003980
11-07-01-25-W1	3.13	0.046828	0.009366
12-07-01-25-W1	2.88	0.043088	0.008618
13-07-01-25-W1	3.12	0.046679	0.009336
14-07-01-25-W1	2.59	0.038749	0.007750
15-07-01-25-W1	2.29	0.034261	0.006852
16-07-01-25-W1	2.35	0.035159	0.007032
03-18-01-25-W1	2.23	0.033363	0.006673
04-18-01-25-W1	2.32	0.034710	0.006942
05-18-01-25-W1	1.88	0.028127	0.005625
06-18-01-25-W1	1.54	0.023040	0.004608
07-01-01-26-W1	2.09	0.031269	0.006254
08-01-01-26-W1	1.76	0.026332	0.005266
09-01-01-26-W1	2.36	0.035308	0.007062
10-01-01-26-W1	1.92	0.028725	0.005745
15-01-01-26-W1	2.55	0.038151	0.007630
16-01-01-26-W1	2.03	0.030371	0.006074
01-12-01-26-W1	1.57	0.023489	0.004698
02-12-01-26-W1	2.52	0.037702	0.007540
03-12-01-26-W1	3.02	0.045183	0.009037
05-12-01-26-W1	1.55	0.023190	0.004638
06-12-01-26-W1	1.60	0.023938	0.004788
07-12-01-26-W1	1.45	0.021694	0.004339
08-12-01-26-W1	1.96	0.029324	0.005865
09-12-01-26-W1	2.33	0.034859	0.006972
10-12-01-26-W1	2.23	0.033363	0.006673
15-12-01-26-W1	1.94	0.029025	0.005805
16-12-01-26-W1	1.16	0.017355	0.003471
	66.84	1.000000	0.200000

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

Feb 7/86

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

Attention: R. I. Zygocki,
Joint Venture Representative

Dear Sirs:

Re: Proposed Waskada Unit No. 6

Your letter of January 17, 1986 regarding interim tract factors for the subject proposed Unit is acknowledged.

Upon review of the proposed interim tract factors, we have the following comments and concerns.

1. Your calculations do not seem to be based on any consistent production period, although all utilize production data from between May 1 and August 31, 1985. We feel that the current productivity and oil cut should be calculated on a consistent basis to allow equitable comparison of the various wells. One such approach would be to consider all production information for the period May 1 to August 31, 1985. Table No. 1 attached illustrates this method.

2. There appear to be several errors in the table of production data as noted below

   a. The 13-6 well has not produced in 1985 and consequently should be given a zero interim factor.

   b. The 12-6 and 13-6 locations are listed incorrectly (should be Twp. 1 instead of Twp. 2).

   c. For some wells which you have used the entire period for calculation of the factors, the days produced is in error (i.e. 5-18 shows 123 days produced but production reports show only 115 days of production during this period).

....2

d. Total production for some wells that utilize the full four month period are slightly in error (e.g. - for 15-12 you show 415.5 m^3 while production reports show 416.5 m^3).

Upon review of this information and the lack of apparent progress towards unitization, we are deeply concerned that your efforts are not resulting in an early conclusion of this very lengthy unitization process. You are requested to provide a summary of the current status of the Unitization Agreement and a schedule that will result in unitization of the area not later than May 1, 1986.

Yours sincerely,

THE OIL AND NATURAL GAS
CONSERVATION BOARD

Wm. McDonald
Deputy Chairman

LRD/HCM/lk

x.c. Charles S. Kang
J. F. Redgwell

Well	May - Aug. 85			Oil/D.	Oil%	Factors	
	Oil	Water	Days			Oil Rate	Oil Cut
12-6	354.5	308.0	107	3.31	0.54	0.038355	0.041991
13-6	-	-	-	-	-	-	-
4-7	49.5	1 570.6	121	0.41	0.03	0.004751	0.002333
5-7LAm	435.9	1 896.9	121	3.60	0.19	0.041715	0.014774
11-7	107.4	2 432.8	115	0.93	0.04	0.010766	0.003110
12-7LAm	311.4	1 933.3	123	2.53	0.14	0.029316	0.010886
13-7LAm	275.2	1 617.7	119	2.31	0.15	0.026767	0.011664
14-7LAm	651.3	1 126.4	121	5.38	0.37	0.062341	0.028771
15-7	225.3	120.3	81	2.78	0.65	0.032213	0.050544
3-18	343.3	688.6	123	2.79	0.33	0.032329	0.025661
4-18	153.6	141.8	123	1.25	0.52	0.014484	0.040435
5-18	170.2	77.9	115	1.48	0.69	0.017149	0.053655
6-18	54.0	104.5	115	0.47	0.34	0.005446	0.026439
7-1	11.0	324.8	45	0.24	0.03	0.002781	0.002333
8-1	131.8	561.4	100	1.32	0.19	0.015295	0.014774
9-1	142.8	49.0	123	1.16	0.74	0.013441	0.057543
10-1	316.3	580.2	123	2.57	0.35	0.029780	0.027216
15-1	353.3	1 497.8	123	2.87	0.19	0.033256	0.014774
16-1	344.1	53.6	123	2.80	0.87	0.032445	0.067652
1-12	321.1	65.9	123	2.61	0.83	0.030243	0.064541
2-12	699.4	813.9	123	5.69	0.46	0.065933	0.035770
3-12	627.2	1 273.7	112	5.60	0.33	0.064890	0.025661
6-12	546.5	1 306.8	115	4.75	0.29	0.055041	0.022551
7-12	284.9	68.4	123	2.32	0.81	0.026883	0.062986
8-12	107.8	44.5	103	1.05	0.71	0.012167	0.055210
9-12	984.5	255.1	121	8.14	0.79	0.094322	0.061431
10-12	964.5	151.7	123	7.84	0.86	0.090846	0.066874
15-12	416.5	164.9	123	3.39	0.72	0.039282	0.055988
16-12	825.4	350.5	123	6.71	0.70	0.077752	0.054432
				86.30	12.86		

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

1986-01-17

J M Taylor
Coordinator
Units & Joint Ventures
Producing Department

RECEIVED
JAN 30 1986
MANITOBA ENERGY & MINES
ENERGY MANAGEMENT

DEPARTMENT OF ENERGY AND MINES
FEB 4 1986
PETROLEUM BRANCH

Proposed Waskada Unit No.
Interim Tract Participation
Factors - Production Data

Manitoba Oil and Natural Gas
Conservation Board,
Room 309, Legislative Building
Winnipeg, Manitoba
T3C 0V8

Attention: Mr. Wm. McDonald

Gentlemen:

Attached for your information is the production data used calculating the interim tract participation factors for the proposed Waskada Unit No. 6.

Yours very truly,

R. I. ZYGOCKI
Joint Venture Representative

RIZ/db
Attach.

OCTOBER 3, 1985

WASKADA UNIT # 6 CURRENT OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
CURRENT DATA (CASE 3 & 4)

	OIL PROD m3	WATER PROD m3	TIME ON days	CONSECUTIVE PRODUCING PERIOD	OIL RATE m3/d	OIL CUT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR
12-06-02-25W1	85.0	156.5	31	08-01 to 08-31	2.7	0.35	0.031981	0.028451
(1) 13-06-02-25W1	25.0	660.8	26	06-05 to 06-30	1.0	0.04	0.011215	0.002947
04-07-01-25W1	19.4	626.5	46	07-17 to 08-31	0.4	0.03	0.004919	0.002428
05-07-01-25W1	241.2	822.9	71	06-22 to 08-31	3.4	0.23	0.039623	0.018323
11-07-01-25W1	32.8	802.4	37	07-26 to 08-31	0.9	0.04	0.010340	0.003175
12-07-01-25W1	183.1	1207.7	71	06-22 to 08-31	2.6	0.13	0.030079	0.010642
13-07-01-25W1	107.5	623.5	42	07-20 to 08-31	2.6	0.15	0.029853	0.011887
14-07-01-25W1	203.0	436.0	41	07-22 to 08-31	5.0	0.32	0.057749	0.025680
15-07-01-25W1	94.2	61.1	49	07-14 to 08-31	1.9	0.61	0.022422	0.049032
03-18-01-25W1	129.3	271.6	48	07-15 to 08-31	2.7	0.32	0.031419	0.026071
04-18-01-25W1	153.6	141.8	123	05-01 to 08-31	1.2	0.52	0.014565	0.042032
05-18-01-25W1	170.0	77.9	123	05-01 to 08-31	1.4	0.69	0.016120	0.055433
06-18-01-25W1	50.1	79.0	92	05-01 to 07-31	0.5	0.39	0.006352	0.031370
07-01-01-25W1	4.5	129.5	18	05-24 to 06-10	0.3	0.03	0.002916	0.002715
08-01-01-26W1	41.8	141.4	31	06-12 to 07-12	1.3	0.23	0.015727	0.018444
09-01-01-26W1	142.8	49.0	122	05-01 to 08-31	1.2	0.74	0.013652	0.060183
10-01-01-26W1	145.9	243.5	62	07-01 to 08-31	2.4	0.37	0.027447	0.030287
15-01-01-26W1	353.3	1497.8	122	05-01 to 08-31	2.9	0.19	0.033776	0.015428
16-01-01-26W1	344.1	53.6	123	05-01 to 08-31	2.8	0.87	0.032629	0.069940
01-12-01-26W1	321.1	65.9	123	05-01 to 08-31	2.6	0.83	0.030448	0.067070
02-12-01-26W1	203.6	271.2	31	08-01 to 08-31	6.6	0.43	0.076603	0.034665
03-12-01-26W1	224.2	474.5	41	07-02 to 08-11	5.5	0.32	0.063779	0.025937
06-12-01-26W1	184.4	475.1	42	07-01 to 08-11	4.4	0.28	0.051208	0.022607
07-12-01-26W1	284.9	68.4	123	05-01 to 08-31	2.3	0.81	0.027016	0.065188
08-12-01-26W1	97.5	43.1	92	05-01 to 07-31	1.1	0.69	0.012361	0.056051
09-12-01-26W1	339.8	96.4	41	07-22 to 08-31	8.3	0.78	0.096665	0.062977
10-12-01-26W1	964.5	151.8	123	05-01 to 08-31	7.8	0.86	0.091459	0.069847
15-12-01-26W1	415.5	164.9	123	05-01 to 08-31	3.4	0.72	0.039400	0.057866
16-12-01-26W1	825.5	1176.0	123	05-01 to 08-31	6.7	0.41	0.078278	0.033333
				TOTAL	85.7	12.37	1.000000	1.000000
				AVERAGE	2.0	0.29		

(1) No Prodn Reported for June 1985

RECEIVED
JAN 30 1986
MANITOBA ENERGY & MINES
ENERGY MANAGEMENT

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

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

Attention: Mr. D.G. Guest

Dear Sir:

Re: Proposed Waskada Unit No. 6 Unit Agreement

Receipt of E.H. Gaudet's letter dated 1985-12-06 is acknowledged.

The Board is encouraged that voluntary agreement to the proposed Unit Agreement may occur in the near future. The Board requests it be kept informed as to the status of the unitization process.

We would also appreciate receiving a copy of the production information on which the proposed interim tract participation factors have been calculated.

Yours sincerely,

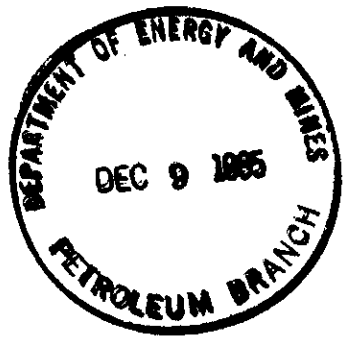
ORIGINAL SIGNED BY
WM. M. McDONALD, P. ENG.

Wm. McDonald
Deputy Chairman

bcc: Charles Kang
J.F. Redgwell
Petroleum Branch

Canada Post Corporation / Société canadienne des postes

266 Graham Avenue
Winnipeg, MB
R3C OKO



1985-12-6

Department of Energy and Mines (Petroleum)
555 - 330 Graham Avenue
Winnipeg, MB
R3C 4E3

Dear Sir/Madam:

This refers to your attached enquiry.

We have been unable to obtain a reply from the authorities in Mohall, N.D.

Please advise if you wish us to pursue our investigation. If we do not hear from you within 15 days, we will assume the item was received and close our file.

Yours truly,

L. Johannson
Customer Service Officer
Mid-West Division
Winnipeg

949-2945

HOURS: 8:00 A.M. to 4:15 P.M. Monday to Friday.

encl.

Canada

Canada Post / Postes Canada

Date Stamp / Timbre à date

Mail Enquiry or Application for Indemnity

Demande de renseignements ou demande d'indemnité

File No. / N° du dossier: Boyle/N.D./265

Section "A" – Claimant / Partie "A" – Réclamant

Indicate by (✓) which party is claiming / Indiquer le réclamant comme suit: (✓)

Sender's Name / Nom de l'expéditeur	Addressee's Name / Nom du destinataire
Dept Energy Mines Petroleum ☐	Paul & Margaret Boyle ☐
Address / Adresse: 555-330 Graham Ave	Address / Adresse: Mohall 58761.
City / Ville: WPG Province: Man	City / Ville: North Dakota Province: USA.
Postal Code postal: R3C4E3 Telephone No. / N° de téléphone: 945-6314.	Postal Code postal: Telephone No. / N° de téléphone:

Section "B" – Sender / Partie "B" – Expéditeur

Nature of Enquiry / Raison de la demande: ☐ Delay / Retard ☐ Damage / Dommages ☑ Loss / Perte ☐ Abstraction / Spoliation

Has addressee denied receipt of mailing? / Le destinataire a-t-il déclaré ne pas avoir reçu l'envoi? ☐ Yes / Oui ☐ No / Non Date:

Type of Denial / Genre de déclaration: ☐ Verbal / Verbale ☐ Written / Ecrite

Type of Item / Genre d'envoi: ☑ Letter / Lettre ☐ Parcel / Colis ☐ Other / Autre Specify / Spécifiez:

Special Services / Services spéciaux:

- ☐ Postpak / Postpak
- ☐ Special Delivery / Dist. par exprès
- ☐ Other (Specify) / Autre (Spécifiez)
- ☑ Registered Mail / Courrier recommandé — Serial No. / N° d'ordre: L 158777
- ☐ C.O.D. / Envoi CR — Service Fee / Droit de service: $
- ☐ Certified Mail / Poste certifiée AR
- ☐ Insured Mail / Envoi assuré — Charges (C.O.D. Only) / Frais (Envois CR seulement): $

Attach receipts/bulk mailing list(s) / Joindre récépissés d'envois en nombre

Date Mailed / Date déposé: Dec. 17/84

Mail Box / Boîte aux lettres ☑ Post Office / Bureau de poste — Location / Endroit:

Did item have a return address? / L'envoi portait-il une adresse de retour? ☑ Yes / Oui ☐ No / Non

How was the mailing prepared? (Size of envelope/carton, wrapping, packing, etc.) / Comment l'envoi était-il conditionné? (Dimensions de l'enveloppe, de la boîte, de l'emballage, etc.)

letter

☐ Wrapping/Envelope/Carton, Contents and Invoice are attached/enclosed (Check here). / Enveloppe/carton/emballage, contenu et facture sous pli (cochez ici)

Declaration of Value / Déclaration de valeur

Quantity / Quantité	Detailed Description of Contents (Brand, Model, Size, Colour, etc.) / Description détaillée du contenu (Marque, modèle, grandeur, couleur, etc.)	Attach Invoice, Bill of Sale, etc. / Inclure facture, le reçu etc. — Insured Value / Valeur déclarée
		$
		$
		$
		$
		$

☐ New / Neuf ☐ Used / Usagé ☐ Repaired / Réparé ☐ Other / Autre

Make payment to / Envoyer le paiement: ☐ Sender / A l'expéditeur ☐ Addressee / Au destinataire

Amount Claimed / Montant réclamé: $

Was shipment duplicated? / L'envoi a-t-il été remplacé? ☐ Yes / Oui ☐ No / Non — If so, date / Si oui, quand?

Sender's Signature / Signature de l'expéditeur: S Beaudin — Sender's Title / Titre de l'expéditeur — Date of Claim / Date de la réclamation: 18 04 85

Section "C" – Addressee / Partie "C" – Destinataire

The mailing was / L'envoi a été

Received / Reçu ☐ Yes / Oui ☐ No / Non — Returned / Retourné ☐ Yes / Oui ☐ No / Non — Date:

How was the refused mailing returned? / Comment l'envoi refusé a-t-il été retourné?

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

1985-12-06

E.H. Gaudet
General Counsel

Proposed Waskada Unit No. 6
Unit Agreement

Manitoba Oil and Natural Gas
Conservation Board,
Room 309 Legislative Building,
Winnipeg, Manitoba.
R3C OV8

Attention: Mr. Charles S. Kang,
Chairman

Dear Sirs:

We enclose two (2) copies of the final draft of the Unit Agreement for the subject Unit which has been revised to provide for interim and final tract participations.

We wish to advise that we have now reached agreement with Hernefield Enterprises Ltd. with respect to tract participations and confirm that Tract No. 6-7-1-25 WPM will not be included in the initial unit.

Final draft copies of the Unit and Unit Operating Agreements have now been sent to all Working Interest Owners and we expect to have the Agreements in execution form by December 20th in order that we may proceed to obtain execution by all parties as soon as possible.

Please direct any comments or questions you may have with respect to the Unit Agreement to Mr. D. G. Guest at the letterhead address or by telephone at (403)-234-5614.

Yours very truly,

E. H. GAUDET

/ps
Encls.

DEPARTMENT OF ENERGY AND MINES
Deputy Minister's Office
DEC 10 1985

Well	MAY OIL WATER	MAY DAYS	June OIL WATER	June DAYS	July OIL WATER	July DAYS	Aug OIL WATER	Aug DAYS	TOTAL		OIL/DAY	OIL CUT
8-12	26.5	31	20.0	30	51.0	31	10.3	11	107.8	103	1.05	0.71
	22.0		14.0		7.1		1.4		44.5			
9-12	253.8	30	223.4	30	243.3	30	264.0	31	984.5	121	8.14	0.79
	63.8		47.0		60.7		83.6		255.1			
10-12	256.9	31	217.2	30	235.0	31	255.4	31	964.5	123	7.84	0.86
	42.7		30.4		33.2		45.4		151.7	[illegible]		
15-12	118.3	31	98.2	30	94.4	31	105.6	31	416.5	123	3.39	0.72
	45.1		33.2		35.8		50.8		164.9			
16-12	230.4	31	183.7	30	200.6	31	210.7	31	825.4	123	6.71	0.70
	100.2		72.4		79.1		98.8		350.5			

Chevron / Newscope Production data

Well	MAY OIL / WATER	MAY DAYS	JUNE OIL / WATER	JUNE DAYS	JULY OIL / WATER	JULY DAYS	AUG 85 OIL / WATER	AUG 85 DAYS	TOTAL OIL / WATER	TOTAL DAYS	TOTAL OIL/DAY	TOTAL OIL CUT
12-6	76.9	22	95.7	28	96.9	26	85.0	31	354.5	107	3.31	0.54
	42.4		50.7		58.4		156.5		308.0			
13-6	–	–	–	–	–	–	–	–			–	–
	–	–	–		–		–				–	
4-7	15.1	31	10.3	30	9.6	29	14.5	31	49.5	121.0	0.41	0.03
	375.2		374.2		407.6		413.6		1570.6			
5-7 LAm	121.8	29	102.3	30	101.5	31	110.3	31	435.9	121.0	3.60	0.19
	732.7		496.4		343.5		324.3		1896.9			
11-7	28.8	31	32.5	30	18.4	23	27.7	31	107.4	115	0.93	0.04
	617.3		626.1		530.4		659.0		2432.8			
12-7 LAm	79.8	31	68.0	30	79.0	31	84.6	31	311.4	123	2.53	0.14
	402.3		470.9		544.3		515.8		1933.3			
13-7 LAm	67.3	31	62.4	29	66.8	28	78.7	31	275.2	119	2.31	0.15
	378.8		376.6		421.0		441.3		1617.7			
14-7 LAm	172.9	31	166.2	30	163.7	29	148.5	31	651.3	121	5.38	0.37
	246.2		247.7		293.3		339.2		1126.4			
15-7	39.6	8	91.5	24	51.5	18	42.7	31	225.3	81	2.78	0.65
	12.5		46.7		19.4		41.7		120.3			
3-18	93.0	31	79.1	30	92.8	31	78.4	31	343.3	123	2.79	0.33
	161.1		181.4		165.0		181.1		~~288.5~~ 688.5			
4-18	46.8	31	35.9	30	30.1	31	40.8	31	153.6	123	1.25	0.52
	35.8		33.1		37.7		35.2		141.8			
5-18	62.0	23	38.6	30	40.4	31	29.2	31	170.2	115	1.48	0.69
	8.8		28.0		18.3		22.8		77.9			

Well	May Oil / Water	Days	June Oil / Water	Days	July Oil / Water	Days	Aug Oil / Water	Days	TOTAL Oil / Water		Oil/Day	Oil Cut
6-18	10.3 35.1	31	4.5 37.6	30	35.3 6.3	31	3.9 25.5	23	54.0 104.5	115	0.47	0.34
7-1	~~91.0~~ 158.8	21	10.0 166.0	24	– –	–	– –	–	11.0 324.8	45	0.24	0.03
8-1	39.0 120.8	29	39.1 265.7	29	39.3 120.6	29	14.4 54.3	13	131.8 561.4	100	1.32	0.19
9-1	40.3 6.2	31	40.4 13.7	30	24.2 12.8	31	37.9 16.3	31	142.8 49.0	123	1.16	0.74
10-1	89.0 111.9	31	81.4 224.8	30	78.0 127.2	31	67.9 116.3	31	316.3 580.2	123	2.57	0.35
15-1	129.2 296.9	31	91.2 364.0	30	77.8 437.4	31	55.1 399.5	30	353.3 1497.8	123	2.87	0.19
16-1	80.6 8.6	31	78.1 18.3	30	66.7 13.1	31	118.7 13.6	31	344.1 53.6	123	2.80	0.87
1-12	79.6 22.0	31	59.9 14.0	30	101.9 14.2	31	79.7 15.7	31	321.1 65.9	123	2.61	0.~~87~~ 83
2-12	187.0 175.0	31	141.7 112.6	30	167.1 255.1	31	203.6 271.2	31	699.4 813.9	123	5.69	046
3-12	195.8 315.9	31	121.1 239.9	23	166.7 317.0	30	146.3 400.9	28	627.2 1273.7	112	5.60	0.33
6-12	135.2 340.7	31	97.9 244.5	23	109.7 332.4	31	203.7 389.2	30	546.5 1306.8	115	4.75	0.29
7-12	70.7 11.0	31	53.2 7.0	30	101.9 42.5	31	59.1 7.9	31	284.9 68.4	123	2.32	0.81

Comments on Chevron's Letter of Dec 6/85

(1) TRACT FACTORS (interim and final) are ~~identical~~ almost identical to those included in Chevron's letter of Oct 28, 1985 (two small rounding differences)

(2) Interim factor is supposedly "based on 1985-06, 07 and 08 production data weighted at 100%" The 13-6 well did not produce at all during this period. If the purpose of an interim factor is to keep income levels at their current levels, this well should get no interim factor.

Attached is a calculated interim factor determined by comparing production in the 3 month period from total production from the area during the 3 months. I've noted those where there is a significant difference

Would like the details of how the interim factor is calculated. Note that total Crown Interim TPF is slightly higher by Chevron's method, so we should accept.

(3) Interim factor in force ~~work~~ for 1 year This ~~●~~ concession may have been what resulted in Hernefield agreeing.

(4) CROWN INTERIM INTEREST = 11.4988
CROWN FINAL INTEREST = 8.0332

(5) HERNFIELD INTERIM INTEREST = 37.4257 +
HERNFIELD FINAL INTEREST = 32.4137 +

+ does not include a 1/4 interest of M~~●~~ Lee in SE 1/4 12

?

⑥ Hernfield
Net increase of 9.1800 higher royalty points (INT-FINAL) IN NE¼ 12 partially offset by a decrease of 4.1680 points for SE¼ 18

⑦ There are no major discrepencies in total working interest between interim and final factors.

⑧ In general if Hernfield et al will agree to the factors, we should not stand in the way.

Well	OIL PROD (m³) (1) June July Aug 85	FACTOR BASED ON (1)	CHEVRON PROPOSED FACTOR	
12-6	277.6	3.7193	3.1981	
13-6	—	0	1.1215	×
4-7	34.4	0.4609	0.4919	
5-7	314.1	4.2083	3.9623	
11-7	78.6	1.0531	1.0340	
12-7	231.6	3.1030	3.0079	
13-7	207.9	2.7854	2.9853	
14-7	478.4	6.4096	5.7748	
15-7	~~[illegible]~~ 185.7	2.4880	2.2422	
3-18	250.3	3.3535	3.1419	
4-18	106.8	1.4309	1.4565	×
5-18	108.2	1.4497	1.6120	×
6-18	43.7	0.5855	0.6352	×
7-1	10.0	0.1340	0.2916	×
8-1	92.8	1.2433	1.5727	×
9-1	102.5	1.3733	1.3652	
10-1	227.3	3.7153	2.7447	×
15-1	224.1	3.0012	3.3776	
16-1	263.5	3.5304	3.2629	
1-12	241.5	3.2356	3.0448	
2-12	512.4	6.8651	7.6603	×
3-12	434.1	5.8161 } 11.3267	~~6.3779~~ ~~4.2115~~ } 11.4988	~~×~~
5-12	~~444~~ —	—	0.0001	
6-12	411.3	5.5106	5.1208	
7-12	214.2	2.8699	2.7016	
8-12	81.3	1.0893	1.2361	
9-12	730.7	9.7899	9.6665	
10-12	707.6	9.4804	9.1458	
15-12	298.2	3.9953	3.9400	
16-12	595.0	7.9718	7.8278	
	7463.8			

Working Interest Owner	Working Interest (%) Interim	Final
Chevron	57.6921	59.1118
Newscope	20.0437	19.2048
Colenco	6.6936	6.4793
Can Am	2.9730	2.7379
New McManus	3.7121	3.2651
Pan Canadian	2.4542	3.1746
Great American Energy	6.4055	6.1886

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

NOV 20 1985.

Hernefield Enterprises Ltd.
c/o Mr. Lyle Lee
Waskada, Manitoba
ROM 2EO

Attention: Mr. Lyle Lee

Dear Sirs:

Re: Proposed Waskada Unit No. 6
Board Order No. PM 44

We are writing with regards to the subject proposed Unit and approved waterflood project.

Based on performance of the initial wells completed in the Waskada Lower Amaranth A Pool, it became apparent to the Board that pressure maintenance was going to be necessary to maximize recovery of oil from the Pool. In furthering this view, the Board first contacted Chevron Canada Resources Limited and Newscope Resources Limited, the major operators in the south part of the Pool, in December 1983 requesting the operators evaluate the feasibility of initiating pressure maintenance in this part of the Pool. After numerous communications between the Board and the operators, Chevron submitted an application on November 29, 1984 for approval to conduct pressure maintenance by waterflooding in the area of the proposed Waskada Unit No. 6. Following public notice, the Board approved the application in May 1985 by issuance of Board Order No. PM 44. The Board noted in its letter of approval that unitization of the area would have to be finalized before water injection could be initiated. In addition, the Board has reiterated its position on numerous occasions that the project should be expedited to avoid loss of reserves that may result if the reservoir pressure is allowed to decline to levels below the bubble point.

At the present time, it appears that the only obstacle to initiating injection is acceptance of the tract participation factors by the royalty interest owners and subsequent approval of the Unit Agreement by the Board. Further to this, we are aware that Hernefield Enterprises Ltd. may not agree with the tract participation factors proposed and agreed to by the Working Interest Owners.

....2

DEPARTMENT OF ENERGY AND MINES
NOV 21 1985
PETROLEUM BRANCH

Without agreement from all the royalty interest owners, voluntary unitization cannot occur. However, The Mines Act includes provisions whereby the Board, after a public hearing called on its own motion may order that an area be operated as a Unit if it feels that such operations are necessary to prevent waste. Such a Unitization Order would include tract participation factors set by the Board.

In carrying out its mandate to ensure maximum economic recovery of the Province's petroleum resources, the Board, if necessary, is prepared to exercise its responsibilities under the Act to ensure implementation of the subject project.

However, I'm sure that you'll agree that it would be preferable for the various royalty and working interest owners to voluntarily enter into a Unit Agreement. To this end, the Board urges you to attempt to arrive at a reasonable and mutually acceptable agreement with the working interest owners.

The Board asks that you provide your comments on this situation prior to December 1, 1985.

Yours sincerely,

ORIGINAL SIGNED BY
CHARLES S. KANG

Charles S. Kang,
Chairman

LRD/HCM/lk

c.c. Petroleum Branch ✓

b.c. Wm. McDonald
J. F. Redgwell

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

NOV 20 1985

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

Attention: Ms. R. I. Zygocki

Dear Sirs:

Re: Waskada Unit No. 6
Compulsory Unitization

Your letter of October 28, 1985 suggesting The Oil and Natural Gas Conservation Board hold a hearing to consider compulsory unitization of the proposed Waskada Unit No. 6 is acknowledged.

We ask that you confirm that all of the other (excluding Hernefield Enterprises Ltd.) Royalty Interest Owners have been contacted and have expressed no concern regarding the proposed Unitization Agreement and specifically, the tract participation factors.

While the Board is prepared to consider your request, I am sure you will agree that a voluntary agreement acceptable to all parties involved would be preferable. To this end, you are requested to provide an update on your latest discussion with Hernefield Enterprises Ltd. and your comments regarding the potential for success of continued discussions.

In reviewing your letter, it is noted that Legal Subdivision 6 of Section 7-1-25 (WPM) is included on Figure No. 1 (map of the proposed Unit area) but not on Table No. 1 (Interim and Final Tract Participation Factors). It is our understanding that this tract is not being included in the initial Unit. We ask that you confirm this understanding.

We request your early response to this letter to enable the Board to determine the most effective course of action to resolve this situation.

Yours sincerely,

ORIGINAL SIGNED BY
CHARLES S. KAN

Charles S. Kan
Chairman

DEPARTMENT OF ENERGY AND MINES
NOV 21 1985
PETROLEUM

LRD/HCM/lk

b.c. Petroleum Branch

Manitoba

Action / Route Slip

Date: 1985 11 20

To: BOB

From: Elone

Telephone:

☐ Take Action ☐ Per Your Request ☐ Circulate, Initial and Return ☐ For Approval and Signature ☐ Make ____ Copies

☐ May We Discuss ☐ For Your Information ☐ Return With Comments or Revisions ☐ Draft Reply for Signature ☐ Please File

Comments: Re: Wrakoda Unit 6

Mel Lee (Wrakoda 673-2681) called wanting to come in and meet with us to discuss TRACT FACTORS for Unit 6.

I indicated we would be prepared to meet with him on Tues. afternoon.

Maybe we should get together before hand to plan our strategy to help get this potential problem resolved without a hearing.

MG-1298 PS-I-182

Manitoba

Memorandum

Date November 7, 1985

To The Oil and Natural Gas Conservation Board

Charles S. Kang - Chairman
Wm. McDonald - Deputy Chairman
J. F. Redgwell - Member

From H. Clare Moster
Director, Petroleum Branch

Telephone

Subject Request for a Board Hearing

Proposed Waskada Unit No. 6

First | Fold

The attached letter to the Board Dated 1985-10-28 from the Working Interest Owners of the Proposed unit (represented by Chevron Canada Resources Limited) requests the Board to hold a hearing on its own motion pursuant to Section 81 (should be 76) of The Mines Act.

Recommendation

Two draft letters are attached which are recommended be sent by the Board.

Background

Wells in the subject area were drilled by Chevron and Newscope as early as April, 1982. Commencing in December, 1983 the Board requested these operators investigate the need and feasibility of introducing waterflood pressure maintenance operations in this area. Since that date numerous correspondence has passed between the Board and the operators with the Board impressing upon the operator's the urgency of getting a pressure maintenance project in operation and the operators informing the Board of their progress.

An application for a waterflood pressure maintenance project was made to the Board in November, 1984 and Board Order No. PM 44 authorizing the project was passed by the Board in May, 1985. Prior to commencing water injection, the project area required unitization.

The subject letter indicates that the operators have proceeded to a point that the only apparent problem is that one royalty owner (Hernefield Enterprises Ltd.) will not agree to the proposed unit agreement.

The Working Interest Owners have requested the Board to call a hearing on its own motion under Section 81 (should be subsection 76(1)) with the objective of the Board issuing a compulsory unitization order under subsection 76(3) as provided for by Section 81.

....2

Discussion

The Mines Act provides, in part, as follows"

"76(1) The board, upon its own motion, may .... hold a hearing to consider the advisability or necessity for the operation of a pool, field or part thereof, as a unit".

"76(3) If the board is of the opinion that the operation of the pool, field, or part thereof, as a unit would prevent waste therein .... the board may, with the approval of the Lieutenant Governor in Council, order that the pool, field, or part thereof, be operated as a unit".

"77 The board shall not make an order under subsection (3) of section 76 unless ....

(b) the royalty owners having seventy-five per centum of the royalty interests .... have agreed in writing to the proposed plan of unit operation....".

"81 Notwithstanding any other provision of this Act, when the board has of its own motion held a hearing under subsection (1) of section 76,..... it may, with the approval of the Lieutanant Governor in Council, order that a pool, field, or part thereof be operated as a unit for the carrying out of the intent, purpose, and object of this Part .....".

As Hernefield owns greater than 25% (approx. 36%) of the royalty interests, the working interest owners are precluded from applying for a hearing under subsection 76(1) because of the limitation provision of 77(b). Therefore, their request is for the Board to use its authority under Sections 76 and 81 to call a hearing on its own motion under 76(1) and possibly issue a compulsory unit order pursuant to Section 81.

All parties, including the Petroleum Branch, agree that a waterflood pressure maintenance project should be initiated as soon as possible.

The major problem appears to be the Working Interest Owner's inability to obtain the consent of Hernefield to the proposed Tract Participation Factors.

As the holding of a hearing by the Board on its own motion may be a precedent in Manitoba, it may be desirable for the Board to make both parties aware of its continuing concern to maximize recovery of the province's resources, preferably without having to do so by a

....3

compulsory order. Although such action may ultimately be necessary, it is suggested that the Board write both parties indicating its concerns and requesting they attempt to resolve their differences voluntarily.

Draft letters are attached.

Original Signed by H. C. Moster

H. Clare Moster

HCM/lk

1. Have all the other royalty owners been contacted (i.e. are there other "Hernefields" that haven't come out of the wood work yet)

2. Unlike Omega, Chevron does not deduct cum. prod from the ϕh component of the ~~tract factor~~. This is because Chevron does not feel that it can derive a meaningful ~~ϕh~~ effective ϕh. The ϕh factor is used only to qualitatively reflect the original reserves in each tract.

The cum. production for Hernefield's wells (net) is 52% of the total while the tract factor allocated to these wells is 36%. On this basis, exclusion of cum. prod. from the tract factor calculation is relatively of more benefit to Hernfield than the other royalty participants ~~even though~~ and they have already rec'd royalties on this production.

3. Due to notice and scheduling requirements, it may be very difficult to get the problem resolved by freeze-up.

4. Use of current productivity increases Hernfield's interest from 36 to 41%. (Major increase for NE 1/4-12 with reductions in Hernfield's other quarters. ~~This approach would reduce some W10's share and would not likely be agreed to for~~

5. Does the Board leave it itself open to critisism if a hearing is called pursuant to Sec. 81 ("on its own motion") as a result of a request by Chevron.

6. Map shows Lsd 6-7-1-25 as being in Unit but this well is not on the tract factor list and as far as I know is not included in the Unit.

7. I have man working on derivation of our own tract factors (will include deduction of cum. prod from Ø h number). I suspect that this will reduce Hernfeld's factor below the current 36%. This may be useful as evidence at the hearing..

Cum P to 84-12

TOTAL Area 45,250 m².

Hernefield Properties

Well	Interest	Net CumP
1-12	0.25	375.7
2-12	0.25	1686
7-12	0.25	~~237.8~~ 397.3
8-12	0.25	328.9
9-12	1.00	3760.5
10-12	1.00	3939.6
15-12	1.00	3296.2
16-12	1.00	5694.3
3-18	1.00	3294.1
4-18	1.00	1179.7
5-18	1.00	840.7
6-18	1.00	380.3
		23,655

% OF TOTAL. 52%

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

1985-10-28

DEPARTMENT OF ENERGY AND MINES
OCT 29 1985
PETROLEUM BRANCH

J.M. Taylor
Coordinator
Units & Joint Ventures
Producing Department

DELIVERED

Compulsory Unitization
Proposed Waskada Unit No. 6

Bob
- provide me with a list of comments
Clare

Manitoba Oil and Natural Gas
Conservation Board
c/o Manitoba Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. C. Moster

Gentlemen:

Chevron Canada Resources Limited ("Chevron"), on behalf of the Working Interest Owners of the proposed Waskada Unit No. 6 ("the proposed Unit") requests The Oil and Natural Gas Conservation Board of Manitoba ("the Board"), pursuant to Section 81 of the Mines Act, C.C.S.M. Chap. M160, of its own motion, schedule a hearing to consider compulsory unitization of the proposed Waskada Unit No. 6. It would be Chevron's intention to participate in the said hearing by making a unitization proposal and leading evidence, and making arguments in support of the proposal. The basis for requesting a hearing is the refusal of one of the royalty owners, Hernefield Enterprises Ltd. ("Hernefield"), to accept the tract factors as approved by the Operating Committee of the subject proposed unit.

For the information of the Board, we have summarized the terms of the proposed Unit and waterflood which have been agreed to by the Working Interest Owners thereof in Attachment 1 hereto. We will, of course, supply further detail on any of these matters upon request. We have summarized below the objections of Hernefield to the proposed Unit and the efforts which have been made towards resolving these issues.

Hernefield's royalty interest is approximately 36% based on ownership in three quarter sections of the proposed unit area; SW-1/4 18-1-25 WPM at 100%, SE-1/4 12-1-26 WPM at 25% and the NE-1/4 12-1-26 WPM at 100%. Hernefield considers the NE-1/4 12-1-26 productivity penalized by the approved tract factors and has suggested the Operating Committee revise the current production and weighting data in the participation formula to more accurately represent the performance of the NE-1/4 12-1-26 WPM. Attempts

have been made by both Chevron and Newscope Resources Ltd., on separate occasions, to answer the objections of Hernefield; however, these attempts have been thus far unsuccessful. Most recently on 1985-09-25, Chevron personnel met with representatives of Hernefield in Waskada to address this concern and below is a summary of the said meeting:

1. Waterflood processes were reviewed presenting data which showed a positive waterflood response. In general, Hernefield was in agreement with the waterflood scheme.

2. The history of unitization proceedings and negotiations was discussed, noting that a one year period to form a unit is fairly typical. Hernefield indicated they would have liked to have been more involved in these proceedings; however Chevron stated that it is not standard practise for a royalty owner to be involved in these negotiations.

3. Chevron reviewed the tract factor formula in detail, in terms of how it was developed and the basis for the various parameters. Chevron emphasized that the formula was negotiated among seven Working Interest Owners and therefore considered fair and equitable.

4. The changes to the tract factor formula as suggested by Hernefield were reviewed. Chevron stressed that such changes would be a lengthy process, if not impossible at this time. We did however agree to look at updating current production data in the formula. The 1985 production data would be considered instead of the approved 1984 production data. However as any such changes are subject to the approval of the Working Interest Owners, Chevron would not promise the changes would be made.

5. Chevron tried to impress upon Hernefield that any increase to the NE-1/4 12-1-26 tract factors would ultimately decrease the tract factors in the other Hernefield properties.

Hernefield is concentrating its efforts on the NE-1/4 12-1-26 and are very adamant with regard to their requests, stating that they would not agree to sign the unit agreement until the tract factors were revised.

Chevron, in an effort to investigate Hernefield's concerns, compiled four tract factor scenarios to test the sensitivity of the tract participation formula to varying current production data and weightings. The issue of revising tract factors was then addressed by the Operating Committee. The Operating Committee was not unanimously in favour of changing the tract factors from those approved; however, the following proposal was formulated to be offered to Hernefield as a partial solution to the problem:

1. Assign an interim participation where the tract factors are based on 1985-06, 07 and 08 production data weighted at 100%. (This type of tract participation reflects the Hernefield proposal.)

2. Interim participation will be for 6 months to one year following the effective date of the unit. The interim participation period will be that negotiated with Hernefield.

3. Final participation will be based on the currently approved tract factors.

Although it is doubtful that this proposal will be to Hernefield's satisfaction, we are nevertheless communicating this proposal to them.

For economic and operational reasons Chevron emphasizes the urgency of physically having the waterflood implemented before winter. If further delays are experienced it is plausable that water injection will be deferred until the spring of 1986. Well conversions will not be conducted until the unit is effective and flowline installation during the winter months will most likely be avoided. Under this scenario the royalty and working interest owners will be delayed six months in enjoying the benefits of unitization. In addition proper reservoir management will be deferred.

For the reasons stated above Chevron, on behalf of the Working Interest Owners of the proposed Waskada Unit No. 6, requests the Board set an hearing date as soon as possible prior to winter freeze up, in order to resolve these matters. A timely resolution to this problem is imperative to optimize hydrocarbon recovery in the proposed Waskada Unit No. 6 area.

We appreciate your early attention to this matter. If there are any questions on the foregoing matters please contact Mr. Kevin G. Matieshin at our Virden office, telephone No. 748-1334, or Ms. Rhonda I. Zygocki at our Calgary office, telephone No. 403-234-5026.

Yours very truly,

J. M. TAYLOR, Coordinator,
Units & Joint Ventures

DGG/ps
Attach

cc: All Working Interest Owners

ATTACHMENT NO. 1

PROPOSED WASKADA UNIT NO. 6
UNITIZATION AND WATERFLOOD PROPOSAL

INTRODUCTION

The Waskada Lower Amaranth "A" (Spearfish) Pool was discovered in 1981. Since then, many wells have been drilled and waterflood and gas flood schemes are currently operating in portions of the Pool. The proposed Waskada Unit No. 6 area is in the south end of the Pool and contains wells currently operated by Chevron Canada Resources Limited and Newscope Resources Limited.

The area proposed for unitization and waterflooding (Figure 1) has 31 wells completed in the Lower Amaranth formation at an average depth of 920 m. It is expected that unit expansions will take place shortly after initial unitization to include additional wells that have or may be completed. The peak production for this area was reached in 1984-09 at 91 m^3/d. Since that time production has steadily declined. At the end of 1984-12, 45 250 m^3 of oil had been produced and the daily rate was 79 m^3/d. The daily production rate will continue to decline if this area remains under the present method of operation.

WATERFLOODING

It is anticipated that the area's ultimate oil recovery and producing rate can both be improved by waterflooding. The Waskada Unit No. 1 waterflood in the same formation has been in operation for approximately two years, with preliminary results indicating that oil recovery will be increased.

Studies have been conducted during the past year which indicate that waterflooding can be employed successfully in the Waskada field, increasing the ultimate recovery for the Unit area to approximately 177 000 m^3 of oil. This is almost double the presently anticipated 89 000 m^3 which is expected under natural depletion. Figure 2 is a graph showing the production which is anticipated from the proposed Waskada Unit No. 6 area under the present method of operation compared with that which is expected from waterflooding. Approval No. PM 44 has been granted by the Board to implement a waterflood in this Waskada area.

The approved waterflood scheme is a nine-spot pattern on 16 ha spacing. To conduct this flood a water injection plant, an injection pipeline and 11 well conversions are required. Water plant and pipeline installation are in progress. Producing wells however cannot be converted to injection until the Unit is effective.

UNITIZATION

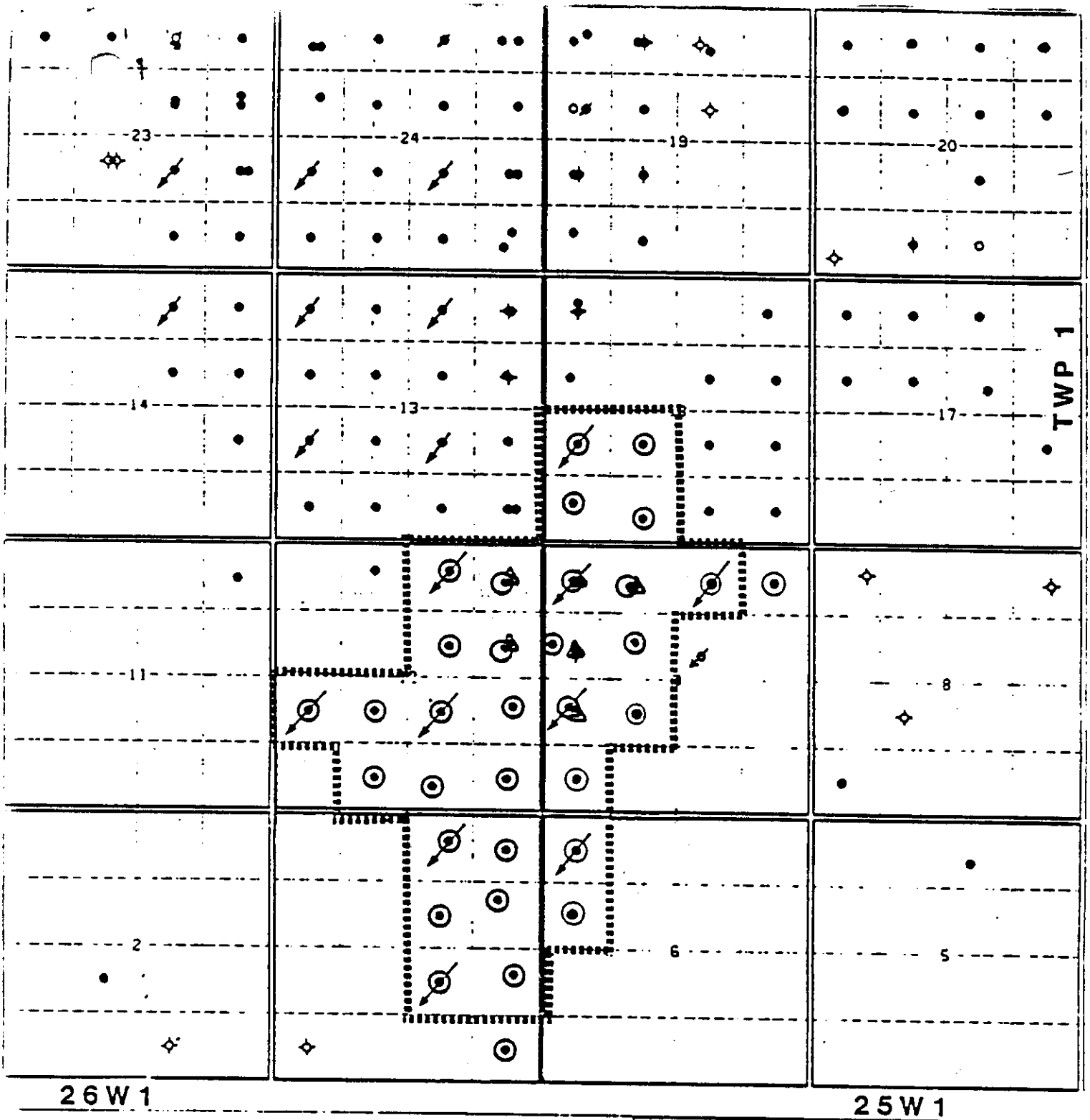
In order to implement the most efficient waterflood for the proposed Waskada Unit No. 6 area, it is necessary that this part of the Waskada field be unitized. Unitization proceedings were initiated by Chevron on 1985-01-17. Since that time the Working Interest Owners have negotiated the unitization terms. Development of an equitable tract participation formula, to be used as the basis of Unit production sharing, has been the primary task of the Working Interest Owners. Commonly used factors to determine participation are oil production, water cut and various oil-in-place factors. In this pool, production history not only gives the present and past value of each well but also indicates the future worth of each well. Each well's decline rate, current rate, oil cut, and porosity-footage (used to calculated oil-in-place) represent the present and future worth of that well. These factors have been combined in the following formula which the Working Interest Owners feel represents the total value for each well and the fairest means of particpating within this Unit:

> Tract Participation Factor = 0.3 x current oil rate factor + 0.1 x current oil cut factor + 0.3 x initial oil rate factor + 0.1 x initial oil cur + 0.2 x porosity-metre factor.

The porosity-metre term has been given a low weighting due to the difficulty in assigning oil-in-place or oil reserves to each well. However, it is felt this term was necessary to help represent the future value of each well. Interim and final participations, as proposed by the Operating Committee, are presented in Table No. 1.

A Unit Agreement and Unit Operating Agreement have been developed which set down the terms and conditions of the Unit, the tract participation factors and the Working Interest Owners and Royalty Owners (Table No. 2). Review of these documents by the Board and the Working Interest Owners is complete.

Apart from Hernefield's concerns, Chevron is unaware of any Royalty Owners dissatisfied with the proposed tract factors.



LEGEND

- SPEARFISH
- MC-3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA

Chevron Canada Resources Limited

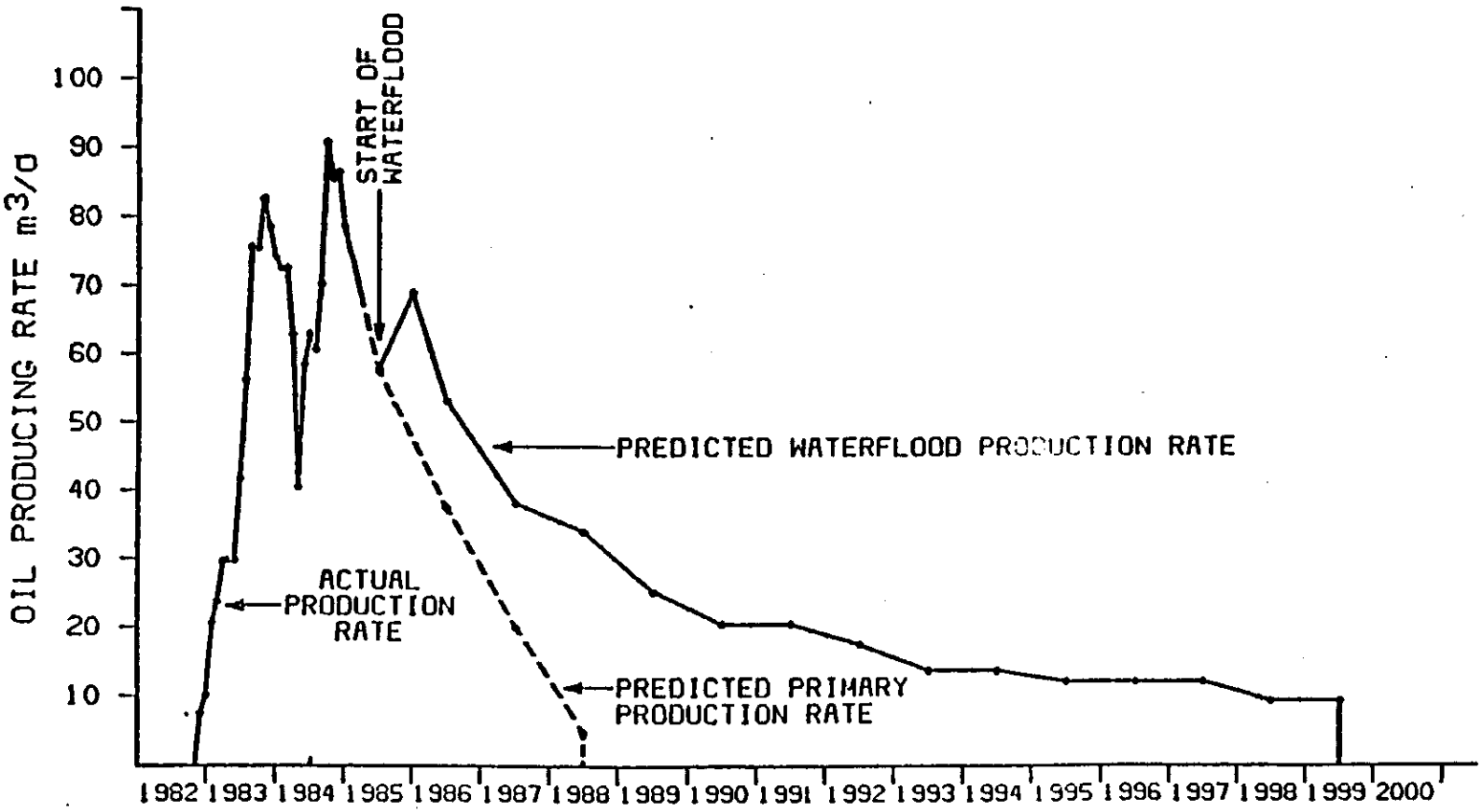
WASKADA AREA
PROPOSED UNIT

FIGURE NO. 1

	DOCUMENT NO. A-10780	INTERPRETATION OVERLAY NO. EC-01

FIGURE NO. 2

WASKADA UNIT NO. 6
PREDICTED WATERFLOOD PERFORMANCE



G00043

TABLE NO. 1

INTERIM AND FINAL TRACT PARTICIPATION FACTORS
(as approved by the proposed Waskada Unit
No. 6 Operating Committee)

Tract No.	Interim Tract Participation	Final Tract Participation
12-06-01-25 WPM	0.031981	0.032391
13-06-01-25 WPM	0.011215	0.013370
04-07-01-25 WPM	0.004919	0.010732
05-07-01-25 WPM	0.039623	0.039138
11-07-01-25 WPM	0.010340	0.016681
12-07-01-25-WPM	0.030079	0.067734
13-07-01-25-WPM	0.029853	0.032593
14-07-01-25-WPM	0.057748	0.042572
15-07-01-25-WPM	0.022422	0.035092
03-18-01-25-WPM	0.031419	0.053318
04-18-01-25-WPM	0.014565	0.018339
05-18-01-25-WPM	0.016120	0.025960
06-18-01-25-WPM	0.006352	0.012519
07-01-01-26-WPM	0.002916	0.016863
08-01-01-26-WPM	0.015727	0.017504
09-01-01-26-WPM	0.013652	0.031170
10-01-01-26-WPM	0.027447	0.028235
15-01-01-26-WPM	0.033776	0.023430
16-01-01-26-WPM	0.032629	0.046574
01-12-01-26-WPM	0.030448	0.033266
02-12-01-26-WPM	0.076603	0.039019
03-12-01-26-WPM	0.063779	0.042115
05-12-01-26-WPM	0.000001	0.004807
06-12-01-26-WPM	0.051208	0.033410
07-12-01-26-WPM	0.027016	0.036134
08-12-01-26-WPM	0.012361	0.033034
09-12-01-26-WPM	0.096665	0.049619
10-12-01-26-WPM	0.091459 0.1459	0.060091
15-12-01-26-WPM	0.039400	0.041935
16-12-01-26-WPM	0.078278	0.062356

TABLE NO. 2

LIST OF WORKING INTEREST OWNERS AND ROYALTY OWNERS

Working Interest Owners

Chevron Canada Resources Limited
Newscope Resources Limited
PanCanadian Petroleum Limited
Great American Energy, Inc.
Colenco Petroleum Ltd.
Can-Am Drilling Ltd.
New McManus Red Lake Gold Mines

Royalty Interest Owners

Dome Petroleum Limited
Daisy May Lawrence
Roy Ovey Young
59643 Manitoba Ltd.
Rushton Resources Ltd.
PanCanadian Petroleum Limited
Hernefield Enterprises Ltd.
Smart Oils Ltd. (Frank Robert Smart)
Robert Stead
Melvin James Lee
Melvin Ballantyne
William Jennings Hill (Estate)
Marilyn R. Westlie
Crawford Smith and Dorothy Ebba Smith
Paul Boyle and Mary Boyle
William Witteman and Nellie Witteman
Charles Westlie, Administrator of the Estate of Henry Westlie
Paul Boyle
Her Majesty the Queen in Right of the Province of Manitoba.

Manitoba

Energy and Mines Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

September 25, 1985

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

Attention: R. I. Zygocki, Chairman
Operating Committee, Proposed Waskada Unit No. 6

Dear Sirs:

Re: Draft Unit Agreement
Proposed Waskada Unit No. 6

Receipt of the revised draft of the subject proposed Unit Agreement is acknowledged.

With respect to production data for New Scope S. Waskada 13-6-1-25 (WPM), we confirm that Newscope has submitted an Initial Production Report. However, our review of this report and the completion history of this well has resulted in a need for clarification of the data submitted. Newscope has been notified of this and a decision on whether or not the well is capable of oil production will be made by the Branch when adequate information is available. We reiterate our position that the well should be given a productivity component in tract factor calculations only if records indicate that it has produced new oil.

With respect to the proposed deletion of reference to the Mission Canyon zone in the Unit Agreement, we find this to be satisfactory.

Yours sincerely,

(Original Signed by H. C. M...

H. Clare Moster, P. Eng.
Director, Petroleum Branch

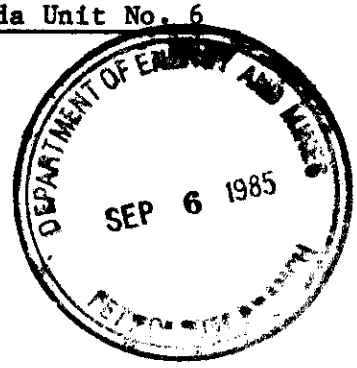
LRD/lk

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

1985-09-03

J.M. Taylor
Coordinator
Units & Joint Ventures
Producing Department

Draft Unit Agreement
Waskada Unit No. 6



Manitoba Energy and Mines
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. C. Moster

Gentlemen:

Chevron Canada Resources Limited, on behalf of the Working Interest Owners of the proposed Waskada Unit No. 6, submits two copies of the revised draft Unit Agreement entitled "Unit Agreement - Waskada Unit No. 6" for the Crown's further review and comment.

Exhibit "A" which details the tract participation, Working Interest, and Royalty Owners and Interest has been attached to this draft of the Unit Agreement. This exhibit however is still in draft form pending completion of the titles work.

With respect to the tract factor calculated for well 13-6-1-25 WPM, we wish to confirm that the productivity based component has been correctly assigned. The 13-6 well has recovered its completion oil. Newscope Resources Ltd. are forwarding to your office the appropriate production data for your records.

not rec'd yet

Chevron further advises that reference to the Mission Canyon zone has been deleted from the revised draft Unit Agreement. We trust this meets with your satisfaction.

Early consideration and comments on this agreement would be appreciated in order that an execution agreement can be finalized.

Yours very truly,

R. I. ZYGOCKI, Chairman
Operating Committee
Proposed Waskada Unit No. 6

RIZ/db
Attach.

Manitoba

Energy and Mines Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

August 14, 1985

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

Attention: Mr. K. G. Matieshin, Chairman
Operating Committee,
Proposed Waskada Unit No. 6

Dear Sirs:

Re: Draft Unit Agreement
Waskada Unit No. 6

Receipt of your letter of August 8, 1985 and attached draft copies of the subject Unit Agreement are acknowledged. With respect to the form and content of the agreements, we have no comments other than with reference to Section 205 where we would suggest it is unnecessary to provide duplicate copies of exhibits both to the Board and the Department. One copy to each party should be sufficient.

With respect to tract factors, we note that the well on Lsd 13-6-1-25 (WPM) is assigned a productivity based component. However, based on information submitted to the Branch, the well has not recovered its completion oil and has produced no new oil. By contrast the well in Lsd 5-12-1-26 (WPM) which is a Crown well, receives no such productivity component. We feel this to be an inequitable situation and would therefore be reluctant to recommend to the Minister that he consent to the Unit Agreement on behalf of the Crown.

Your attention to this situation is requested.

Yours sincerely,

Original Signed by H. C. Moster

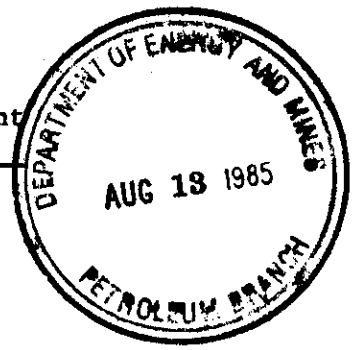
H. Clare Moster, P. Eng.
Director, Petroleum Branch

LRD/lk

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

1985-08-08

J.M. Taylor
Coordinator
Units & Joint Ventures
Producing Department



Draft Unit Agreement
Waskada Unit No. 6

Manitoba Energy and Mines
Petroleum Branch
555, 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. C. Moster

Gentlemen:

Chevron Canada Resources Limited, on behalf of the Working Interest Owners of the proposed Waskada Unit No. 6, submits two copies of the draft Unit Agreement entitled "Unit Agreement - Waskada Unit No. 6" for the Crown's review and comment. The proposed Unit includes 30 oil wells producing from the Lower Amaranth formation in the Waskada area.

Successful unitization will permit the implementation of the waterflood scheme as outlined in Chevron's application to the Manitoba Oil and Natural Gas Conservation Board dated 1984-11-29 which has been approved by the Board (Order No. PM44).

The initial unit size has been chosen in order to expedite unitization proceedings. Additional drilling is being conducted, and if successful, additional tracts will be included in the Unit at a later date through the Unit enlargement procedures. The well 6-7-1-25 WPM has not been included in the initial unit area as it has not yet produced its load oil back.

The tract participations outlined in Exhibit "A" have been calculated using the following formula approved by the Working Interest Owners:

> Tract participation factor = 0.3 x current oil rate factor + 0.1 current oil cut factor + 0.3 x initial oil rate factor + 0.1 x initial oil cut factor + 0.2 x Øh factor.

Attached for your information are tables outlining the tract participation calculations.

Please note that the draft agreement is deficient in Exhibit "A" in that the Royalty Owners have not been listed. Once title work is completed Exhibit "A" will be finalized.

Early consideration and comments on this agreement would be appreciated in order that a final execution agreement can be finalized and sent to the Working and Royalty Interest Owners. Chevron desires to have the waterflood in place before the winter season.

If you have any questions on this matter please call Mr. Kevin Matieshin at (403) 234-5026.

Yours very truly,

K. G. MATIESHIN, Chairman
Operating Committee
Proposed Waskada Unit No. 6

KGM/db
Attach.

cc: All Working Interest Owners
Proposed Waskada Unit No. 6

Waiaro Unit : Oil Rate and Oil Cut Scale Factor Calculations
First Month or Cumulative Prod.

WELL	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL CUT	OIL RATE FACTOR	OIL CUT FACTOR
10-06-01-25-W1	33.5	62.8	6	5.5833333	0.3478712	0.024992	0.024408
13-06-01-25-W1	29.4	612	30	0.98	0.0458372	0.004386	0.003216
04-07-01-25-W1	9.7	456.6	30	0.3233333	0.0208020	0.001447	0.001459
05-07-01-25-W1	176.3	71.5	15	11.753333	0.7114609	0.052610	0.049920
11-07-01-25-W1	2.5	542.6	2	1.25	0.0045863	0.005595	0.000321
12-07-01-25-W1	143.6	0.2	5	28.72	0.9986091	0.129557	0.070068
13-07-01-25-W1	34.1	228.5	5	6.82	0.1298552	0.030527	0.009111
14-07-01-25-W1	23	145.6	15	1.5333333	0.1364175	0.006863	0.009571
15-07-01-25-W1	155.9	103.8	30	5.1966666	0.6003080	0.023261	0.042121
07-18-01-25-W1	392.3	212.3	21	18.680952	0.6488587	0.083620	0.045527
01-18-01-25-W1	10.7	40.8	15	0.7133333	0.2077669	0.003193	0.014578
03-18-01-25-W1	130	93	16	8.125	0.5829596	0.036369	0.040904
06-19-01-25-W1	59.3	24.4	12	4.9416666	0.7084826	0.022120	0.049711
07-01-01-26-W1	59.5	262.5	25	2.38	0.1847826	0.010653	0.012965
02-01-01-26-W1	49.9	191.6	24	2.0791666	0.2066252	0.009306	0.014498
04-01-01-26-W1	106.3	52.1	16	6.64375	0.6710858	0.029738	0.047087
10-01-01-26-W1	51.7	35.3	11	4.7	0.5942528	0.021038	0.041696
15-01-01-26-W1	18.3	62.9	19	0.9631578	0.2253694	0.004311	0.015813
16-01-01-26-W1	36.7	61	21	1.7476190	0.3756597	0.007822	0.026357
01-12-01-26-W1	245.4	50.2	18	13.7	0.7321852	0.061324	0.051374
02-11-01-26-W1	158.6	160.3	30	5.2866666	0.4834551	0.023664	0.024336
12-12-01-26-W1	79.8	104	22	3.6272181	0.4310722	0.016033	0.030246
16-12-01-26-W1	18.3	62.9	19	0.9631578	0.2253694	0.004311	0.015813
13-12-01-26-W1	256	70.2	14	14.947368	0.7971045	0.066707	0.055913
09-13-01-26-W1	61.4	15.7	4	11.35	0.7961545	0.056630	0.055900
08-13-01-26-W1	223.2	196.8	23	14.052173	0.6733333	0.062900	0.047245
01-13-01-26-W1	244.6	46	8	38.1	0.8184469	0.170732	0.057830
05-13-01-26-W1	127	0	1	127	1	0.032479	0.070164
09-13-01-26-W1	1783.9	27.8	19	93.889473	0.9845271	0.419214	0.069812

WASKADA UNIT 6 OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
First Four Months of Cumulative Prod.

	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
12-06-01-25-W1	287.2	301.1	70	4.1028571	0.4881862	0.024458	0.033744
1[illegible]-06-01-25-W1	0.0	0.0	0				0
04-07-01-25-W1	51.7	1715.2	122	0.4237704	0.0292602	0.002526	0.002022
05-07-01-25-W1	801.2	325.5	101	7.9326732	0.6039044	0.047289	0.041742
11-07-01-25-W1	129.1	2178.8	92	1.4032608	0.0559382	0.008365	0.003866
12-07-01-25-W1	1549.6	299.8	82	18.897560	0.8378933	0.112654	0.057916
13-07-01-25-W1	241.4	1033.6	65	3.7138461	0.1893333	0.022139	0.013086
14-07-01-25-W1	202.7	443.9	76	2.6671052	0.3135344	0.015899	0.021671
15-07-01-25-W1	316.3	227.7	74	4.2743243	0.5814338	0.025480	0.040189
07-18-01-25-W1	1184.6	454.7	113	10.483185	0.7226255	0.062493	0.049948
[illegible]-18-01-25-W1	46.6	227.5	78	0.5974358	0.1700109	0.003561	0.011751
[illegible]-18-01-25-W1	402.1	205.6	98	4.1030612	0.6616751	0.024459	0.045735
06-18-01-25-W1	174.7	308.3	94	1.8585106	0.3616977	0.011079	0.025001
07-01-01-26-W1	76.5	779.4	86	0.8895348	0.0893796	0.005302	0.006178
08-01-01-26-W1	153.8	605.3	88	1.7477272	0.2026083	0.010418	0.014004
09-01-01-26-W1	337.7	160.4	100	3.377	0.7073526	0.023112	0.048893
1[illegible]-01-01-26-W1	662.8	818.5	100	6.628	0.4474448	0.039511	0.030927
15-01-01-26-W1	350.1	962.6	97	3.6092783	0.2886946	0.021516	0.019954
16-01-01-26-W1	723.2	226.8	97	7.4556701	0.7612631	0.044445	0.052619
01-12-01-26-W1	655.7	211.8	110	5.9609090	0.7558501	0.035534	0.052245
02-12-01-26-W1	622.7	623.3	120	5.1891666	0.4997592	0.030934	0.034544
03-12-01-26-W1	654.7	813.7	114	5.7429824	0.4458594	0.034235	0.030818
0[illegible]-12-01-26-W1	581.2	1115.2	114	5.0982456	0.3426078	0.030392	0.023681
0[illegible]-12-01-26-W1	741.6	[illegible].153	106	6.9962264	0.8020765	0.041706	0.055440
[illegible]	[illegible]	[illegible]	[illegible]	5.[illegible]	0.8510514	0.034742	0.0588[illegible]
0[illegible]-12-01-26-W1	1149.[illegible]	690.4	11[illegible]	10.[illegible]	0.6247214	0.061172	0.043181
10-12-01-26-W1	1305.9	166.6	98	13.325510	0.8868[illegible]	0.079437	0.061[illegible]
15-12-01-26-W1	673.[illegible]	97.[illegible]	[illegible]	7.[illegible]	0.[illegible]	0.0400[illegible]	0.041072
16-12-01-26-W1	1058.[illegible]	223.4	[illegible]	16.[illegible]	0.[illegible]	0.097124	0.0[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

1975-05-01 ADJUSTMENT OF FIRST FOUR MONTHS PRODUCTIVITY INDEX FACTORS

FIRST FOUR MONTHS FACTORS		ADJUSTED FIRST FOUR MONTHS FACTORS		ADJUSTED FACTORS X WEIGHTING	
OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
0.024458	0.033744	0.024351	0.033635	0.007305	0.003363
0.004386	0.003216	0.004366	0.003205	0.001310	0.000320
0.002526	0.002022	0.002515	0.002016	0.000754	0.000201
0.047289	0.041742	0.047082	0.041602	0.014124	0.004160
0.008365	0.003866	0.008328	0.003854	0.002498	0.000385
0.112654	0.057916	0.112162	0.057730	0.033646	0.005773
0.022139	0.013086	0.022042	0.013045	0.006612	0.001304
0.015899	0.021671	0.015830	0.021602	0.004749	0.002160
0.025480	0.040189	0.025369	0.040060	0.007610	0.004006
0.062493	0.049949	0.062220	0.049788	0.018666	0.004978
0.003561	0.011751	0.003545	0.011713	0.001063	0.001171
0.024459	0.045735	0.024352	0.045589	0.007305	0.004558
0.011079	0.025001	0.011030	0.024920	0.003309	0.002492
0.005302	0.006179	0.005279	0.006158	0.001583	0.000615
0.010418	0.014004	0.010373	0.013959	0.003111	0.001395
0.023112	0.048893	0.023011	0.048736	0.006903	0.004873
0.039511	0.030927	0.039339	0.030828	0.011801	0.003082
0.021516	0.019954	0.021422	0.019890	0.006426	0.001989
0.044445	0.052619	0.044251	0.052450	0.013275	0.005245
0.035534	0.052245	0.035379	0.052077	0.010613	0.005207
0.030934	0.034544	0.030799	0.034433	0.009239	0.003443
0.034235	0.030818	0.034086	0.030719	0.010225	0.003071
0.036392	0.023681	0.036259	0.023605	0.009077	0.002360
0.041706	0.053440	0.041524	0.053262	0.012457	0.005326
0.034742	0.058825	0.034590	0.058637	0.010377	0.005863
0.061172	0.043181	0.060905	0.043043	0.018271	0.004304
0.079437	0.061360	0.079090	0.061104	0.023727	0.006110
0.050093	0.061375	0.049784	0.061165	0.014875	0.006117
0.097126	0.059133	0.096702	0.058943	0.029010	0.005914
1.044381	1.000000	1.039696	1.000000	0.300000	0.100000

Wiseman Unit 3 - Current Oil Rate and Oil Cut Index Factor Calculations

	Oil Prod m3	Water Prod m3	Time On days	Consecutive Producing Period	Oil Rate m3/d	Oil Cut	Current Productivity Oil Rate Factor	Current Productivity Oil Cut Factor
11-34-02-25W1	121.2	121.4	27	03-20 to 04-17	4.5	0.50	0.043021	0.035945
3-0e-02-25W1	29.4	20.4	30	06-01 to 06-30	1.0	0.05	0.009560	0.003595
04-07-01-25W1	31.0	923.1	60	10-02 to 11-30	0.5	0.03	0.004780	0.002157
06-07-01-25W1	421.8	439.9	91	09-01 to 11-30	4.6	0.49	0.043977	0.035226
11-07-01-25W1	58.0	1025.0	44	10-17 to 11-30	1.3	0.05	0.012428	0.003595
12-07-01-25W1	532.8	1043.3	91	09-01 to 11-30	5.9	0.34	0.056405	0.024443
13-07-01-25W1	274.8	683.7	61	10-01 to 11-30	4.5	0.29	0.043021	0.020848
1-07-01-25W1	368.3	275.1	45	10-17 to 11-30	8.2	0.57	0.078394	0.040978
3-07-01-25W1	119.1	55.4	30	05-26 to 06-24	4.0	0.68	0.038241	0.048806
3-18-01-25W1			29	09-16 to 10-15	6.4	0.61	0.061185	0.043853
14-18-01-25W1			30	10-01 to 30	1.6	0.60	0.015296	0.043134
03-18-01-25W1			30	09-28 to 10-27	1.5	0.55	0.014340	0.039540
06-18-01-25W1			30	10-03 to 11-01	0.3	0.15	0.002868	0.010784
07-01-01-25W1			30	09-03 to 10-02	2.4	0.18	0.022945	0.012940
08-01-01-26W1				09-01 to 15 and			0.000000	0.000000
			18	09-28 to 10-02	2.1	0.21	0.020076	0.015097
09-01-01-26W1			30	09-01 to 30	2.1	0.84	0.020076	0.060388
10-01-01-26W1			30	09-28 to 10-28	2.0	0.23	0.019120	0.016535
15-01-01-26W1			31	11-10 to 12-09	2.1	0.15	0.020076	0.010794
16-01-01-26W1			30	09-14 to 10-13	5.5	0.83	0.052581	0.059669
01-12-01-26W1			29	10-01 to 30	2.4	0.79	0.022945	0.056794
12-12-01-26W1			30	09-15 to 10-15	5.2	0.50	0.049713	0.035945
03-12-01-26W1			27	11-01 to 30	5.7	0.43	0.054493	0.030913
08-12-01-26W1			29	11-01 to 30	5.1	0.33	0.048757	0.023714
8-12-01-26W1			30	09-22 to 10-21	2.5	0.90	0.023901	0.064702
07-12-01-26W1			30	09-22 to 11-21	1.3	0.97	0.012428	0.069734
08-12-01-26W1			30	11-01 to 30	5.2	0.68	0.049713	0.048886
08-12-01-26W1	157.1	75.3	30	11-01 to 30	6.0	0.85	0.057361	0.061107
1-01-26W1	346.6	44.3	61	09-01 to 11-30	5.9	0.55	0.056329	0.039540
15-12-01-26W1	214.2	170.9	56	09-01 to 10-27	5.9	0.56	0.056766	0.040259
1-12-01-26W1	249.7	216.2	39	09-26 to 11-04				
					104.6	12.11	1.000000	1.000000

[illegible] 0.81

WELL	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR	FIRST PRODUCING MONTHS OIL RATE FACTOR	FIRST PRODUCING MONTHS OIL CUT FACTOR	ϕ FACTOR	TOTAL TRACT FACTOR	CHEVRON TRACT INTEREST	CHEVRON UNIT WORKING INTEREST
12-06-- 1-25-W1	0.012906	0.003595	0.007305	0.003364	0.005210	0.032380	0.250000	0.008095
13-06-- 1-25-W1	0.002869	0.000339	0.001310	0.000321	0.008508	0.013666	0.250000	0.003416
04-07-01-25-W1	0.001436	0.000216	0.000735	0.000207	0.008125	0.010731	0.500000	0.005366
05-07-01-25-W1	0.013193	0.003523	0.014.25	0.004161	0.004125	0.039126	0.500000	0.019563
11-07-01-25-W1	0.003728	0.000359	0.002495	0.000385	0.009707	0.016679	0.250000	0.004170
12-07-01-25-W1	0.016922	0.002444	0.033649	0.005773	0.008932	0.067718	0.250000	0.016930
13-07-01-25-W1	0.012906	0.002085	0.006613	0.001305	0.009676	0.032584	0.000000	0.000000
14-07-01-25-W1	0.023513	0.004098	0.004749	0.002160	0.008032	0.042557	0.250000	0.010639
15-07-01-25-W1	0.011472	0.004899	0.007611	0.004006	0.007102	0.035080	0.500000	0.017540
03-18-01-25-W1	0.018356	0.004385	0.018666	0.004979	0.006916	0.053302	1.000000	0.053302
04-18-01-25-W1	0.004569	0.004313	0.001964	0.001171	0.007195	0.018333	1.000000	0.018333
05-18-01-25-W1	0.004202	0.003954	0.007306	0.004557	0.005330	0.025951	1.000000	0.025951
06-18-01-25-W1	0.000860	0.001078	0.003309	0.002492	0.004776	0.012516	1.000000	0.012516
07-01-01-26-W1	0.006883	0.001294	0.001584	0.000616	0.006482	0.016859	1.000000	0.016859
08-01-01-26-W1	0.006023	0.001510	0.003112	0.001396	0.005458	0.017499	1.000000	0.017499
09-01-01-26-W1	0.006023	0.006039	0.006903	0.004874	0.007319	0.031158	1.000000	0.031158
10-01-01-26-W1	0.005736	0.001653	0.011802	0.003083	0.005954	0.028229	1.000000	0.028229
15-01-01-26-W1	0.006023	0.001078	0.006427	0.001989	0.007908	0.023425	1.000000	0.023425
16-01-01-26-W1	0.015774	0.005967	0.013275	0.005245	0.006296	0.046557	1.000000	0.046557
01-12-01-26-W1	0.006883	0.005679	0.010614	0.005208	0.004869	0.033253	0.312500	0.010392
02-12-01-26-W1	0.014914	0.003595	0.009240	0.003483	0.007815	0.039007	0.312500	0.012190
03-12-01-26-W1 ✓	0.016348	0.003091	0.010226	0.003072	0.009366	0.042103	1.000000	0.042103
05-12-01-26-W1 ✓					0.004807	0.004807	1.000000	0.004807
06-12-01-26-W1 ✓	0.014627	0.002372	0.009078	0.002361	0.004962	0.033400	1.000000	0.033400
07-12-01-26-W1	0.007170	0.506470	0.012497	0.005534	0.004497	0.036121	0.312500	0.011289
08-12-01-26-W1	0.007125	0.006777	0.010377	0.005864	0.006679	0.033021	0.312500	0.010319
09-12-01-26-W1	0.014914	0.004889	0.018272	0.004304	0.007226	0.049605	0.500000	0.024802
10-12-01-26-W1	0.017268	0.006111	0.023727	0.006110	0.006916	0.060073	0.500000	0.030036
15-12-01-26-W1	0.013970	0.003504	0.014452	0.003616	0.006216	0.041912	0.500000	0.020961
16-12-01-26-W1	0.019170	0.004026	0.029741	0.005718	0.003997	0.062335	0.500000	0.031167
	0.350000	0.100000	0.300000	0.100000	0.250000	1.000000	19.000000	0.571014

1995-09-01

PROPOSED WASKADA UNIT NO. 6
COMPANY WORKING INTEREST

WELL	TOTAL TRACT FACTOR	NEWSCOPE TRACT WORKING INTEREST	NEWSCOPE UNIT WORKING INTEREST	PANCANADIAN TRACT WORKING INTEREST	PANCANADIAN UNIT WORKING INTEREST	GREAT AMERICAN TRACT WORKING INTEREST	GREAT AMERICAN UNIT WORKING INTEREST	COLENCO TRACT WORKING INTEREST	COLENCO UNIT WORKING INTEREST	CAN-AM TRACT WORKING INTEREST	CAN-AM UNIT WORKING INTEREST	NEW MCMANUS TRACT WORKING INTEREST	NEW MCMANUS UNIT WORKING INTEREST
12-06-01-25-W1	0.032380	0.300000	0.009714	0.000000	0.000000	0.000000	0.000000	0.250000	0.008095	0.100000	0.003238	0.100000	0.003238
13-06-01-25-W1	0.013666	0.300000	0.004100	0.000000	0.000000	0.000000	0.000000	0.250000	0.003416	0.100000	0.001367	0.100000	0.001367
04-07-01-25-W1	0.010731	0.275000	0.002951	0.000000	0.000000	0.000000	0.000000	0.125000	0.001341	0.050000	0.000537	0.050000	0.000537
05-07-01-25-W1	0.039126	0.275000	0.010760	0.000000	0.000000	0.000000	0.000000	0.125000	0.004891	0.050000	0.001956	0.050000	0.001956
11-07-01-25-W1	0.016679	0.275000	0.004587	0.250000	0.004170	0.000000	0.000000	0.100000	0.001668	0.050000	0.000834	0.075000	0.001251
12-07-01-25-W1	0.067718	0.275000	0.018623	0.250000	0.016930	0.000000	0.000000	0.125000	0.008465	0.050000	0.003386	0.050000	0.003386
13-07-01-25-W1	0.032584	0.550000	0.017921	0.000000	0.000000	0.000000	0.000000	0.250000	0.008146	0.100000	0.003258	0.100000	0.003258
14-07-01-25-W1	0.042557	0.275000	0.011703	0.250000	0.010639	0.000000	0.000000	0.100000	0.004256	0.050000	0.002128	0.075000	0.003192
15-07-01-25-W1	0.035080	0.500000	0.017540	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-18-01-25-W1	0.053302	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
04-18-01-25-W1	0.018333	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-18-01-25-W1	0.025951	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-18-01-25-W1	0.012516	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-01-01-26-W1	0.016859	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-01-01-26-W1	0.017499	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-01-01-26-W1	0.031158	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10-01-01-26-W1	0.028229	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15-01-01-26-W1	0.023425	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
16-01-01-26-W1	0.046557	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
01-12-01-26-W1	0.033253	0.250000	0.008313	0.000000	0.000000	0.437500	0.014548	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
02-12-01-26-W1	0.039007	0.250000	0.009752	0.000000	0.000000	0.437500	0.017065	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-12-01-26-W1	0.042103	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
05-12-01-26-W1	0.004807	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
06-12-01-26-W1	0.033400	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
07-12-01-26-W1	0.036121	0.250000	0.009030	0.000000	0.000000	0.437500	0.015803	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
08-12-01-26-W1	0.033021	0.250000	0.008255	0.000000	0.000000	0.437500	0.014447	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
09-12-01-26-W1	0.049605	0.275000	0.013641	0.000000	0.000000	0.000000	0.000000	0.100000	0.004960	0.050000	0.002480	0.075000	0.003720
10-12-01-26-W1	0.060073	0.275000	0.016520	0.000000	0.000000	0.000000	0.000000	0.100000	0.006007	0.050000	0.003004	0.075000	0.004505
15-12-01-26-W1	0.041922	0.275000	0.011529	0.000000	0.000000	0.000000	0.000000	0.100000	0.004192	0.050000	0.002096	0.075000	0.003144
16-12-01-26-W1	0.062338	0.275000	0.017143	0.000000	0.000000	0.000000	0.000000	0.125000	0.007792	0.050000	0.003117	0.050000	0.003117
	1.000000	5.125000	0.192282	0.750000	0.021739	1.750000	0.061863	1.750000	0.063230	0.750000	0.027401	0.875000	0.032571

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

Hernefield Enterprises Ltd.
Box 29
Waskada, Manitoba
ROM 2EO

Attention: Mr. Lyle Lee,
President

Dear Sirs:

Re: Tract Factors - Waskada Unit No. 6

Your letter dated November 29, 1985 is acknowledged. The Board will be in contact with Chevron Canada Resources Limited in the near future to attempt to resolve this situation without recourse to a public hearing and a Board order.

We will keep you advised of any further developments in this matter.

Yours sincerely,

ORIGINAL SIGNED BY
WM. M. McDONALD, P. ENG.

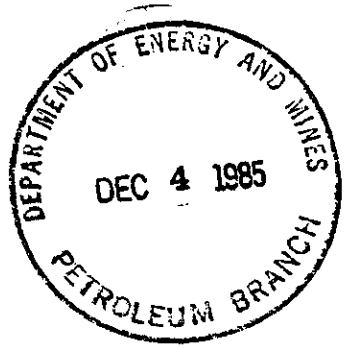
Wm. McDonald
Deputy Chairman

LRD/HCM/lk

b.c. Charles S. Kang
J. F. Radgwell
Petroleum Branch

Hernefield Enterprises Ltd.

BOX 29 · WASKADA, MANITOBA R0M 2E0 · PHONE 673-2591



Nov. 29, 1985

Oil and Natural Gas Conservation Board
Room 309
Legislative Bldg.
Winnipeg
Man.
R3C 0V8

Dear Mr. Kang

We are not sure what Chevron has told you about our views on this matter, however you certianly made it clear where your sentiments lay. Chevron and the working interest partners of Waterflood Unit #6 have flatly refused any of the proposals Hernefield Enterprises has made. They never officially contacted us on the Water Flood until late this year. We are not sure what they have been doing since the Board first contacted them, however, it hasn't been Hernefield that caused this delay.

The working interest partners refuse to update their numbers, pertaining to "Current Production" in the proposed tract factor calculations, and insist on using 1984 figures, taken before many of the wells had stabilized. The Petroleum Branch has suggested they should agree to 1985 data. Something stinks when the N.E. 12-1-26 is the highest producing land in the unit and the only land paying a 20% Royalty on minerals, and its tract factor is drastically lower than current production. All working interest partners, and especially Chevron, gain by paying royalities somewhere else in the unit; their increase in revenue is Hernefield Enterprises loss.

However, seeing that we have no hope of convincing anyone, and do not have the resourses or so called expertice of the working interest owners, who have decided for us, we reluctanty agree to their terms on our mineral rights.

Enclosed, please find a copy of the letter we submitted to Newscope Resources on Aug. 27, 1985.

Yours truly

Lyle Lee
President

copy of letter sent on Hernefield Enterprised letterhead

August 27, 1985

Mr. Robert Weir,

Newscope Resources Limited,

Suite 1600, 700-9th Ave. S.W.,

Calgary, Alberta T2P 3V4,

Dear Mr. Weir;

Thank you for your letter of August 20, and your trip to Virden to enlighten us of the Working Committee plans for Unit 6 Water Injection.

We have studied this information. We believe the tract factors arrived at by the Working Committee could be fair to them, but certainly is not fair to Hernefield Enterprises based on the allocations to N.E. 12-1-26 only. We have statistics on production only up to April 30, 1985 which indicates N.E. 12-1-26 produced 30.89% of the oil, and only 5.46% of the water that was produced on the proposed Waskada Unit 6 in the first 4 months of 1985. Your proposal allocates only 21.3938% to N.E. 12-1-26.

It is our understanding that "total tract factor" is intended to recognize the probable contribution a well would make to the Unit in the future. Initial production of a well does not forecast future performance with much accuracy in the Waskada Lower Amaranth wells.

The parameter that the committee used for current production, based on the last four months of 1984 is nine months out of date. With the exception of 12-6-1-25, all the wells have reached steadier production characteristics, and would provide a more reasonable estimate now.

Our suggention to the Operating committee;

1. Use average productions for the first six months of 1985 as a parameter for "current production", and allocate 50% to "current production", and 10% to "initial production".

2. Oil cut parameter should be reviewed and changed to conform with current oil to water ratios.

In event that you refuse to accept changes as suggested, we would consider an increase in Royalty from 20% to 25% on the Lower Ameranth wells only, on N.E. 12-1-26. All other terms of the lease would remain the same.

If you think our suggestions are unreasonable, please take another look at your tract factor proposal.

Yours sincerely

Lyle Lee

Lyle Lee

President

Manitoba

The Oil and Natural Gas Conservation Board

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

(204) 945-3130

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

Attention: Ms. R. I. Zygocki

Dear Sirs:

Re: Waskada Unit No. 6

Further to our letter of November 20, 1985, we have received correspondence from Hernefield Enterprises Ltd. to indicate that it may be agreeable to the tract participation factors if the current productivity component were to utilize the most recent production data available. The Board feels that this is a logical and reasonable request and consequently suggests that the Working Interest Owners give it due consideration.

We again request that you provide a summary of your latest discussions with Hernefield as well as an indication of whether the other Royalty Owners have been contacted and if so, what their general reactions to your proposals are. We also request your position on the proposal to use the most recent production data in determining tract participation factors.

We reiterate the Board's desire for this situation to be resolved as soon as possible in order that pressure maintenance operations can be commenced. To this end, you are requested to provide a response to this letter as soon as possible but not later than January 6, 1986.

Yours sincerely,

ORIGINAL SIGNED BY
WM. M. McDONALD P. ENG.

Wm. McDonald
Deputy Chairman

LRD/HCM/lk

b.c. Charles S. Kang
J. F. Redgwell
Petroleum Branch

File: PROD. JAN/85-AUG/85
Report: UNFAIR TRACTS
NOV. 16/85

WELL #	WATER PROD. CU./M.	OIL PROD. CU./M.	OIL PROD. %	CHEVRON'S TRACT
12-06-1-25	569.4	563		.032384
13-06-1-25				.013666
0				
TOTAL	569.4	563	2.84	.046046
0				
4-7-1-25	3194.4	90.7		.010731
5-7-1-25	3145.8	872.3		.0391216
0				
TOTAL	6340.2	963	4.86%	.049857
0				
11-7-1-25	5046.8	249.4		.016679
12-7-1-25	4535.1	750.4		.067718
13-7-1-25	3144.9	689.2		.032584
14-7-1-25	1922.9	1431.9		.042557
15-7-1-25	360.3	529.3		.035080
0				
TOTAL	15,010.0	3650.2	18.43%	.194618
0				
3-18-1-25	1262.8	779		.053302
4-18-1-25	249	329.4		.018333
5-18-1-25	123.9	262.4		.025951
6-18-1-25	230.3	124		.012516
0				
TOTAL	1866.0	1494.8	7.55%	.110102
0				
7-1-1-26	796.6	21.9		.016859
8-1-1-26	1246.6	340.1		.017499
9-1-1-26	79.4	353		.031158
10-1-1-26	1194.7	540.2		.028229
15-1-1-26	2949.8	631.5		.023425
16-1-1-26	142.9	619.6		.046557
0				
TOTAL	6410.0	2506.3	12.65%	.163727
0				
1-12-1-26	144.4	488.8		.033253
2-12-1-26	1305.3	1315.5		.039007
7-12-1-26	84.9	420.6		.036121
8-12-1-26	52.6	229.3		.033021
0				
TOTAL	1587.2	2454.2	12.39%	.141402
0				
3-12-1-26	1875.8	1025.1		.042103
5-12-1-26				.004807
6-12-1-26	2371	1006.7		.033400
0				
TOTAL	4246.8	2031.8	10.26%	.080310
0				
9-12-1-26	425.8	1621.4		.049605
10-12-1-26	264.8	1858.6		.060073
15-12-1-26	256.1	913.8		.041922

100% at 15%

25% at 15%

WELL #	WATER PROD. CU./M.	OIL PROD. CU./M.	OIL PROD. %	CHEVRON'S TRACT
16-12-1-26	932.9	1725.9		.062338
0				
TOTAL	1879.6 — 4.96 %	6146.4	31%	.213938
0				
GRAND TOTAL	37,909.2	19,809.7	99.98%	1.000000

100 % at 20 %

Manitoba

Energy and Mines | Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

June 24, 1985

Mr. Cal Folden, P. Eng.
Area Supervisor
Chevron Canada Resources Limited
Box 100
Virden, Manitoba
R0M 2C0

Dear Mr. Folden:

Re: Application for Waterflood Incentive
For Proposed Waskada Unit No. 6

We have reviewed your letter to the Minister dated 1985 06 04 requesting continuation of the Royalty Incentive Period in the proposed Waskada Unit No. 6 waterflood area. However, in order to properly evaluate your proposal, we are requesting the following information:

1. Assuming the primary and secondary recovery forecasts included with your pressure maintenance application are still valid, what are your expected netbacks (on a monthly basis per well) for both primary and secondary recovery (with and without an incentive rate)?

2. A list of the assumptions used in preparing the netbacks for Waskada Unit No. 6 as they pertain to item 1. above (assume average federal and provincial corporate tax rates).

3. Calculations on how payout is derived.

4. Percent of total unit production which is Crown owned and therefore eligible for Royalty Incentive Period.

.....2

5. What are the present and forecast operating costs (per month) under primary depletion of the wells that will make up Unit No. 6 vs the anticipated operating costs under waterflooding?

On receipt of this additional information, evaluation of your application will be continued.

Yours sincerely,

(Original Signed by H. C. Moster)

H. Clare Moster, P. Eng.
Director, Petroleum Branch

LRD/HCM/lk

c.c. Hon. Wilson D. Parasiuk

b.c. Charles Kang

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

K.E. Godard
Chief Engineer

1985-05-14

Proposed Waskada Unit No. 6

Manitoba Energy and Mines - Petroleum
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. L. R. Dubreuil

Gentlemen:

In a letter dated 1985-04-18, the Petroleum Branch commented on the Waskada Unit No. 6 participation parameters and requested the final participation formula. The formula approved by the Waskada Unit No. 6 working interest owners is:

Tract Participation Factor = .3 x current oil rate factor + .1 x current oil cut factor + .3 x initial oil rate factor + .1 x initial oil cut factor + .2 x Øh factor.

Tables showing the various parameters and the tract participation factor are attached (Attachments Nos. 1, 2, 3, and 4).

The Petroleum Branch made several comments relative to the approved participation parameters. These comments and Chevron's response are listed below:

1. Newer wells such as 12-6 and 15-7 only have initial production data available and would have an advantage over the older wells.

   Chevron disagrees because:

   a. The initial production at the new wells is from a reservoir that has under gone some pressure depletion as a result of adjacent production.

   b. With the implementation of water injection, all production wells will be on an equal basis. Any changes to productivity should occur at all wells.

2. The Mulvan Øh parameter can be used to determine original oil reserves, but should be adjusted for cumulative production.

   Spearfish Øh and water saturations are very difficult to determine. The Mulvan Øh data was used as a participation parameter because all wells can be treated consistently. See Attachment No. 2 with the 1985-03-14

Technical Committee Meeting Minutes for a description of the Mulvan Method.

Using conventional methods for determining Øh (i.e., log and core analysis) resulted in some wells having no remaining oil reserves (see Columns 2 and 3 Attachment No. 5). Because an accurate estimate of reserves cannot be determined using Mulvan or conventional Øh, the Technical Committee decided the Øh parameter would be more appropriate than an oil reserves parameter. Also, the low weighting (20%) given the Øh parameter will reduce possible inequities caused by not taking cumulative production into account.

3. Production data from the first three months of 1985 should be used in the participation formula.

The Technical Committee decided that current productivity would be defined as at least 30 consecutive producing days during 1984-09, 10, and 11. These months were chosen to minimize production disruptions caused by winter weather. Available data was used for wells drilled after this period.

A copy of this letter will be forwarded to the Working Interest Owners.

We are prepared to discuss this matter at our forthcoming meeting. Any questions regarding this matter should be directed to Doug Schierman at (403) 234-5167.

Sincerely,

Doug Schierman

for R. A. FILGATE, P.Eng.
Supervising Engineer
Reservoir

DS/ds
Attach.

cc: Working Interest Owners

1985-05-01

ATTACHMENT #1

WASKADA UNIT NO. 6 TRACT FACTORS
PARTICIPATION FORMULA

	CURRENT TRACT FACTOR		FIRST FOUR MONTHS TRACT FACTOR		ϕ_h TRACT FACTOR	TOTAL TRACT FACTOR
	OIL RATE	OIL CUT	OIL RATE	OIL CUT		
12-06-01-25-W1	0.013993	0.003940	0.008794	0.003758	0.005021	0.035506
NOT COOP * 13-06-01-25-W1	0.002798	0.000358	0.001750	0.000341	0.008488	0.013735
04-07-01-26-W1	0.001399	0.000215	0.000607	0.000156	0.007830	0.010207
05-07-01-26-W1	0.012873	0.003510	0.013880	0.004119	0.003975	0.038357
NOT COOP * 06-07-01-25-W1	0.001119	0.000287	0.000769	0.000277	0.007262	0.009715
11-07-01-26-W1	0.003638	0.000358	0.002455	0.000381	0.009354	0.016187
12-07-01-26-W1	0.016511	0.002436	0.033065	0.005714	0.008607	0.066333
13-07-01-26-W1	0.012593	0.002078	0.006498	0.001291	0.009325	0.031785
14-07-01-25-W1	0.022948	0.004083	0.004667	0.002138	0.007741	0.041577
15-07-01-25-W1	0.015951	0.004513	0.009973	0.004296	0.006844	0.041578
03-18-01-25-W1	0.017910	0.004370	0.018342	0.004928	0.006665	0.052216
04-18-01-25-W1	0.004478	0.004298	0.001045	0.001159	0.006934	0.017914
05-18-01-25-W1	0.004198	0.003940	0.007179	0.004512	0.005619	0.025448
06-18-01-25-W1	0.000840	0.001075	0.003252	0.002467	0.004603	0.012235
07-01-01-26-W1	0.006716	0.001289	0.001556	0.000610	0.006246	0.016418
08-01-01-26-W1	0.005877	0.001504	0.003058	0.001382	0.005260	0.017081
09-01-01-26-W1	0.005877	0.006018	0.006784	0.004824	0.007053	0.030555
10-01-01-26-W1	0.005597	0.001648	0.011597	0.003051	0.005738	0.027631
15-01-01-26-W1	0.005877	0.001075	0.006315	0.001969	0.007621	0.022856
16-01-01-26-W1	0.015392	0.005946	0.013045	0.005192	0.006067	0.045641
01-12-01-26-W1	0.006716	0.005659	0.010430	0.005155	0.004692	0.032652
02-12-01-26-W1	0.014552	0.003582	0.009079	0.003408	0.007531	0.038153
03-12-01-26-W1	0.015951	0.003080	0.010048	0.003041	0.009026	**0.041147**
NOT COOP * 05-12-01-26-W1					0.004632	**0.004632**
06-12-01-26-W1	0.014272	0.002364	0.008920	0.002337	0.004782	**0.032675**
07-12-01-26-W1	0.006996	0.006447	0.012241	0.005470	0.004334	0.035488
08-12-01-26-W1	0.003638	0.006949	0.010197	0.005804	0.005858	0.032446
09-12-01-26-W1	0.014552	0.004871	0.017955	0.004260	0.006964	0.048602
10-12-01-26-W1	0.016791	0.006089	0.023315	0.006048	0.006665	0.058909
15-12-01-26-W1	0.010634	0.003940	0.014676	0.006055	0.005798	0.041104
16-12-01-26-W1	0.019310	0.004012	0.028507	0.005854	0.003467	0.061150
	0.30	0.1	0.30	0.10	0.20	1.00

WASKADA UNIT # 6 CURRENT OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS

	OIL PROD m3	WATER PROD m3	TIME ON days	CONSECUTIVE PRODUCING PERIOD	OIL RATE m3/d	OIL CUT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR
12-06-02-25W1			31	02 and 03	5.0	0.55	0.046642	1.170213
13-06-02-25W1			3	84-06-13 to 15 ?	1.0	0.05	0.009328	0.106383
04-07-01-25W1	31.0	923.1	60	10-01 to 11-30	0.5	0.03	0.004664	0.063830
05-07-01-25W1	421.8	439.9	91	09-01 to 11-30	4.6	0.49	0.042910	1.042553
06-07-01-25W1			43	02 and 03	0.4	0.04	0.003731	0.085106
11-07-01-25W1	58.0	1025.0	44	10-17 to 11-30	1.3	0.05	0.012127	0.106383
12-07-01-25W1	532.8	1043.3	91	09-01 to 11-30	5.9	0.34	0.055037	0.723404
13-07-01-25W1	274.8	683.7	61	10-01 to 11-30	4.5	0.29	0.041978	0.617021
14-07-01-25W1	368.3	275.1	45	10-17 to 11-30	8.2	0.57	0.076493	1.212766
15-07-01-25W1			28	01-01 to 31	5.7	0.63	0.053172	1.340426
03-18-01-25W1			29	09-16 to 10-15	6.4	0.61	0.059701	1.297872
04-18-01-25W1			30	10-01 to 30	1.6	0.60	0.014925	1.276596
05-18-01-25W1			30	09-28 to 10-27	1.5	0.55	0.013993	1.170213
06-18-01-25W1			30	10-03 to 11-01	0.3	0.15	0.002799	0.319149
07-01-01-25W1			30	09-03 to 10-02	2.4	0.18	0.022388	0.382979
08-01-01-26W1				09-01 to 13 and			0.000000	
			18	09-28 to 10-02	2.1	0.21	0.019590	0.446809
09-01-01-26W1			30	09-01 to 30	2.1	0.84	0.019590	1.787234
10-01-01-26W1			30	09-28 to 10-28	2.0	0.23	0.018657	0.489362
15-01-01-26W1			31	11-10 to 12-09	2.1	0.15	0.019590	0.319149
16-01-01-26W1			30	09-14 to 10-13	5.5	0.83	0.051306	1.765957
01-12-01-26W1			29	10-01 to 30	2.4	0.79	0.022388	1.680851
02-12-01-26W1			30	09-15 to 10-15	5.2	0.50	0.048507	1.063830
03-12-01-26W1			27	11-01 to 30	5.7	0.43	0.053172	0.914894
06-12-01-26W1			29	11-01 to 30	5.1	0.33	0.047575	0.702128
07-12-01-26W1			30	09-22 to 10-21	2.5	0.90	0.023321	1.914894
08-12-01-26W1			30	09-22 to 11-21	1.3	0.97	0.012127	2.063830
09-12-01-26W1	157.1	75.3	30	11-01 to 30	5.2	0.68	0.048507	1.446809
10-12-01-26W1	549.6	94.3	91	09-01 to 11-30	6.0	0.85	0.055970	1.808511
15-12-01-26W1	214.2	176.0	56	09-01 to 10-27	3.8	0.55	0.035448	1.170213
16-12-01-26W1	269.7	216.2	39	09-26 to 11-04	6.9	0.56	0.064366	1.191489
					107.2	14.0	1.0	29.7

AVERAGE OIL CUT 0.47

1985-03-27
INCLUDES DEC. 84 PROD.

ATTACHMENT NO. 3

WASKADA UNIT 6 OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
First Four Months of Cumulative Prod.

	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL CUT	OIL RATE FACTOR	OIL CUT FACTOR
12-06-01-25-W1	155.8	126.9	31	5.025806	0.551114	0.879358	1.127548
13-06-01-25-W1	3.0	57.0	3	1.000000	0.050000	0.174969	0.102297
04-07-01-25-W1	41.6	1771.3	120	0.346666	0.022946	0.060655	0.046947
05-07-01-25-W1	801.2	525.5	101	7.932673	0.603904	1.387968	1.235553
06-07-01-25-W1	18.9	445.8	43	0.439534	0.040671	0.076904	0.083211
11-07-01-25-W1	129.1	2178.8	92	1.403260	0.055938	0.245526	0.114446
12-07-01-25-W1	1549.6	299.8	82	18.89756	0.837893	3.306480	1.714282
13-07-01-25-W1	241.4	1033.6	65	3.713846	0.189333	0.649806	0.387365
14-07-01-25-W1	202.7	443.8	76	2.667105	0.313534	0.466659	0.641473
15-07-01-25-W1				5.700000	0.630000	0.997321	1.288944
03-18-01-25-W1	1184.6	454.7	113	10.48318	0.722625	1.834228	1.478450
04-18-01-25-W1	46.6	227.5	78	0.597435	0.170010	0.104532	0.347832
05-18-01-25-W1	402.1	205.6	98	4.103061	0.661675	0.717906	1.353749
06-18-01-25-W1	174.7	308.3	94	1.858510	0.361697	0.325181	0.740012
07-01-01-26-W1	76.5	779.4	86	0.889534	0.089379	0.155640	0.182865
08-01-01-26-W1	153.8	605.3	88	1.747727	0.202608	0.305797	0.414525
09-01-01-26-W1	387.7	160.4	100	3.877	0.707352	0.678353	1.447203
10-01-01-26-W1	662.8	818.5	100	6.628	0.447444	1.159692	0.915446
15-01-01-26-W1	350.1	862.6	97	3.609278	0.288694	0.631510	0.590652
16-01-01-26-W1	723.2	226.8	97	7.455670	0.761263	1.304508	1.557500
01-12-01-26-W1	655.7	211.8	110	5.960909	0.755850	1.042972	1.546426
02-12-01-26-W1	622.7	623.3	120	5.189166	0.499759	0.907941	1.022478
03-12-01-26-W1	654.7	813.7	114	5.742982	0.445859	1.004841	0.912202
06-12-01-26-W1	581.2	1115.2	114	5.098245	0.342607	0.892033	0.700956
07-12-01-26-W1	741.6	183	106	6.996226	0.802076	1.224120	1.641002
08-12-01-26-W1	437.1	76.5	75	5.828	0.851051	1.019717	1.741202
09-12-01-26-W1	1149.3	690.4	112	10.26160	0.624721	1.795459	1.278144
10-12-01-26-W1	1305.9	166.6	98	13.32551	0.886859	2.331546	1.814463
15-12-01-26-W1	696.2	87.9	83	8.387951	0.887896	1.467628	1.816586
1 12-01-26-W1	1596.7	263.4	98	16.29285	0.858394	2.850738	1.756226
	15746.5	15763.4	2594	171.4593	14.66316	30	30

AVERAGE OIL RATE 5.715310 M3/D
AVERAGE OIL CUT 0.488772

1985-03-21 ATTACHMENT NO. 4

Assume $S_w = 50\%$

$N = 10,113 \times 16 \times 0.5 \times 0.85 \times \phi h$

$= 68\,768.4 \times \phi h$

WASKADA UNIT 6 MULVAN ϕh TRACT FACTORS

	POROSITY*h (m)	ϕh TRACT FACTOR	OIL IN PLACE (m^3)	Recoverable Reserves (21%)	Prod To 12-31-84	Rem Res m^3	
12-06-01-25-W1	1.68	0.025105	116 531	24262	—	24262	027040
13-06-01-25-W1	2.84	0.042439	195 302	41013	—	41013	045794
04-07-01-25-W1	2.62	0.039151	180 173	37836	92	37794	042200
05-07-01-25-W1	1.33	0.019874	91 461	19207	2754	16453	018371
06-07-01-25-W1	2.43	0.036312	167 107	35092	—	35092	039183
11-07-01-25-W1	3.13	0.046772	215 245	46201	617	44584	049781
12-07-01-25-W1	2.88	0.043036	198 052	41591	4032	37558	041936
13-07-01-25-W1	3.12	0.046623	214 557	46057	1006	44051	049186
14-07-01-25-W1	2.59	0.038703	178 110	37403	1226	36177	040394
15-07-01-25-W1	2.29	0.034220	158 480	33280	—	33280	037160
03-18-01-25-W1	2.23	0.033323	153 353	32204	3294	28910	032280
04-18-01-25-W1	2.32	0.034668	159 543	33504	1180	32324	036092
05-18-01-25-W1	1.88	0.028093	129 285	27150	841	26309	029376
06-18-01-25-W1	1.54	0.023013	105 903	22239	380	21859	024407
07-01-01-26-W1	2.09	0.031231	143 726	30182	76	30106	033616
08-01-01-26-W1	1.76	0.026300	121 032	25417	154	25263	028208
09-01-01-26-W1	2.36	0.035266	162 293	34082	990	33092	036950
10-01-01-26-W1	1.92	0.028691	132 035	27727	3410	24317	027152
15-01-01-26-W1	2.55	0.038105	175 359	36825	323	36502	040757
16-01-01-26-W1	2.03	0.030335	139 600	22673	~~1974~~ 980	~~21999~~ 21693	024222
01-12-01-26-W1	1.57	0.023461	107 966	36392	~~35674~~	~~36658 42437~~ 35412	039540
02-12-01-26-W1	2.52	0.037657	173 296	43613	734	42879	047878
03-12-01-26-W1	3.02	0.045129	207 681	22384	~~600~~ -	22384	024963
05-12-01-26-W1	1.55	0.023162	106 591	23106	600	22506	025130
06-12-01-26-W1	1.60	0.023909	110 029	20939	951	19989	022319
07-12-01-26-W1	1.45	0.021668	99 714	28305	449	27856	031103
08-12-01-26-W1	1.96	0.029289	134 786	33648	3761	29887	033371
09-12-01-26-W1	2.33	0.034818	160 230	32204	3940	28264	031559
10-12-01-26-W1	2.23	0.033323	153 353	28016	3296	24720	027624
15-12-01-26-W1	1.94	0.028990	133 418	16752	5694	11058	012347
16-12-01-26-W1	1.16	0.017334	79 771				
	66.92	1.00				895 594	

ATTACHMENT NO. 5

1985-02-08

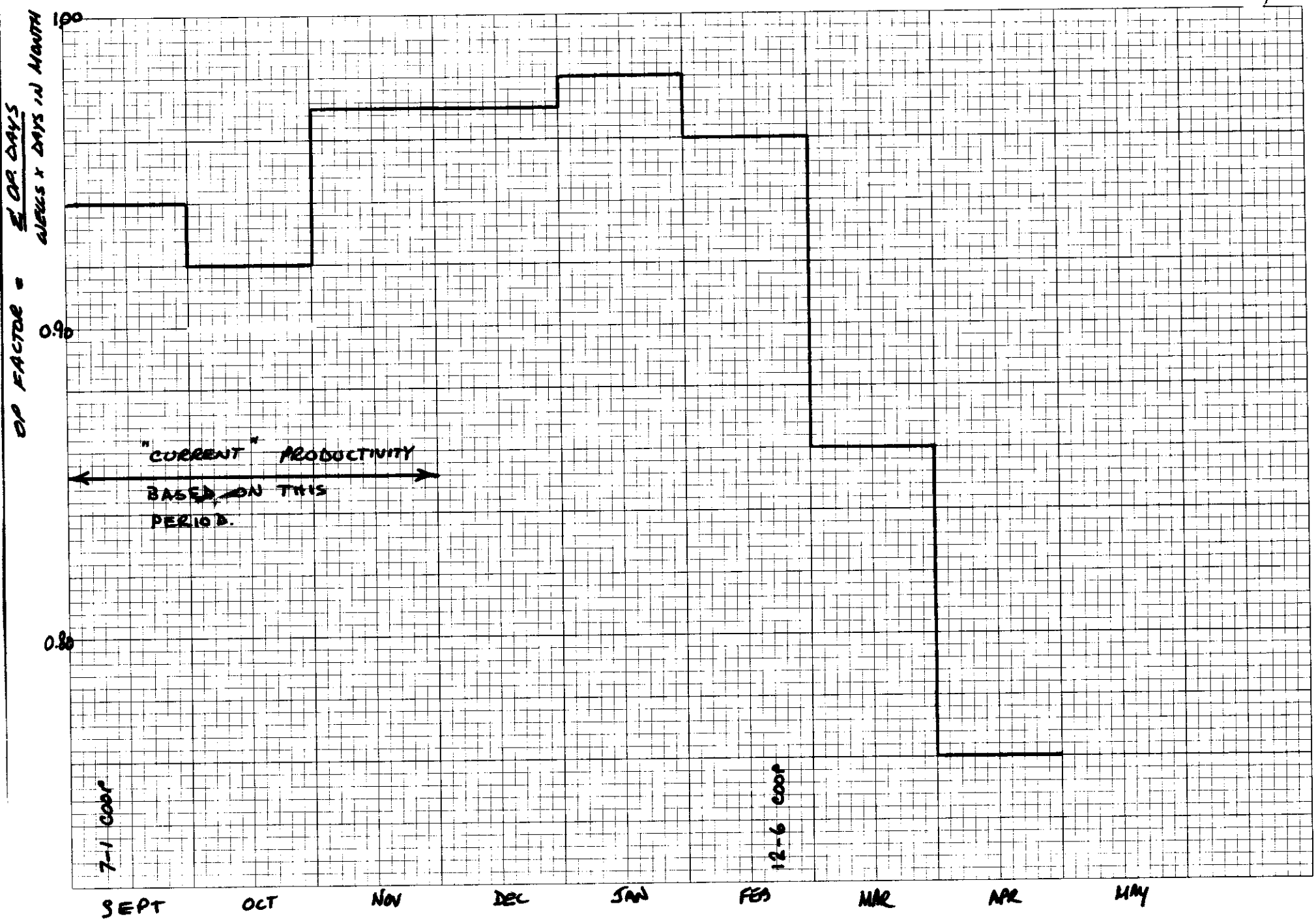
Waskada Unit No. 6
Well Reserves

Reserves (m^3)

Well	Volumetrics Pay Cutoff k = 1 md	Volumetrics Pay Cutoff k = .5 md	Decline Curve Analysis Chevron m^3/d Curve	Decline Curve Analysis Chevron m^3/mon Curve	Decline Curve Analysis D&S (N/S)
4- 7-1-25	5 778	5 778			
5- 7	58	58	2 847	3 408	4 260
11- 7	6 315	6 315			
12- 7	2 734	19 079	6 023	4 308	10 990
13- 7	1 161	2 242			
14- 7	4 565	4 565			
15- 7	11 212	21 074			
3-18	2 555	10 930	1 169	1 296	
4-18	3 192	10 621	1 242	588	
5-18	6 496	12 035		1 248	
6-18	7 213	13 967			
7- 1-1-26	2 224	16 409			
8- 1	6 388	6 388			
9- 1	1 900	4 602		396	
10- 1	167	167		936	
15- 1	13 091	25 790			
16- 1	7 741	11 524	1 279	1 392	
1-12	6 253	14 628	1 242	1 008	3 695 (2 081)
2-12	8 452	34 659			
3-12	4 644	20 990			
6-12	3 214	11 319			
7-12	3 715	8 848	1 533	1 232	2 660 (1 170)
8-12	1 557	4 529	402		2 335 (2 105)
9-12	2 850	7 308	3 433	2 568	8 215 (2 406)
10-12	936	26 602	2 446		7 360 (3 574)
15-12	754	754	2 264		5 640 (3 241)
16-12	6	7 706	3 394	552	5 195 (2 739)
	115 173	308 887			

NO. 341-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.



Waskada Tract Factors

- based on initial and current productivity and ϕh.

- does not reflect cumulative production because Chevron feels a "consistent" ϕh" cannot be determined.

- current productivity factor based on data through Nov. 84 to "minimize disruption caused by winter weather". Graph of operating factor shows operation was stable through Feb 85. Use of 3 more current months would be useful particularly for newer wells

- Productivity based factors are provided for 13-6 and 6-7 although neither have ever produced any new oil. 5-12 is in the same situation but is given a productivity based factor.

Participation Factor

Current Oil Rate Factor	30%
Current Oil Cut Factor	10%
Initial Oil Rate Factor	30%
Initial Oil Cut Factor	10%
Porosity Thickness Factor	20%

Crown Parcels.

1) Using Only ϕh $\Sigma_{TF} = \frac{0.018440}{0.2}$ 0.092200

2) Using Only Initial Prod Parameters

$\Sigma TF_{OR} = \frac{0.018968}{0.3} = 0.063227 \times .75 = 0.047420$

$\Sigma TF_{WC} = \frac{.005378}{.1} \quad .05378 \times .25 \quad 0.013445$

0.060865

3) Using Current Rate Parameters

$\Sigma TF\ OR = \frac{0.030223}{.3} \quad 0.100743 \times 0.75 \quad 0.075557$

$\Sigma TF\ WC \quad \frac{.006164}{.1} \quad = 0.06164 \times .25 = \quad 0.015410$

0.090967

4) Per Chevron. 0.078454

Manitoba

Energy and Mines Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
R3C 4E3

(204) 945-6577

April 18, 1985

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

Attention: Mr. Doug Shierman

Dear Doug:

Re: Proposed Waskada Unit No. 6

Your letter to The Oil and Natural Gas Conservation Board, dated March 29 1985 regarding recommendations and discussions pertaining to the subject proposed Unit, is acknowledged. The Board has requested us to review this material and provide comments.

Upon review of this material, we have the following comments:

1. Use of current productivity vs initial productivity. While we agree that current productivity would better reflect a well's contribution to cash flow at the time of unitization, we question how a consistent factor could be determined for wells (such as 15-7-1-25 or 12-6-1-25) where only initial data is available. It would seem that such wells would enjoy an unfair advantage. Any inclusion of a current productivity factor should address this matter.

2. You have described difficulties encountered in determining an absolute value for oil in place for each well. However, since the values are considered relatively consistent, you appear to be suggesting that the ϕh or total oil in place value be used instead of a remaining reserve factor. If all wells had roughly the same cumulative production, we would agree that this approach would be equitable. However, in view of the fact that some wells have no cumulative production, while others have in excess of 5 500 m^3, it appears that an unfair advantage would be given to some tracts which have already produced a substantial portion of their reserves.

   Having regard for your comment that the "MULVAN" data probably gives an inflated value for oil in place, it would seem that subtraction of production data from the "MULVAN" ϕh calculated initial reserves would more closely reflect remaining reserves even though the two

. . . 2

parameters are somewhat incompatible. On this basis, we would suggest that the volumetric portion of the tract factor calculation should resemble the second last column on Attachment No. 6 of the material you provided.

We would further suggest that production data from at least the first three months of 1985 be included in the calculations.

Further to the above, we request that a copy of the finalized tract factor calculations be provided for our review and comments as soon as possible.

Yours sincerely,

L. R. Dubreuil
Chief Petroleum Engineer
Petroleum Branch

LRD/sb
Att:

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

K E. Godard
Chief Engineer

1985-03-29

Proposed Waskada Unit No. 6

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

Attention: Mr. R. B. Chenier

Gentlemen:

As the proposed Waskada Unit No. 6 Technical Committee has presented its recommendations to the Operating Committee, the following items pertaining to the proposed unit are being submitted to the Oil and Natural Gas Conservation Board:

1. Memo regarding the Technical Committee recommendations to the Operating Committee.
2. Notice of meeting and minutes of the 1985-02-19 and 03-14 Technical Committee Meetings.

Any questions regarding this matter should be directed to D. Schierman at (403) 234-5167.

Sincerely,

for R. A. FILGATE, P.Eng.
Supervising Engineer
Reservoir

DS/lgs
Attach.

Memorandum

Calgary, Alberta
1985-03-20

Proposed Waskada Unit No. 6
Technical Committee Recommendations to
The Operating Committee

MR. K. G. MATIESHIN:

The Waskada Unit No. 6 Technical Committee has met to discuss the parameters for determining the participation factors and the initial boundary for the subject Unit.

The Technical Committee has agreed to supply the Operating Committee with current and initial productivity data. Attachment No. 1 has the current and initial productivity factors presently available for each well.

The Technical Committee has the following recommendations for the Operating Committee:

1. Both oil rate and oil cut parameters should be used in the participation formula.

2. Current productivity is more representative of what a well will contribute to the Unit than initial productivity.

3. Mulvan Øh parameters should be used in the participation formula. The Øh parameter should receive less weighting than the productivity parameter.

4. The 5-12 participation factor should be calculated in the same manner as the other wells. The Mulvan data are attached as Attachment No. 2.

5. The initial Unit boundary is the same as shown by the map on Attachment No. 3.

D. SCHIERMAN

DS/lgs
Attach.

MARCH 21, 1985
INCLUDES DECEMBER 1984 PRODUCTION

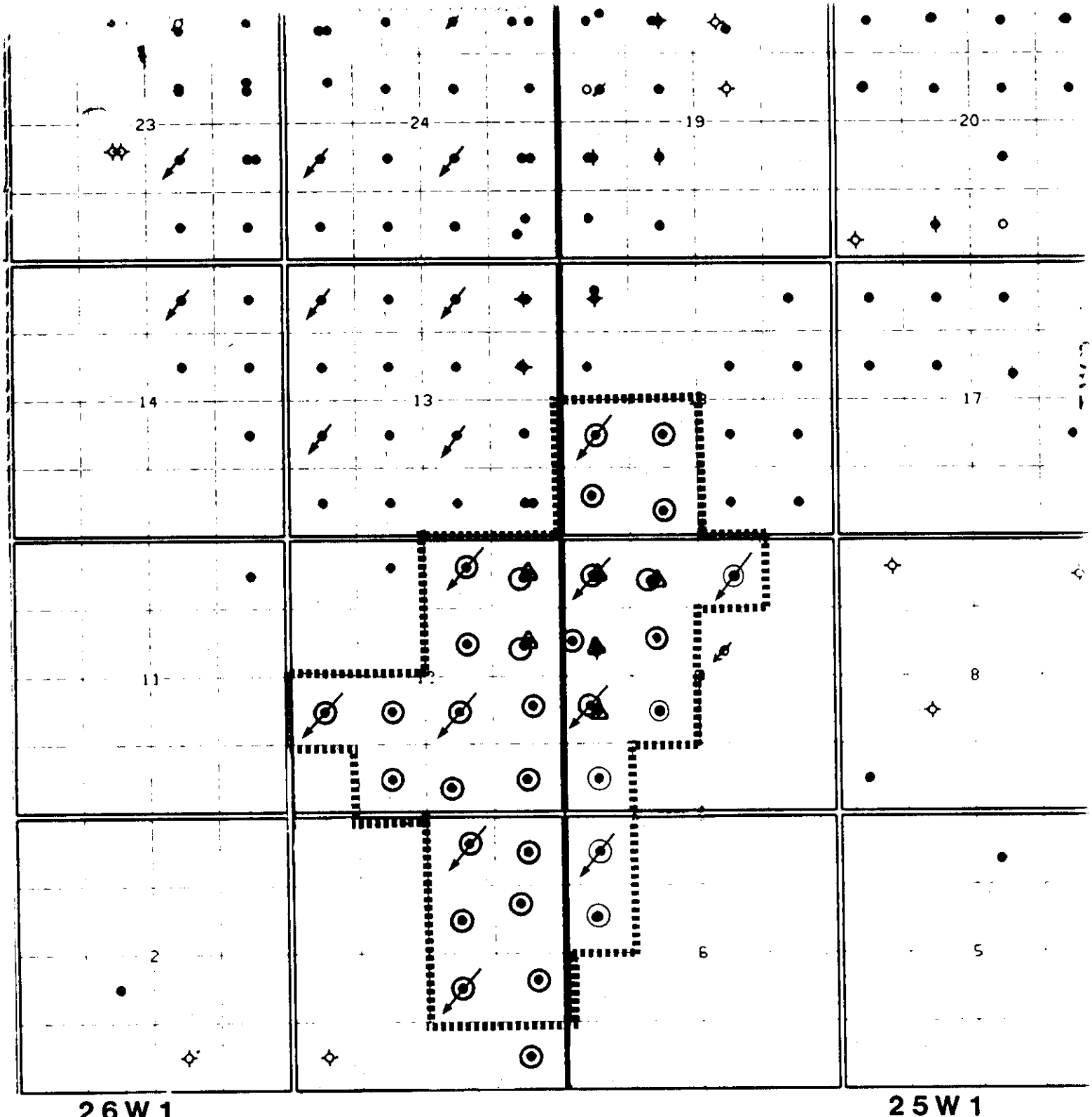
ATTACHMENT NO. 1

WASKADA UNIT NO. 6 OIL RATE, OIL CUT TRACT FACTORS

	CURRENT PRODUCTIVITY		FIRST FOUR MONTHS	
	OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
12-06-01-25-W1				
13-06-01-25-W1				
04-07-01-25-W1	0.004960	0.061224	0.056045	0.045252
05-07-01-25-W1	0.045635	1.000000	1.282471	1.190931
06-07-01-25-W1				
11-07-01-25-W1	0.012897	0.102041	0.226864	0.110313
12-07-01-25-W1	0.058532	0.693878	3.055159	1.652370
13-07-01-25-W1	0.044643	0.591837	0.600415	0.373375
14-07-01-25-W1	0.081349	1.163265	0.431189	0.618306
15-07-01-25-W1	0.056548	1.285714		
03-18-01-25-W1	0.063492	1.244898	1.694811	1.425055
04-18-01-25-W1	0.015873	1.224490	0.096587	0.335270
05-18-01-25-W1	0.014881	1.122449	0.663339	1.304858
06-18-01-25-W1	0.002976	0.306122	0.300464	0.713287
07-01-01-26-W1	0.023810	0.367347	0.143810	0.176261
08-01-01-26-W1	0.020833	0.428571	0.282554	0.399554
09-01-01-26-W1	0.020833	1.714286	0.626792	1.394937
10-01-01-26-W1	0.019841	0.469388	1.071545	0.882364
15-01-01-26-W1	0.020833	0.306122	0.583510	0.569321
16-01-01-26-W1	0.054563	1.693878	1.205354	1.501251
01-12-01-26-W1	0.023810	1.612245	0.963697	1.490576
02-12-01-26-W1	0.051587	1.020408	0.838929	0.985551
03-12-01-26-W1	0.056548	0.877551	0.928465	0.879258
08-12-01-26-W1			0	0
06-12-01-26-W1	0.050595	0.673469	0.824230	0.675640
07-12-01-26-W1	0.024802	1.836735	1.131076	1.581737
08-12-01-26-W1	0.012897	1.979592	0.942209	1.678318
09-12-01-26-W1	0.051587	1.387755	1.658988	1.231983
10-12-01-26-W1	0.059524	1.734694	2.154328	1.748933
15-12-01-26-W1	0.037698	1.122449	1.356075	1.750979
16-12-01-26-W1	0.068452	1.112857	2.624047	1.692799

WASKADA UNIT 6 MULVAN ϕh TRACT FACTORS

	POROSITY*h (m)	ϕh TRACT FACTOR
12-06-01-25-W1	1.68	0.025105
13-06-01-25-W1	2.84	0.042439
04-07-01-25-W1	2.62	0.039151
05-07-01-25-W1	1.33	0.019874
06-07-01-25-W1	2.43	0.036312
11-07-01-25-W1	3.13	0.046772
12-07-01-25-W1	2.88	0.043036
13-07-01-25-W1	3.12	0.046623
14-07-01-25-W1	2.59	0.038703
15-07-01-25-W1	2.29	0.034220
03-18-01-25-W1	2.23	0.033323
04-18-01-25-W1	2.32	0.034668
05-18-01-25-W1	1.88	0.028093
06-18-01-25-W1	1.54	0.023013
07-01-01-26-W1	2.09	0.031231
08-01-01-26-W1	1.76	0.026300
09-01-01-26-W1	2.36	0.035266
10-01-01-26-W1	1.92	0.028691
15-01-01-26-W1	2.55	0.038105
16-01-01-26-W1	2.03	0.030335
01-12-01-26-W1	1.57	0.023461
02-12-01-26-W1	2.52	0.037657
03-12-01-26-W1	3.02	0.045129
05-12-01-26-W1	1.55	0.023162
06-12-01-26-W1	1.60	0.023909
07-12-01-26-W1	1.45	0.021668
08-12-01-26-W1	1.96	0.029289
09-12-01-26-W1	2.33	0.034818
10-12-01-26-W1	2.23	0.033323
15-12-01-26-W1	1.94	0.028990
16-12-01-26-W1	1.16	0.017334
	66.92	1.00



LEGEND

- SPEARFISH
- MC–3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA

Chevron Canada Resources Limite

WASKADA AREA
PROPOSED UNIT

FIGURE 1

PROVINCE MANITOBA	SCALE	DATE
FIELD/AREA WASKADA	DRAWN M. HUDNEY	
AREA	DESIGN L. CHARLTON	CAD NUMBER
PROSPECT	DOCUMENT NO. A–10780	INTERPRETATION OVER
TOWNSHIP		

1985-03-25

Proposed Waskada Unit No. 6
Technical Committee Meeting Minutes
1985-03-14

TO: ALL WORKING INTEREST OWNERS

Gentlemen:

A Waskada Unit No. 6 Technical Committee Meeting was held on 1985-03-14 at Chevron Plaza, Calgary. An attendence list is attached as Attachment No. 1.

The 1985-02-19 meeting minutes were reviewed. Great American had some concerns about the statement and recommendation regarding current productivity tract factors. The Technical Committee only makes recommendations to the Operation Committee. The Operating Committee has the final say in the weighting of the various parameters in the participation formula.

Colenco moved that the minutes of the 1985-02-19 meeting be adopted, seconded by Newscope, carried.

A. Productivity Tract Factor Discussion

1. Newscope asked if the production data for Chevron operated wells is prorated. The answer is no for most of the production data - total liquid production was measured daily and the water cut was measured once or twice a week. (In mid-November, Wells 8-1, 9-1, 10-1, and 16-1 were tied into a tank farm at 16-1; and Wells 1-12, 2-12, 7-12, and 8-12 were tied into a tank farm at 8-12. These wells have been tested once a month since being tied in.)

2. A discussion started on how representative/accurate the current productivity data is and how much accuracy is required. If current productivity has a high weighting, another test period might be required in May. The Committee decided to wait and see how much weighting the Operating Committee gives to the current productivity before determining if additional testing is worthwhile.

3. Colenco indicated that most wells' productivity agrees with the data reported to the Petroleum Branch, with two exceptions, 10-01 and 6-18. Chevron will check these data.

4. Whether or not to include an oil cut parameter in the participation formula was discussed.

5. Great American suggested that oil cut is an indication of the quality of a well and will reflect a well's operating costs.

6. Colenco agreed that oil cut is an indication of the quality of a well, but oil rate is more important. A high rate well with a water cut could provide more cash flow than a low rate well.

7. Newscope indicated that oil cut should be included in the participation formula.

8. Concensus of all companies present - The Technical Committee will recommend to the Operating Committee that both oil rate and oil cut parameters be used in the participation formula.

B. Volumetric Tract Factor Discussion

1. Reserve and Øh tract factors generated by using a .5 md cutoff, Mulvan data, and the net pay tract factors from sonic logs were reviewed.

2. Mulvan is a multiple regression analysis of four log curves and core data that provides a standard method for calculating porosity and net pay (see Attachment No. 2 for a detailed discussion of Mulvan). Permeability is not taken into account. Mulvan gives a larger net pay than other methods, so the Mulvan Øh data may not give an accurate estimate of reserves.

3. The difficulty in accurately determining Spearfish reservoir properties was discussed at length.

4. Great American suggested that the data used is not important as long as everyone agrees. Even if the data used does not give an accurate estimate of reserves, it can be used as a parameter in the participation formula.

5. Chevron recommended using the Mulvan data because four log curves are used and the method is consistent for each well.

6. Colenco does not like using a volumetric parameter but will agree with the Chevron recommendation because the Mulvan method is the most consistent.

7. Great American and Newscope agreed with using the Mulvan data.

8. The Committee decided to use the Øh parameter versus the reserves parameter, as using cumulative production with the Mulvan data is not compatible.

9. Concensus of all companies present - The Technical Committee will recommend to the Operating Committee that Mulvan Øh parameters be used in the participation formula. These Øh parameters should receive less weighting than the productivity parameters.

C. Initial Unit Boundary

1. Attachment No. 9 to the Notice of Meeting, which is a map showing the proposed initial Unit boundary, was discussed.

2. Wells 12 and 13-6, 6 and 15-7 do not have current and/or initial productivity data. The Committee decided that data available when the Unit is formed will be used.

3. Newscope will undertake to test 13-6 in the near future.

4. The previous Committee discussion on calculating a participation factor for 5-12 was reviewed.

5. Great American suggested using Mulvan data for 5-12 also. This would simplify the matter and make 5-12 consistent with the other wells.

6. Concensus of all companies present - The Technical Committee will recommend to the Operating Committee that the 5-12 participation factor be calculated in the same manner as the other wells.

7. Concensus of all companies present - The Technical Committee will recommend to the Operating Committee that the initial Unit Boundary be the same as the map labeled Attachment No. 9 to the Notice of Meeting (attached as Attachment No. 3).

D. Waterflood AFE Approval

1. In order to implement the waterflood by 1985-06-01, AFE approval is required as soon as possible so equipment can be ordered. Chevron asked the Working Interest Owners if they were prepared to approve

the AFEs before a Unit agreement is in place. The Working Interest Owners indicated they wanted to see the AFE first, but they are prepared to expede approval.

The meeting was adjourned at 1985-03-14-12:00.

Sincerely,

Doug Schierman

D. SCHIERIAN, Chairman
Waskada Unit No. 6
Technical Committee

DS/lgs
Attach.

ATTACHMENT NO. 1

ATTENDEE LIST

Representative	Company
Mark Haughey	Chevron
Jill Kirker	Chevron
Doug Schierman	Chevron
Percy Cole	Colenco
Todd Ballantyne	Great American
T. Scott Martin	Great American
George Straughan	Great American
D. Krill	Newscope
R. D. Weir	Newscope

ATTACHMENT #2

METHODS FOR RESERVE FACTOR DETERMINATION

1. CORE DATA
2. SONIC LOG
3. MULVAN

1. CORE DATA

33 wells in the area (31 in unit)
24 cores (23 in proposed unit)
16 - Core Labs analysis
8 - Geotech analysis

PROS

- Core data is traditionally considered to be the most accurate means of effective pore volume determination.
- Seemingly accurate values for Ø and K are measured.

CONS

- Not all the wells have been cored.
- The Core Labs data is substantially different than data from Geotech. (Probably from different handling or cleaning procedures.)
- If the Core Labs data is considered to be the most accurate (more realistic numbers) then core data is available for only 50% of the wells.
- When applying a standard 1 mD permeability cutoff to the core data, the calculated Ø.h numbers don't agree with the production data. (Several wells have already produced all of their calculated reserves and are still producing oil.)

DISCUSSION

- How to compensate for missing data and inconsistencies between core and production data?
- The uncored wells have to rely on log data for Ø.h values.
- A lower permeability cutoff may have to be applied to all core data.

PROBLEMS WITH LOG DATA

The core data indicates that no correlation exists between Ø and K. This makes accurate log analysis impossible. Also complex lithology and thin beds further complicate the problem. Sw figures cannot be calculated from the logs.

OPTIONS

- The original method used for log analysis applied Gamma Ray and sonic cutoffs. The method seemed to produce acceptable results even though the GR cannot be correlated to permeable rock.

- Using a straight cutoff on the sonic acoustic time (270 µsec/m) also próduces a reasonable correlation to core data using a 1.0 mD cutoff.

To properly describe remaining oil reserves a 1 mD cutoff cannot be used. (Some wells have already produced all their reserves using this technique.) A 0.5 mD cutoff on the core data will effectively double the reserves and give a seemingly more reasonable assessment of remaining recoverable oil. If this method is used, for wells where core data is not present, the log data should also be doubled. This technique would effectively double all the original reserves.

*On the compilation sheet (Attachment #8) Øh values assume 0.5 mD cut-off for cored wells and 2 (Øh) from log data for wells with Core Labs core data and uncored wells.

2. SONIC LOG (Standard Cutoff 270 µsec/m ≈20% Ø)

PROS

- All wells have sonic data.
- A similar interval for each well will be used.
- This method compares favourably to core data using a 1 mD cutoff.

CONS

- Since this cutoff (270 µsec/m) is an arbitrary cutoff, a Øh value cannot be determined.

- Cumulative oil production cannot be compared to the sonic data.

- Some logs appear to have been smoothed. Even though all the logs are 1 foot spaced sonics, some apparently have been smoothed while others have not. The overall effect of smoothing this data is debatable, but it appears the smoothing will result in a decrease in pay (in some cases). There doesn't appear to be any way to normalize the logs to compensate for this effect.

- Two wells 14-7 and 10-12 have been logged by Computalog. The data may not be effectively compared to Schlumberger.

DISCUSSION

Could use the 270 µsec/m cutoff for strictly comparison purposes. Reserve numbers cannot be accurately calculated because a porosity

value is not calculated. The irregularities between log data would have to be disregarded.

3. MULVAN (Multi-Variant Analysis)

MULVAN is a computer program in which several log traces are force-fitted to the core data from the same well using a multiple regression technique. The method is usually performed on a single well. In this case, the relationship shown below was derived using data from several cored wells:

$$\emptyset = \text{ILM } (-.002329) + \text{ACM } (.0014637) + \text{GR } (.0003799) + \text{SFLE } (-.000514) - 0.26093$$

All of the available log traces were compared to the core porosity data. Only four curves showed a reasonable relationship to the core data, Gamma Ray, medium induction curve, spherically focussed log and the acoustic-travel time.

PROS

- Uses data from several curves to reproduce core porosity data. Using several curves will possibly compensate for the weak points of single curve.

- The MULVAN data appears to match core porosity data quite well. (See cross plot MULVAN h vs. Core h.)

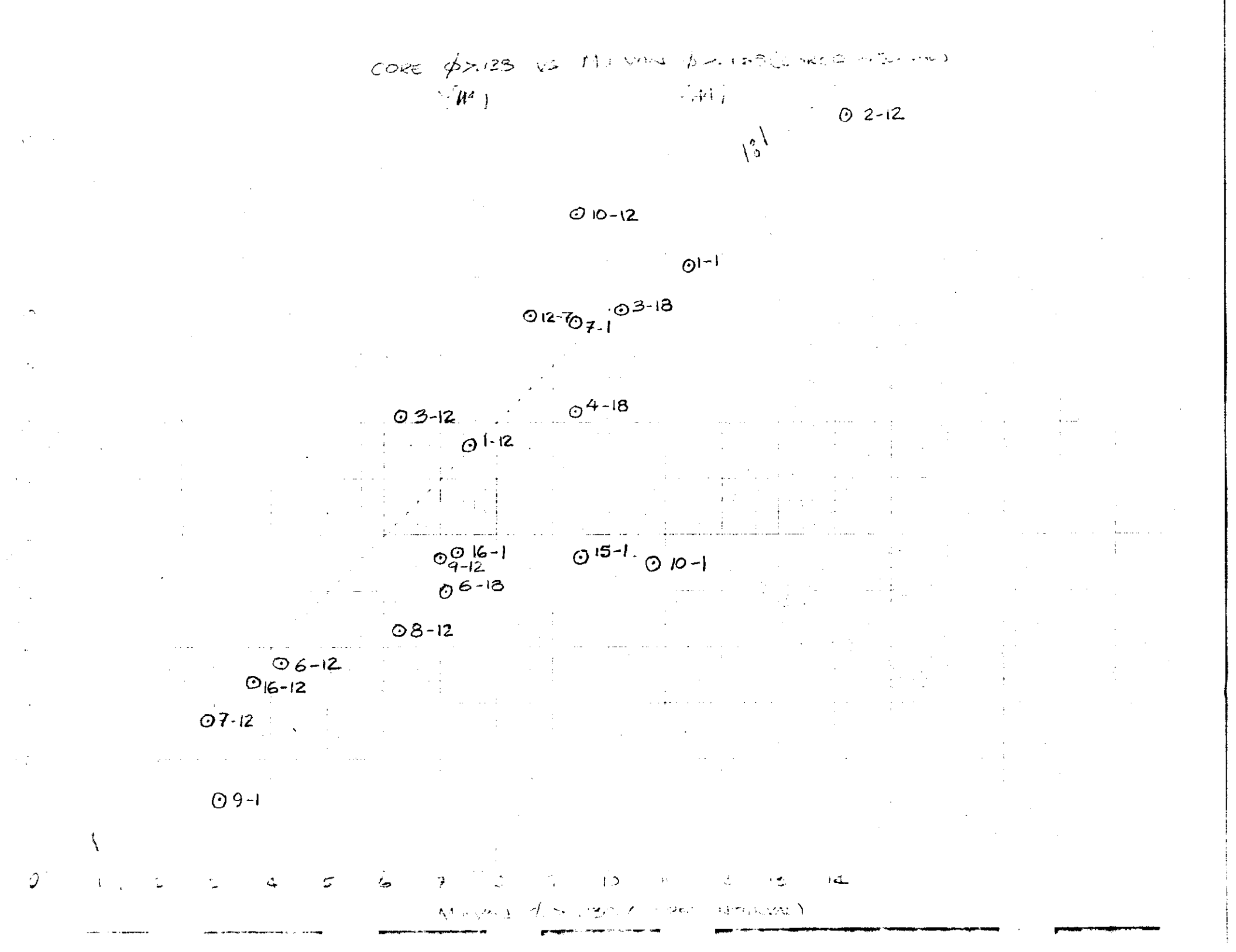
- All wells can be compared equally.

CONS

- Even though core porosity is known, porosity has no relation to permeability.

DISCUSSION

The Øh values determined by this method are not representative of the effective reservoir. However, we can use the Øh from MULVAN to compare wells. The MULVAN porosity data compares reasonably well to core and the data should be fairly consistent from well to well.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10-12
1-1
12-7
7-1
3-18
3-12
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16-1
9-12
15-1
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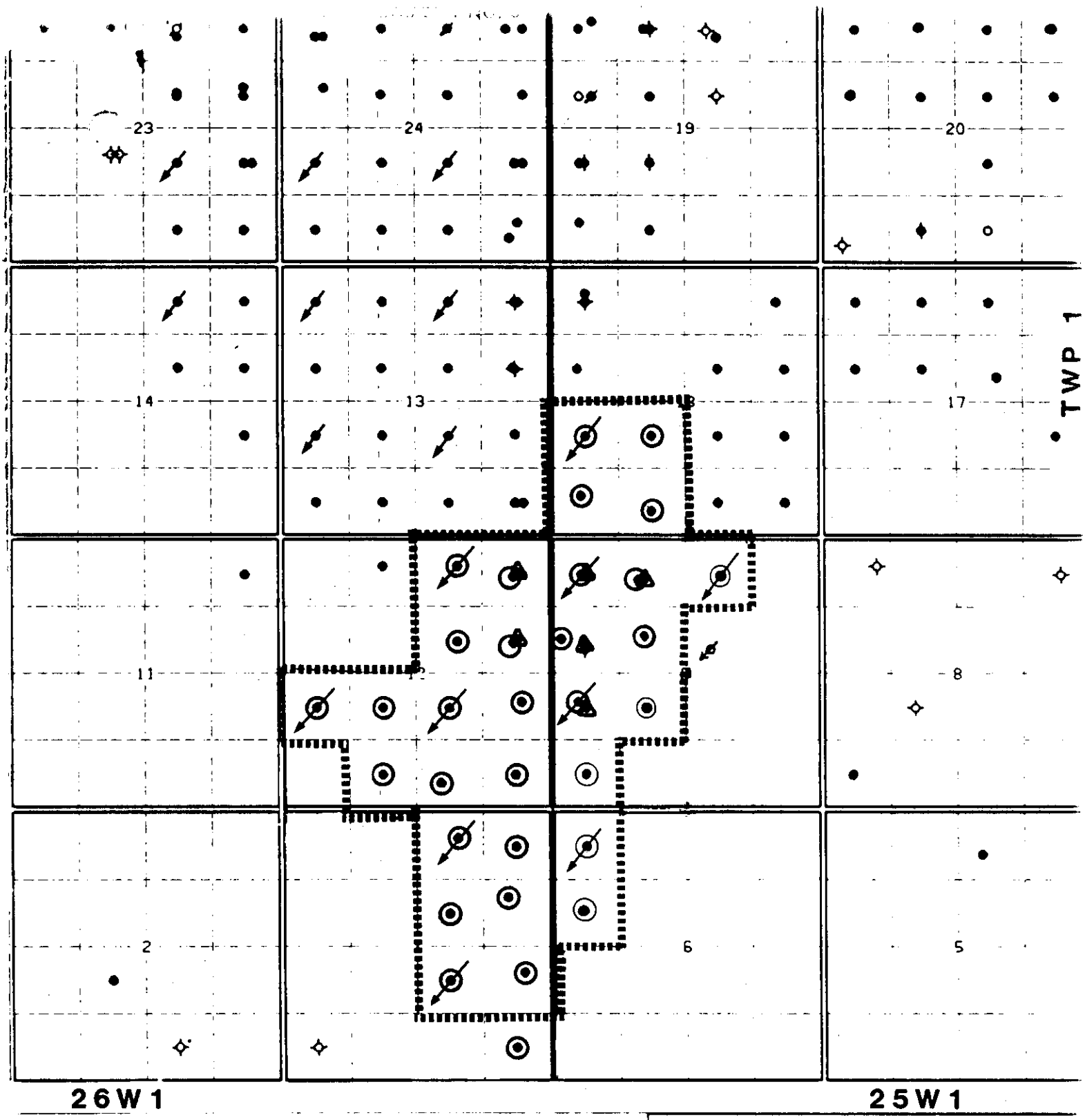
6-18
8-12
6-12
16-12
7-12
9-1



LEGEND

- SPEARFISH
- MC–3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA

Chevron Canada Resources Limited

WASKADA AREA
PROPOSED UNIT

FIGURE 1

PROSPECT: WASKADA	SCALE:	DATE:
FIELD/AREA: WASKADA	AUTHOR: H. HOLDICH	
POOL:	DRAWN: L. CHRISTIE	C.D. SHEET
PROSPECT:	DOCUMENT NO. A–10780	INTERPRETATION OVERLAY
FORMATION:		

1985-03-07

Proposed Waskada Unit No. 6
Technical Committee Meeting 1985-03-14

TO: ALL WORKING INTEREST OWNERS
PROPOSED WASKADA UNIT NO. 6

A Waskada Unit No. 6 Technical Committee Meeting is scheduled for 1985-03-14-09:00 in the Chevron Plaza 11th Floor Conference Room, 500 - 5 Avenue S.W., Calgary.

An agenda is attached (Attachment No. 1).

Attachment Nos. 2 and 3 are the worksheets for calculating the productivity tract factors using current and initial productivity respectively. Attachment No. 4 is a summary of the productivity tract factors.

Attachment Nos. 5, 6, and 7 are the worksheets for calculating the reserve, Øh and net pay tract factors. Attachment No. 6 is not included as the Mulvan data is still being generated. This Attachment will be forwarded when available. Attachment No. 8 is a summary of the reserve, Øh and net pay tract factors. An updated version of Attachment No. 8 will be forwarded when the Mulvan data is available.

Also attached is a revised initial Unit boundary (Attachment No. 9).

At this meeting, the Technical Committee will be finalizing its recommendations to the Operating Committee regarding tract factors and the Unit boundary.

Sincerely,

Doug Schierman

D. SCHIERMAN, Chairman
Technical Committee
Proposed Waskada Unit No. 6

DS/ds
Attach.

1985-03-07

ATTACHMENT NO. 1

Waskada Unit No. 6
Technical Committee Meeting
1985-03-14

A G E N D A

1. Review Minutes of 1985-02-19 Meeting.

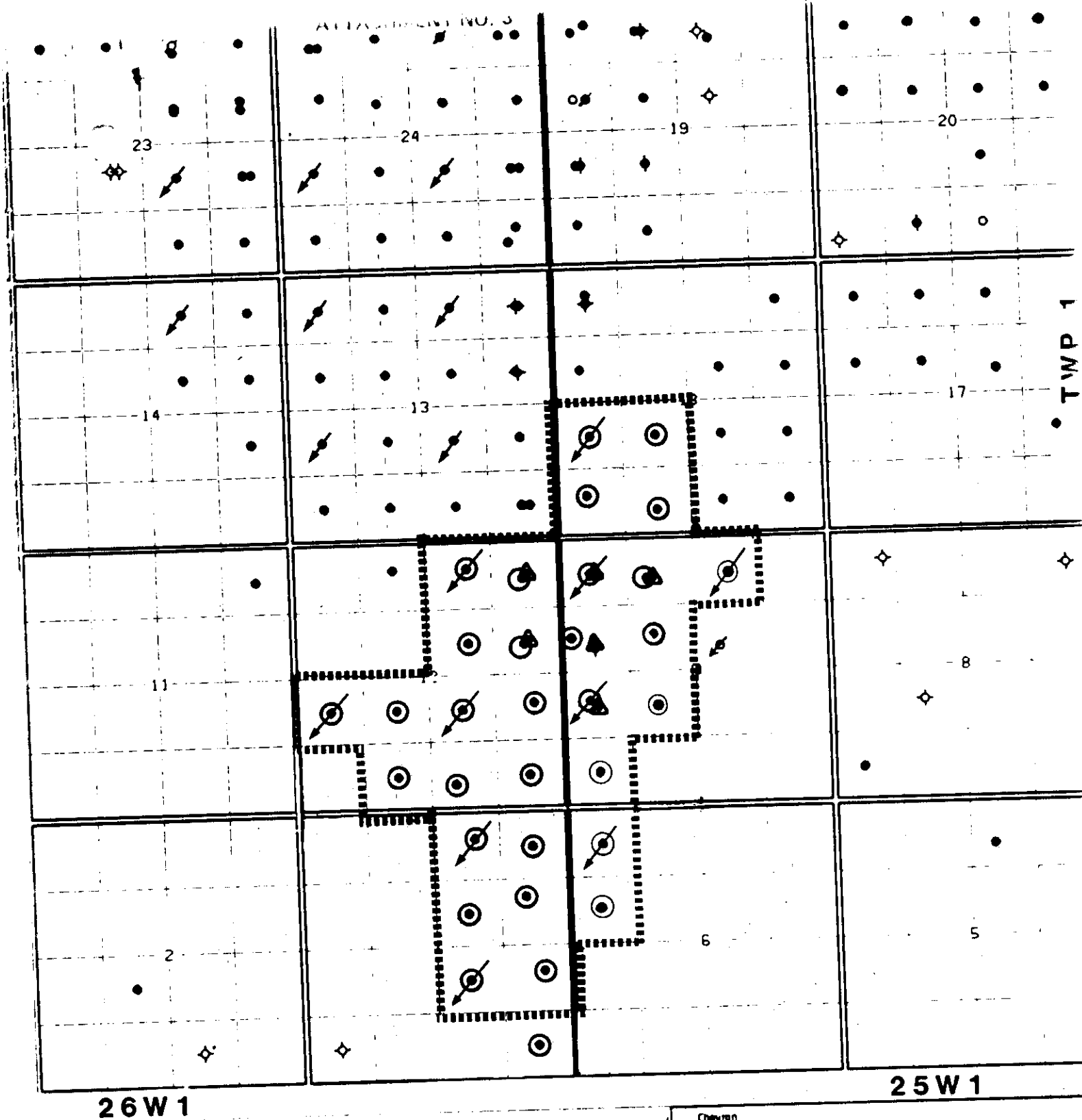
2. Review productivity and volumetric parameters for calculating tract factors:

   a. Current and initial productivity - oil rate and oil cut factors.
   b. Reserves and Øh parameters - .5 md cutoff
      - Mulvan data
   c. Net pay from 270 μs/m sonic cutoff

3. Recommend parameters for calculating the Unit participation factor to the Operating Committee.

4. Discussion of tracts to be included in initial unit area.
   - Addition of 12 and 13-6.
   - Finalize method for assigning tract factor to 5-12

5. Recommend an initial Unit boundary to the Operating Committee.



LEGEND

- SPEARFISH
- MC–3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA

Chevron Canada Resources Limited

WASKADA AREA
PROPOSED UNIT

FIGURE 1

PROVINCE: MANITOBA	SCALE:	DATE:
FIELD/AREA: WASKADA	DRAWN: R. HOLDWAY	DWG NUMBER:
POOL:	TRACED: L. CAMILLERI	INTERPRETATION OVER:
PROSPECT:	DOCUMENT NO. A–10780	
FORMATION:		

ATTACHMENT # 2

MARCH 6, 1985

WASKADA UNIT # 6 CURRENT OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS

	OIL PROD m3	WATER PROD m3	TIME ON days	CONSECUTIVE PRODUCING PERIOD	OIL RATE m3/d	OIL CUT	CURRENT PRODUCTIVITY OIL RATE FACTOR	CURRENT PRODUCTIVITY OIL CUT FACTOR
04-07-01-25W1	31.0	923.1	60	10-01 to 11-30	0.5	0.03	0.005069	0.073865
05-07-01-25W1	421.8	439.9	91	09-01 to 11-30	4.6	0.49	0.045474	1.112810
11-07-01-25W1	58.0	1025.0	44	10-17 to 10-31	1.3	0.05	0.012932	0.121750
12-07-01-25W1	532.8	1043.3	91	09-01 to 11-30	5.9	0.34	0.057440	0.768512
13-07-01-25W1	274.8	683.7	61	10-01 to 11-30	4.5	0.29	0.044196	0.651771
14-07-01-25W1	368.3	275.1	45	10-17 to 11-30	8.2	0.57	0.080294	1.301341
15-07-01-25W1			28	01-01 to 31	5.7	0.63	0.055920	1.432224
03-18-01-25W1			29	09-16 to 10-15	6.2	0.55	0.060826	1.250354
04-18-01-25W1			30	10-01 to 30	1.5	0.56	0.014716	1.273088
05-18-01-25W1			30	09-28 to 10-27	1.7	0.62	0.016678	1.409490
06-18-01-25W1			30	10-03 to 11-01	0.7	0.30	0.006867	0.682011
07-01-01-25W1			30	09-03 to 10-02	0.7	0.08	0.006867	0.181870
08-01-01-26W1				09-01 to 13 and			0.000000	
			18	09-28 to 10-02	2.5	0.20	0.024526	0.454674
09-01-01-26W1			30	09-01 to 30	2.2	0.82	0.021583	1.864165
10-01-01-26W1			30	09-28 to 10-28	3.0	0.32	0.029432	0.727479
15-01-01-26W1			31	11-10 to 12-09	3.3	0.21	0.032375	0.477408
16-01-01-26W1			30	09-14 to 10-13	5.3	0.80	0.051996	1.818697
01-12-01-26W1			29	10-01 to 30	2.4	0.79	0.023545	1.795964
02-12-01-26W1			30	09-15 to 10-15	5.7	0.52	0.055920	1.182153
03-12-01-26W1			27	11-01 to 30	5.8	0.40	0.056901	0.909349
06-12-01-26W1			29	11-01 to 30	4.7	0.30	0.046110	0.682011
07-12-01-26W1			30	09-22 to 10-21	2.2	0.80	0.021583	1.818697
08-12-01-26W1			30	09-22 to 11-21	1.3	0.89	0.012754	2.023301
09-12-01-26W1	157.1	75.3	30	11-01 to 30	5.2	0.68	0.051375	1.536776
10-12-01-26W1	549.6	94.3	91	09-01 to 11-30	6.0	0.85	0.059251	1.940433
15-12-01-26W1	214.2	176.0	56	09-01 to 10-27	3.8	0.55	0.037525	1.247966
16-12-01-26W1	269.7	216.2	39	09-26 to 11-04	6.9	0.56	0.067844	1.261841
					101.9	13.20	1.0	30.0

AVERAGE OIL CUT 0.44

FEBRUARY 28. 1985
INCLUDES DEC. 84 PROD.

ATTACHMENT NO. 3

WASKADA UNIT 6 OIL RATE AND OIL CUT TRACT FACTOR CALCULATIONS
First Four Months of Cumulative Prod.

	OIL PROD m3	WATER PROD m3	TIME ON days	OIL RATE m3/d	OIL RATE FACTOR	FIRST FOUR MONTHS OIL CUT	FIRST FOUR MONTHS OIL CUT FACTOR
04-07-01-25-W1	41.6	1771.3	120	0.346666	0.056045	0.022946	0.045252
05-07-01-25-W1	801.2	525.5	101	7.932673	1.282471	0.603904	1.190931
11-07-01-25-W1	129.1	2178.8	92	1.403260	0.226864	0.055938	0.110313
12-07-01-25-W1	1549.6	299.8	82	18.89756	3.055159	0.837893	1.652370
13-07-01-25-W1	241.4	1033.6	65	3.713846	0.600415	0.189333	0.373375
14-07-01-26-W1	202.7	443.8	76	2.667105	0.431189	0.313534	0.618306
03-18-01-25-W1	1184.6	454.7	113	10.48318	1.694811	0.722625	1.425055
04-18-01-25-W1	46.6	227.5	78	0.597435	0.096587	0.170010	0.335270
05-18-01-25-W1	402.1	205.6	98	4.103061	0.663339	0.661675	1.304858
06-18-01-25-W1	174.7	308.3	94	1.858510	0.300464	0.361697	0.713287
07-01-01-26-W1	76.5	779.4	86	0.889534	0.143810	0.089379	0.176261
08-01-01-26-W1	153.8	605.3	88	1.747727	0.282554	0.202608	0.399554
09-01-01-26-W1	387.7	160.4	100	3.877	0.626792	0.707352	1.394937
10-01-01-26-W1	662.8	818.5	100	6.628	1.071545	0.447444	0.882384
15-01-01-26-W1	350.1	862.6	97	3.609278	0.583510	0.288694	0.569321
16-01-01-26-W1	723.2	226.8	97	7.455670	1.205354	0.761263	1.501251
01-12-01-26-W1	655.7	211.8	110	5.960909	0.963697	0.755850	1.490576
02-12-01-26-W1	622.7	623.3	120	5.189166	0.838929	0.499759	0.985551
03-12-01-26-W1	654.7	813.7	114	5.742982	0.928465	0.445859	0.879258
06-12-01-26-W1	581.2	1115.2	114	5.098245	0.824230	0.342607	0.675640
07-12-01-26-W1	741.6	183	106	6.996226	1.131076	0.802076	1.581737
08-12-01-26-W1	437.1	76.5	75	5.828	0.942209	0.851051	1.678318
09-12-01-26-W1	1149.3	690.4	112	10.26160	1.658988	0.624721	1.231983
10-12-01-26-W1	1305.9	166.6	98	13.32551	2.154328	0.886859	1.748933
15-12-01-26-W1	696.2	87.9	83	8.387951	1.356075	0.887896	1.750979
16-12-01-26-W1	1596.7	263.4	98	16.29285	2.634057	0.858394	1.692799
	15568.8	15133.7	2517	159.2939	25.75297	13.39137	26.40851

AVERAGE OIL RATE 6.185458 M3/D
AVERAGE OIL CUT 0.507085

MARCH 7, 1985
INCLUDES DECEMBER 1984 PRODUCTION

ATTACHMENT #9

WASKADA UNIT NO. 6 OIL RATE, OIL CUT TRACT FACTORS

	CURRENT PRODUCTIVITY		FIRST FOUR MONTHS	
	OIL RATE FACTOR	OIL CUT FACTOR	OIL RATE FACTOR	OIL CUT FACTOR
12-06-01-25-W1				
13-06-01-25-W1				
04-07-01-25-W1	0.005069	0.073865	0.056045	0.045252
05-07-01-25-W1	0.045474	1.112810	1.282471	1.190931
06-07-01-25-W1				
11-07-01-25-W1	0.012932	0.121750	0.226864	0.110313
12-07-01-25-W1	0.057440	0.768512	3.055159	1.652370
13-07-01-25-W1	0.044196	0.651771	0.600415	0.373375
14-07-01-25-W1	0.080294	1.301341	0.431189	0.618306
15-07-01-25-W1	0.055920	1.432224		
03-18-01-25-W1	0.060826	1.250354	1.694811	1.425055
04-18-01-25-W1	0.014716	1.273088	0.096587	0.335270
05-18-01-25-W1	0.016678	1.409490	0.663339	1.304858
06-18-01-25-W1	0.006867	0.682011	0.300464	0.713287
07-01-01-26-W1	0.006867	0.181870	0.143810	0.176261
08-01-01-26-W1	0.024526	0.454674	0.282554	0.399554
09-01-01-26-W1	0.021583	1.864165	0.626792	1.394937
10-01-01-26-W1	0.029432	0.727479	1.071545	0.882384
15-01-01-26-W1	0.032375	0.477408	0.583510	0.569321
16-01-01-26-W1	0.051996	1.818697	1.205354	1.501251
01-12-01-26-W1	0.023545	1.795964	0.963697	1.490576
02-12-01-26-W1	0.055920	1.182153	0.838929	0.985551
03-12-01-26-W1	0.056901	0.909349	0.928465	0.879258
06-12-01-26-W1	0.046110	0.682011	0.824230	0.675640
07-12-01-26-W1	0.021583	1.818697	1.131076	1.581737
08-12-01-26-W1	0.012754	2.023301	0.942209	1.678318
09-12-01-26-W1	0.051375	1.536776	1.658988	1.231983
10-12-01-26-W1	0.059251	1.940433	2.154328	1.748933
15-12-01-26-W1	0.037525	1.247966	1.356075	1.750979
16-12-01-26-W1	0.067844	1.261841	2.634057	1.692799
	1	30	25.75297	26.40851

MARCH 5. 1985
INCLUDES DECEMBER PROD

ATTACHMENT NO. 5

WASKADA UNIT 6 RESERVES TRACT FACTOR WORKSHEET
CUTOFFS K = .5md (CORE AND LOG DATA)

RESERVES=(0.20)(10114)(AREA)(1 -.52)(POR * h)/1.15-CUM.OIL

	POROSITY*h (m)	AREA (ha)	OOIP (m3)	INITIAL RESERVES (m3)	CUMULATIVE OIL (m3)	RESERVES	RESERVES TRACT FACTOR	ϕh FACTOR
12-06-01-25-W1	0.36	16	24315.8	4863.2	0.0	4863.2	0.014575	0.0128
13-06-01-25-W1	1.28	16	86456.2	17291.2	0.0	17291.2	0.051822	0.0456
04-07-01-25-W1	0.86	16	58087.8	11617.6	41.6	11576.0	0.034693	0.0306
05-07-01-25-W1	0.40	16	27017.6	5403.5	2754.3	2649.2	0.007940	0.0142
06-07-01-25-W1	0.78	16	52684.3	10536.9	0.0	10536.9	0.031579	0.027
11-07-01-25-W1	1.02	16	68894.8	13779.0	616.7	13162.3	0.039447	0.03
12-07-01-25-W1	0.98	16	66193.1	13238.6	4032.5	9206.1	0.027591	0.024
13-07-01-25-W1	0.70	16	47280.8	9456.2	1144.5	8311.7	0.024910	0.024
14-07-01-25-W1	0.82	16	55386.0	11077.2	1226.1	9851.1	0.029524	0.029
15-07-01-25-W1	1.56	16	105368.5	21073.7	0.0	21073.7	0.063158	0.055
03-18-01-25-W1	1.04	16	70245.7	14049.1	3294.1	10755.0	0.032233	0.037
04-18-01-25-W1	0.87	16	58763.2	11752.6	1179.7	10572.9	0.031687	0.031
05-18-01-25-W1	0.95	16	64166.7	12833.3	840.7	11992.6	0.035942	0.033
06-18-01-25-W1	1.06	16	71596.6	14319.3	379.8	13939.5	0.041777	0.037
07-01-01-26-W1	1.22	16	82403.6	16480.7	76.5	16404.2	0.049163	0.043
08-01-01-26-W1	0.96	16	64842.2	12968.4	153.8	12814.6	0.038405	0.034
09-01-01-26-W1	0.41	16	27693.0	5538.6	990.4	4548.2	0.013631	0.014
10-01-01-26-W1	0.98	16	66193.1	13238.6	3409.8	9828.8	0.029457	0.034
15-01-01-26-W1	1.93	16	130359.8	26072.0	401.1	25670.9	0.076935	0.068
16-01-01-26-W1	0.97	16	65517.6	13103.5	1637.3	11466.2	0.034364	0.034
01-12-01-26-W1	1.19	16	80377.3	16075.5	1502.9	14572.6	0.043674	0.042
02-12-01-26-W1	1.32	16	89158.0	17831.6	622.7	17208.9	0.051575	0.047
03-12-01-26-W1	0.76	16	51333.4	10266.7	654.7	9612.0	0.028807	0.027
06-12-01-26-W1	0.87	16	58763.2	11752.6	581.2	11171.4	0.033481	0.031
07-12-01-26-W1	1.24	16	83754.5	16750.9	1589.3	15161.6	0.045439	0.044
08-12-01-26-W1	0.43	16	29043.9	5808.8	1315.6	4493.2	0.013466	0.015
09-12-01-26-W1	0.81	16	54710.6	10942.1	3764.7	7177.4	0.021511	0.028
10-12-01-26-W1	0.70	16	47280.8	9456.2	3939.6	5516.6	0.016533	0.024
15-12-01-26-W1	0.60	16	40526.4	8105.3	3410.2	4695.1	0.014071	0.021
16-12-01-26-W1	0.98	16	66193.1	13238.6	5694.2	7544.4	0.022611	0.034
	28.05				45254.0	333667.4	1.00	1.0

ATTACHMENT #6

MARCH 5, 1985
INCLUDES DECEMBER PROD

WASKADA UNIT 6 RESERVES TRACT FACTOR WORKSHEET
MULVAN DATA

RESERVES=(0.20)(10114)(AREA)(1 -.52)(POR * h)/1.15-CUM.OIL

	POROSITY*h (m)	AREA (ha)	OOIP (m3)	INITIAL RESERVES (m3)	CUMULATIVE OIL (m3)	RESERVES	RESERVES TRACT FACTOR	ϕh TRACT FACTOR
12-06-01-25-W1	1.68	16	113473.8	22694.8	0.0	22694.8	0.027088	0.025
13-06-01-25-W1	2.84	16	191824.8	38365.0	0.0	38365.0	0.045792	0.043445
04-07-01-25-W1	2.62	16	176965.1	35393.0	41.6	35351.4	0.042195	0.04006
05-07-01-25-W1	1.33	16	89833.4	17966.7	2754.3	15212.4	0.018157	0.02034
06-07-01-25-W1	2.43	16	164131.8	32826.4	0.0	32826.4	0.039181	0.037177
11-07-01-25-W1	3.13	16	211412.5	42282.5	616.7	41665.8	0.049731	0.047881
12-07-01-25-W1	2.88	16	194526.5	38905.3	4032.5	34872.8	0.041623	0.04405
13-07-01-25-W1	3.12	16	210737.1	42147.4	1144.5	41002.9	0.048940	0.047728
14-07-01-25-W1	2.59	16	174938.8	34987.8	1226.1	33761.7	0.040297	0.039621
15-07-01-25-W1	2.29	16	154675.6	30935.1	0.0	30935.1	0.036924	0.035031
03-18-01-25-W1	2.23	16	150623.0	30124.6	3294.1	26830.5	0.032024	0.034114
04-18-01-25-W1	2.32	16	156701.9	31340.4	1179.7	30160.7	0.035999	0.035490
05-18-01-25-W1	1.88	16	126982.6	25396.5	840.7	24555.8	0.029309	0.028759
06-18-01-25-W1	1.54	16	104017.7	20803.5	379.8	20423.7	0.024377	0.02
07-01-01-26-W1	2.09	16	141166.8	28233.4	76.5	28156.9	0.033607	0.031972
08-01-01-26-W1	1.76	16	118877.3	23775.5	153.8	23621.7	0.028194	0.026924
09-01-01-26-W1	2.36	16	159403.7	31880.7	990.4	30890.3	0.036870	0.036102
10-01-01-26-W1	1.92	16	129684.3	25936.9	3409.8	22527.1	0.026888	0.029371
15-01-01-26-W1	2.55	16	172237.0	34447.4	401.1	34046.3	0.040637	0.039
16-01-01-26-W1	2.03	16	137114.2	27422.8	1637.3	25785.5	0.030777	0.031
01-12-01-26-W1	1.57	16	106044.9	21208.8	1502.9	19705.9	0.023521	0.024
02-12-01-26-W1	2.52	16	170210.7	34042.1	622.7	33419.4	0.039889	0.038
✗03-12-01-26-W1	3.02	16	203982.7	40796.5	654.7	40141.8	0.047913	0.046
✗06-12-01-26-W1	1.60	16	108070.3	21614.1	581.2	21032.9	0.025104	0.02
07-12-01-26-W1	1.45	16	97938.7	19587.7	1589.3	17998.4	0.021483	0.022
08-12-01-26-W1	1.96	16	132386.1	26477.2	1315.6	25161.6	0.030032	0.029
09-12-01-26-W1	2.33	16	157377.4	31475.5	3764.7	27710.8	0.033075	0.035
10-12-01-26-W1	2.23	16	150623.0	30124.6	3939.6	26185.0	0.031254	0.034
15-12-01-26-W1	1.94	16	131035.2	26207.0	3410.2	22796.8	0.027210	0.029
16-12-01-26-W1	1.16	16	78351.0	15670.2	5694.2	9976.0	0.011907	0.017
	65.37				45254.0	837815.3	1.00	1.00

.073017 - 0.106 25

ATTACHMENT #7

MARCH 5, 1985

WASHADA UNIT 6 NET PAY TRACT FACTOR WORKSHEET
SONIC CUTOFF = 270 μS/m

	NET PAY (m)	NET PAY TRACT FACTOR
12-06-01-2	5.5	0.028162
13-06-01-2	5.1	0.026114
04-07-01-2	8.8	0.045059
05-07-01-2	2.9	0.014849
06-07-01-2	6.8	0.034818
11-07-01-2	9.7	0.049667
12-07-01-2	4.1	0.020993
13-07-01-2	6.8	0.034818
14-07-01-2	3.0	0.015361
15-07-01-2	6.2	0.031746
03-18-01-2	3.8	0.019457
04-18-01-2	7.5	0.038402
05-18-01-2	5.8	0.029698
06-18-01-2	3.8	0.019457
07-01-01-2	8.0	0.040963
08-01-01-2	5.5	0.028162
09-01-01-2	4.9	0.025090
10-01-01-2	8.0	0.040963
15-01-01-2	9.0	0.046083
16-01-01-2	7.5	0.038402
01-12-01-2	6.3	0.032258
02-12-01-2	11.3	0.057860
03-12-01-2	9.5	0.048643
06-12-01-2	4.2	0.021505
07-12-01-2	4.5	0.023041
08-12-01-2	4.5	0.023041
09-12-01-2	7.0	0.035842
10-12-01-2	8.2	0.041987
15-12-01-2	9.9	0.050691
16-12-01-2	7.2	0.036866
	195.30	1.00

MARCH 7, 1985
INCLUDES DECEMBER 1984 PRODUCTION

ATTACHMENT NO. 8

WASKADA UNIT NO. 6 RESERVE ϕh AND NET PAY TRACT FACTORS

	RESERVES .5 md CUTOFF m3	RESERVES TRACT FACTOR	ϕh TRACT FACTOR .5 md CUTOFF	RESERVES MULVAN m3	RESERVES TRACT FACTOR	ϕh TRACT FACTOR MULVAN	NET PAY TRACT FACTOR 270 $\mu s/m$ SONIC CUTOFF
12-06-01-25-W1	4863.2	0.014575	0.012834	22694.8	0.027088	0.025700	0.028162
13-06-01-25-W1	17291.2	0.051822	0.045633	38365.0	0.045792	0.043445	0.026114
04-07-01-25-W1	11576.0	0.034693	0.030660	35351.4	0.042195	0.040080	0.045059
05-07-01-25-W1	2649.2	0.007940	0.014260	15212.4	0.018157	0.020346	0.014849
06-07-01-25-W1	10536.9	0.031579	0.027807	32826.4	0.039181	0.037173	0.034818
11-07-01-25-W1	13162.3	0.039447	0.036364	41665.8	0.049731	0.047881	0.049667
12-07-01-25-W1	9206.1	0.027591	0.034938	34872.8	0.041623	0.044057	0.020993
13-07-01-25-W1	8311.7	0.024910	0.024955	41002.9	0.048940	0.047728	0.034818
14-07-01-25-W1	9851.1	0.029524	0.029234	33761.7	0.040297	0.039621	0.015361
15-07-01-25-W1	21073.7	0.063158	0.055615	30935.1	0.036924	0.035031	0.031746
03-18-01-25-W1	10755.0	0.032233	0.037077	26830.5	0.032024	0.034114	0.019457
04-18-01-25-W1	10572.9	0.031687	0.031016	30160.7	0.035999	0.035490	0.038402
05-18-01-25-W1	11992.6	0.035942	0.033868	24555.8	0.029309	0.028759	0.029698
06-18-01-25-W1	13939.5	0.041777	0.037790	20423.7	0.024377	0.023558	0.019457
07-01-01-26-W1	16404.2	0.049163	0.043494	28156.9	0.033607	0.031972	0.040963
08-01-01-26-W1	12814.6	0.038405	0.034225	23621.7	0.028194	0.026924	0.028162
09-01-01-26-W1	4548.2	0.013631	0.014617	30890.3	0.036870	0.036102	0.025090
10-01-01-26-W1	9828.8	0.029457	0.034938	22527.1	0.026888	0.029371	0.040963
15-01-01-26-W1	25670.9	0.076935	0.068806	34046.3	0.040637	0.039009	0.046083
16-01-01-26-W1	11466.2	0.034364	0.034581	25785.5	0.030777	0.031054	0.038402
01-12-01-26-W1	14572.6	0.043674	0.042424	19705.9	0.023521	0.024017	0.032258
02-12-01-26-W1	17208.9	0.051575	0.047059	33419.4	0.039889	0.038550	0.057860
03-12-01-26-W1	9612.0	0.028807	0.027094	40141.8	0.047913	0.046199	0.048643
06-12-01-26-W1	11171.4	0.033481	0.031016	21032.9	0.025104	0.024476	0.021505
07-12-01-26-W1	15161.6	0.045439	0.044207	17998.4	0.021483	0.022181	0.023041
08-12-01-26-W1	4493.2	0.013466	0.015330	25161.6	0.030032	0.029983	0.023041
09-12-01-26-W1	7177.4	0.021511	0.028877	27710.8	0.033075	0.035643	0.035842
10-12-01-26-W1	5516.6	0.016533	0.024955	26185.0	0.031254	0.034114	0.041987
15-12-01-26-W1	4695.1	0.014071	0.021390	22796.8	0.027210	0.029677	0.050691
16-12-01-26-W1	7544.4	0.022611	0.034923	9976.0	0.011907	0.017745	0.050691

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

K.E. Godard
Chief Engineer

1985-03-29

Summary of Changes to the
Waskada Lower Amaranth "A" Pool
Waterflood Application dated 1984-11-29

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

Attention: Mr. R. B. Chenier

Gentlemen:

With the recent development drilling, the Waterflood Project area has changed from the area included in the Waskada Lower Amaranth "A" Pool Waterflood Application dated 1984-11-29. A summary of the changes is:

1. The following tracts have been added to the proposed Unit:

   LSD 12 and 13-06-01-25 WPM
   LSD 06 and 15-07-01-25 WPM

   See the attached map which is an updated version of Figure 1 of the Waterflood Application. This map shows the initial boundary of the proposed Unit.

2. Two additional wells will be converted to water injection service. They are:

   13-06-01-25 WPM
   15-07-01-25 WPM

   See the attached table that is an updated version of Table 1 in the Waterflood Application. This table shows the injector geologic properties and the expected injection rates. The completion and stimulation summary for the two additional injectors is contained in the updated version of Appendix B in the Waterflood Application.

3. An update of the surface facilities map (Figure 7 in the Waterflood Application) is also attached.

Also attached are three tables with the preliminary lists of the working interest, mineral rights, and surface owners of the proposed Unit. These tables take the place of Figure 2 in the Waterflood Application, which was deficient. A final version of these tables will be forwarded when the Title Search Committee for the proposed Waskada Unit No. 6 has completed its work.

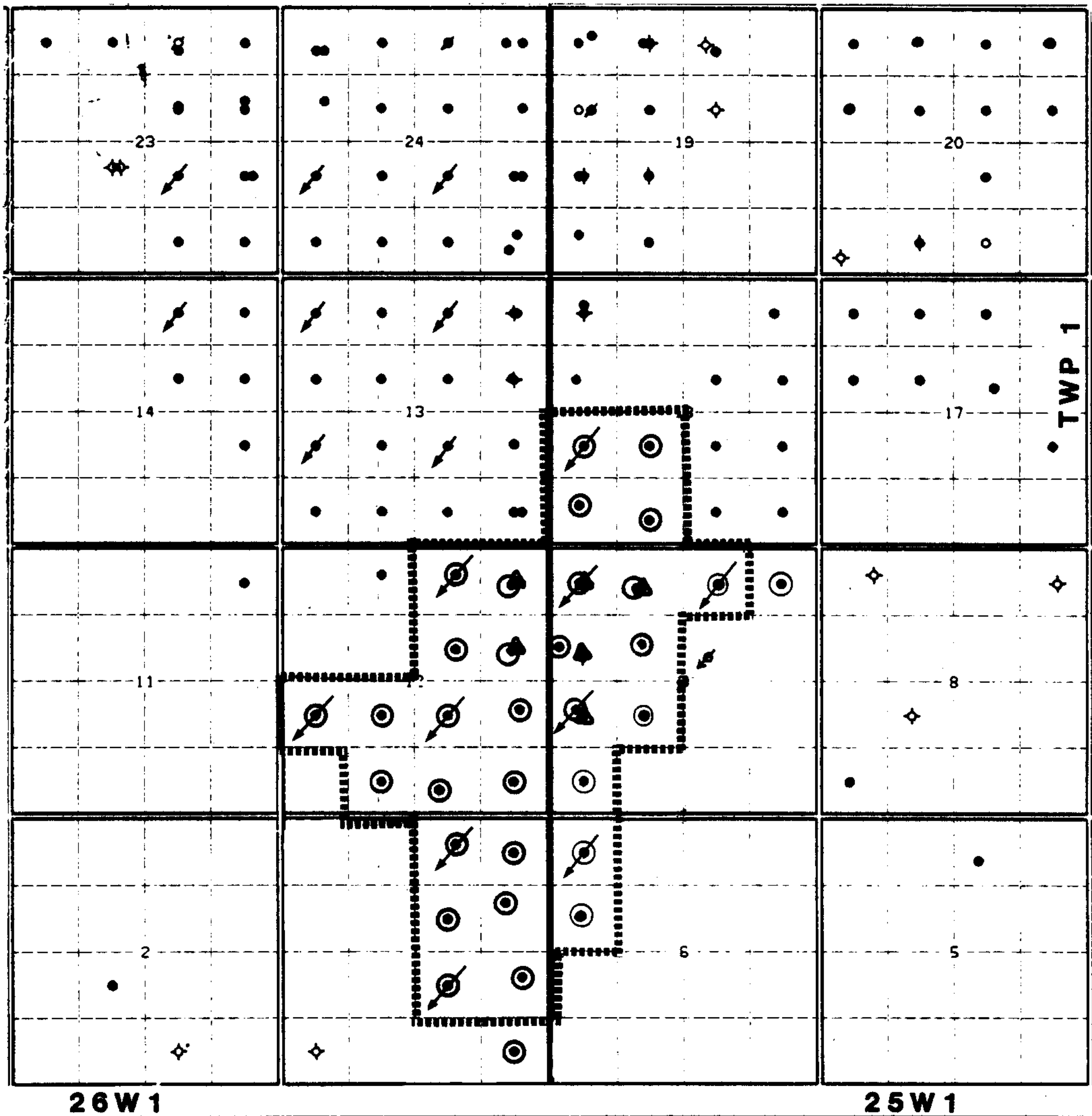
Any questions regarding this matter should be directed to D. Schierman at (403) 234-5167.

Sincerely,

Doug Schierman

for R. A. FILGATE, P.Eng.
Supervising Engineer
Reservoir

DS/lgs
Attach.



LEGEND

- SPEARFISH
- MC–3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA

Chevron Canada Resources Limited

WASKADA AREA PROPOSED UNIT

FIGURE 1

DOCUMENT NO. A–10780

FILE NO. FC–01

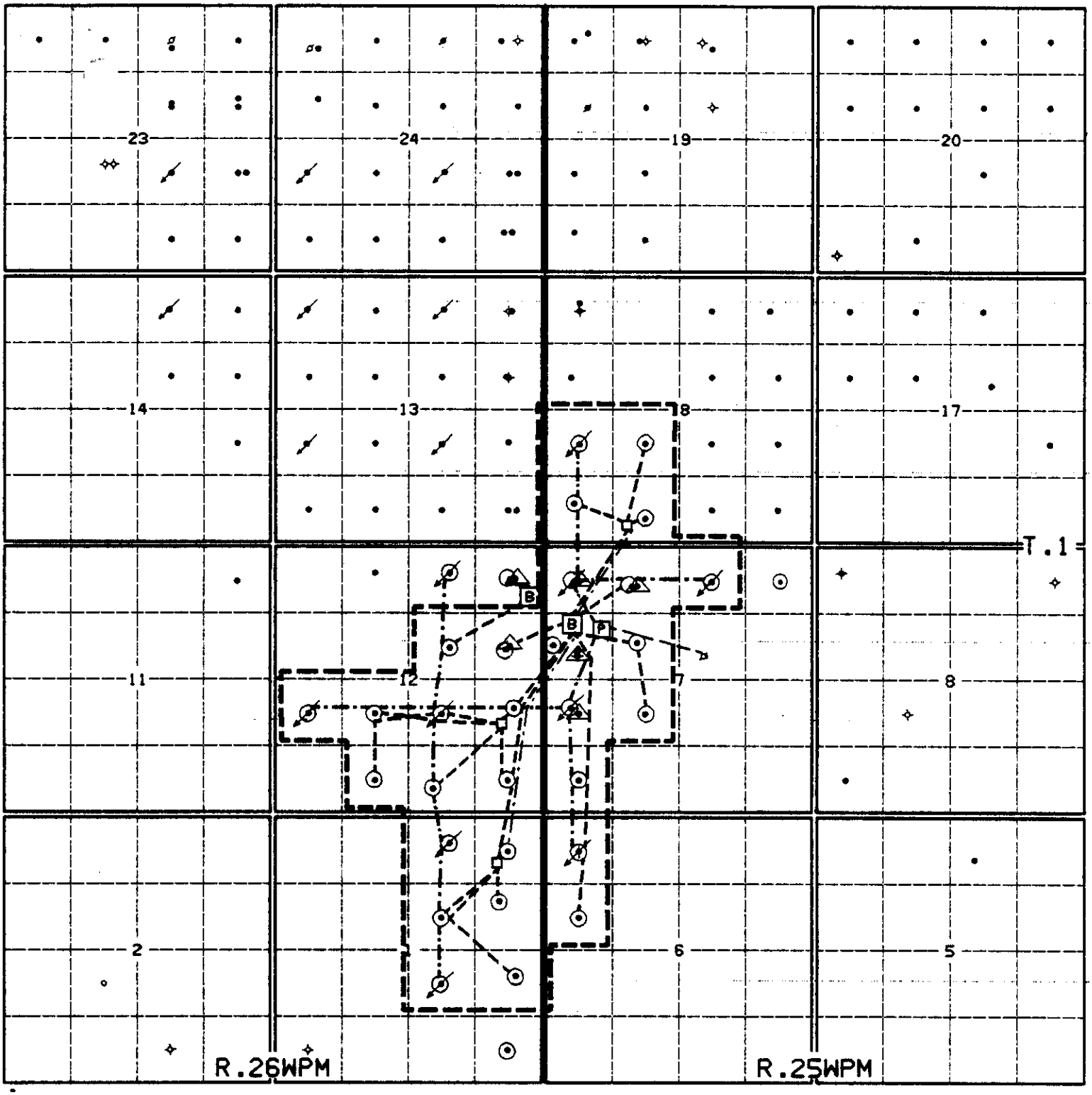
TABLE 1

Waskada Lower Amaranth "A" Pool
Proposed Waterflood Project
Injector Geologic Properties and Expected
Injection Rates

Injector	h	Øh	kh[1]	Predicted Injection Rate[2]
	m	m	mdm	m^3/d
13- 6- 1-25	4.0	.64		150
5- 7- 1-25	1.2	.20		80
13- 7- 1-25	1.0	.17	2.0	100
15- 7- 1-25	5.2	.83	11.4	70
5-18- 1-25	3.4	.54	5.4	40
7- 1- 1-26	4.4	.70	8.8	60
15- 1- 1-26	7.2	1.10	18.7	100
5-12- 1-26	1.3	.26		80
7-12- 1-26	3.9	.62		30
15-12- 1-26	2.0	.30		60

1. Wells without kh data were not cored.

2. Estimated from Unit 1 injection well production and injection data.



LEGEND

- SPEARFISH
- MC-3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA
- B BATTERY
- P INJECTION PLANT
- HEADER(S)
- FLOWLINES (GROUP)
- FLOWLINES (TEST)
- INJECTION LINES
- WATER LINE

Chevron Canada Resources Limited

WASKADA AREA

PROPOSED UNIT

FIGURE 7

SC058809

A P P E N D I X B

Waskada Injection Well Candidates
Well Completion and Stimulation Summary

Newscope S. Waskada 13- 6- 1-25 WPM

114 mm casing, landed at 985.0 m KB.
Plug back total depth: 980.0 m KB
Peforations: Lower Amaranth From 913.0 - 916.0, 919.0 - 923.0 and 924.0 - 926.5 m KB
Stimulation: Fracced with 27 tonne sand.

Newscope et al Waskada 5-7LAM-1-25-WPM

114 mm casing, landed at 930.5 m KB. Cemented to surface.
Plug back total depth: 926.0 m KB.
Perforations: Lower Amaranth from 916.0 to 924.0 m KB.
Stimulation: Fracced with 27 tonne sand.

Newscope et al Waskada 13-7LAM-1-25-WPM

140 mm casing, landed at 935.5 m KB. Cemented to surface.
Plug back total depth: 931.4 m KB.
Perforations: Lower Amaranth 913.5 - 926.0 m KB.
Stimulation: Fracced with 30.0 tonne sand.

Chevron Newscope Waskada 15-7-1-25 WPM

140 mm casing, landed at 954.8 m KB.
Plug back total depth: 940.7 m KB (by electric wireline).
Perforations: Lower Amaranth from 912.0 to 924.0 m KB.
Stimulation: Fracced with 27 tonne sand.

Chevron Waskada 5-18-1-25-WPM

140 mm casing, landed at 963.5 m KB. Cemented to surface.
Plug back total depth: 949.0 m KB.
Perforations: Lower Amaranth from 913.0 - 922.5 m KB.
Stimulation: Fracced with 16 tonne sand (Sanded Off)

Chevron Waskada 7-1-1-26-WPM

140 mm casing, landed at 968.5 m KB. Cemented to surface.
Plug back total depth: 955.0 m KB.
Perforations: Lower Amaranth from 914.0 to 925.0 m KB.
Stimulation: Fracced with 27.0 tonne sand.

Chevron Waskada 15-1-1-26-WPM

140 mm casing, landed at 959.5 m KB. Cemented to surface.
Plug back total depth: 946.5 m KB initially.
Perforations: Mission Canyon from 936.0 to 938.0 m KB
(Temporarily Abandoned)
New Plug Back Total Depth: 931.0 m KB (Cement Retainer)
New Perforations: Lower Amaranth from 915.0 to 929.0 m KB.
Stimulation: Fracced with 7.7 tonne sand (Sanded Off).

Chevron Waskada 5-12-1-26-WPM

140 mm casing, landed at 979.5 m KB.
Plug back total depth: 963.6 m KB.
Perforations: Lower Amaranth from 927.0 to 936.0 m KB.
Stimulation: Fracced with 27.0 tonne sand.
Remedial: Cement squeezed top of MC-3 to shut off excessive water production - only partially successful.

Chevron Waskada 7-12-1-26-WPM

140 mm casing, landed at 955.0 m KB. Cemented to surface.
Plug back total depth: 939.3 m KB.
Perforations: Lower Amaranth 910.5 - 923.0 m KB.
Stimulation: Fracced with 11.0 tonne sand (Sanded Off).

Newscope S. Waskada 15-12-1-26-WPM

114 mm casing, landed at 958.5 m KB.
Plug back total depth: 953.2 m KB.
Perforations: Lower Amaranth from 909.0 - 921.0 m KB.
Stimulation: Fracced with 27.0 tonne sand

PROPOSED WASKADA UNIT NO. 6
WORKING INTEREST OWNERS

Well	Participation - %						
	Chevron	Newscope	PanCanadian	Great American	Colenco	Can-Am	New McManus
12- 6- 1-25	25.00	30.00	-	-	25.00	10.00	10.00
13- 6- 1-25	25.00	30.00	-	-	25.00	10.00	10.00
4- 7- 1-25	50.00	27.50	-	-	12.50	5.00	5.00
5- 7- 1-25	50.00	27.50	-	-	12.50	5.00	5.00
6- 7- 1-25	50.00	27.50	-	-	10.00	5.00	7.50
11- 7- 1-25	25.00	27.50	25.00	-	10.00	5.00	7.50
12- 7- 1-25	25.00	27.50	25.00	-	12.50	5.00	5.00
13- 7- 1-25	-	55.00	-	-	25.00	10.00	10.00
14- 7- 1-25	25.00	27.50	25.00	-	10.00	5.00	7.50
15- 7- 1-25	50.00	50.00	-	-	-	-	-
3-18- 1-25	100.00	-	-	-	-	-	-
4-18- 1-25	100.00	-	-	-	-	-	-
5-18- 1-25	100.00	-	-	-	-	-	-
6-18- 1-25	100.00	-	-	-	-	-	-
7- 1- 1-26	100.00	-	-	-	-	-	-
8- 1- 1-26	100.00	-	-	-	-	-	-
9- 1- 1-26	100.00	-	-	-	-	-	-
10- 1- 1-26	100.00	-	-	-	-	-	-
15- 1- 1-26	100.00	-	-	-	-	-	-
16- 1- 1-26	100.00	-	-	-	-	-	-
1-12- 1-26	31.25	25.00	-	43.75	-	-	-
2-12- 1-26	31.25	25.00	-	43.75	-	-	-
3-12- 1-26	100.00	-	-	-	-	-	-
5-12- 1-26	100.00	-	-	-	-	-	-
6-12- 1-26	100.00	-	-	-	-	-	-
7-12- 1-26	31.25	25.00	-	43.75	-	-	-
8-12- 1-26	31.25	25.00	-	43.75	-	-	-
9-12- 1-26	50.00	27.50	-	-	10.00	5.00	7.50
10-12- 1-26	50.00	27.50	-	-	10.00	5.00	7.50
15-12- 1-26	50.00	27.50	-	-	10.00	5.00	7.50
16-12- 1-26	50.00	27.50	-	-	12.50	5.00	5.00

Abbreviations:
- Chevron - Chevron Canada Resources Limited
- Newscope - Newscope Resources Limited
- PanCanadian - PanCanadian Petroleum Limited
- Great American - Great American Energy, Inc.
- Colenco - Colenco Petroleum Ltd.
- Can-Am - Can-Am Drilling Ltd.
- New McManus - New McManus Red Lake Gold Mines

PROPOSED WASKADA UNIT NO. 6
MINERAL RIGHTS OWNERS

Lands	Lessor
NW-1/4 6- 1-25 WPM	Daisy May Lawrence Dome Petroleum Limited
SW-1/4 7- 1-25 WPM	59643 Manitoba Ltd. Roy Ovey Young
NE-1/4 7- 1-25 WPM	Joyce A. Rushton PanCanadian Petroleum Limited
NW-1/4 7- 1-25 WPM	Glen T. Rushton PanCanadian Petroleum Limited
SW-1/4 18- 1-25 WPM	Hernefield Enterprises Ltd.
E-1/2 1- 1-26 WPM	Frank R. Smart & Robert Smart
SE-1/4 12- 1-26 WPM	Hernefield Enterprises Ltd. William J. Hill Estate Robert Stead Witteman (W & N) M. Westlie (beneficiary of Weinhandle) Smith (Estate) Boyle (P&M) P. Boyle Westlie Estate M. Ballantine
SW-1/4 12- 1-26 WPM	Crown (Manitoba)
NE-1/4 12- 1-26 WPM	Hernefield Enterprises Ltd.

notice given not right

PROPOSED WASKADA UNIT NO. 6
SURFACE OWNERS

Lands	Surface Owners
NW-1/4 6- 1-25 WPM	Francis H. Lawrence
SW-1/4 7- 1-25 WPM	Leslie J. McGregor
NE-1/4 7- 1-25 WPM	Leslie J. McGregor
NW-1/4 7- 1-25 WPM	Robert D. McGregor
SW-1/4 18- 1-25 WPM	Melvin Lee
E-1/2 1- 1-26 WPM	Franklin Smart
SE-1/4 12- 1-26 WPM	Melvin Lee
SW-1/4 12- 1-26 WPM	Melvin Lee
NE-1/4 12- 1-26 WPM	Ronald W. Lee (Owner) Melvin Lee (Occupant)

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

K.E. Godard
Chief Engineer

1985-04-29

Addition to the
Waskada Lower Amaranth "A" Pool
Waterflood Application Dated 1984-11-29

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

Attention: Mr. R. B. Chenier

Gentlemen:

Attached is a table containing the Lessors, Owners and Lessees of lands surrounding the proposed Waskada Unit No. 6. This table is part of Figure 2 in the Waterflood Application.

Any questions regarding this matter should be directed to Doug Schierman at (403) 234-5167.

Sincerely

Doug Schierman

for R. A. FILGATE, P.Eng.
Supervising Engineer
Reservoir

DS/ds
Attach.

Memorandum

1985-04-23

Proposed Waskada Unit No. 6
Legal File No. 59,293

MESSRS. D. G. GUEST:
D. N. SCHIERMAN:

Attached hereto please find a schedule of all Lessors, Owners and Lessees of lands surrounding proposed Waskada Unit No. 6 as per your request. This schedule was compiled from our land records and titles from the Boissevain Land Titles Office. As stated before, the Land Titles Office will not guarantee the accuracy of an abstract of title. Therefore, because we have had to extrapolate our information from abstracts in certain instances, we cannot guarantee our advice is absolutely accurate. In addition, we have shown the Lessees of the lands as being the Caveators of the interests as shown on the titles and abstracts to the lands. There may be assignments of leases, or surrenders of leases of which we are not aware. Therefore, our advice as to the Lessees is subject to any information not registered against the title to the subject lands. As well, where we have stated the Lessee is "unknown", it may be that there are no leases issued in respect of the lands, or it may be unclear as to which party is the proper Lessee. A star beside the name of the Lessor indicates Chevron has leased the lands.

Lastly, this schedule contains several amendments to our memo of 1985-04-17. The information in this schedule is therefore more accurate, and should be that which is used from this point on.

Please advise us should you require any further assistance from us.

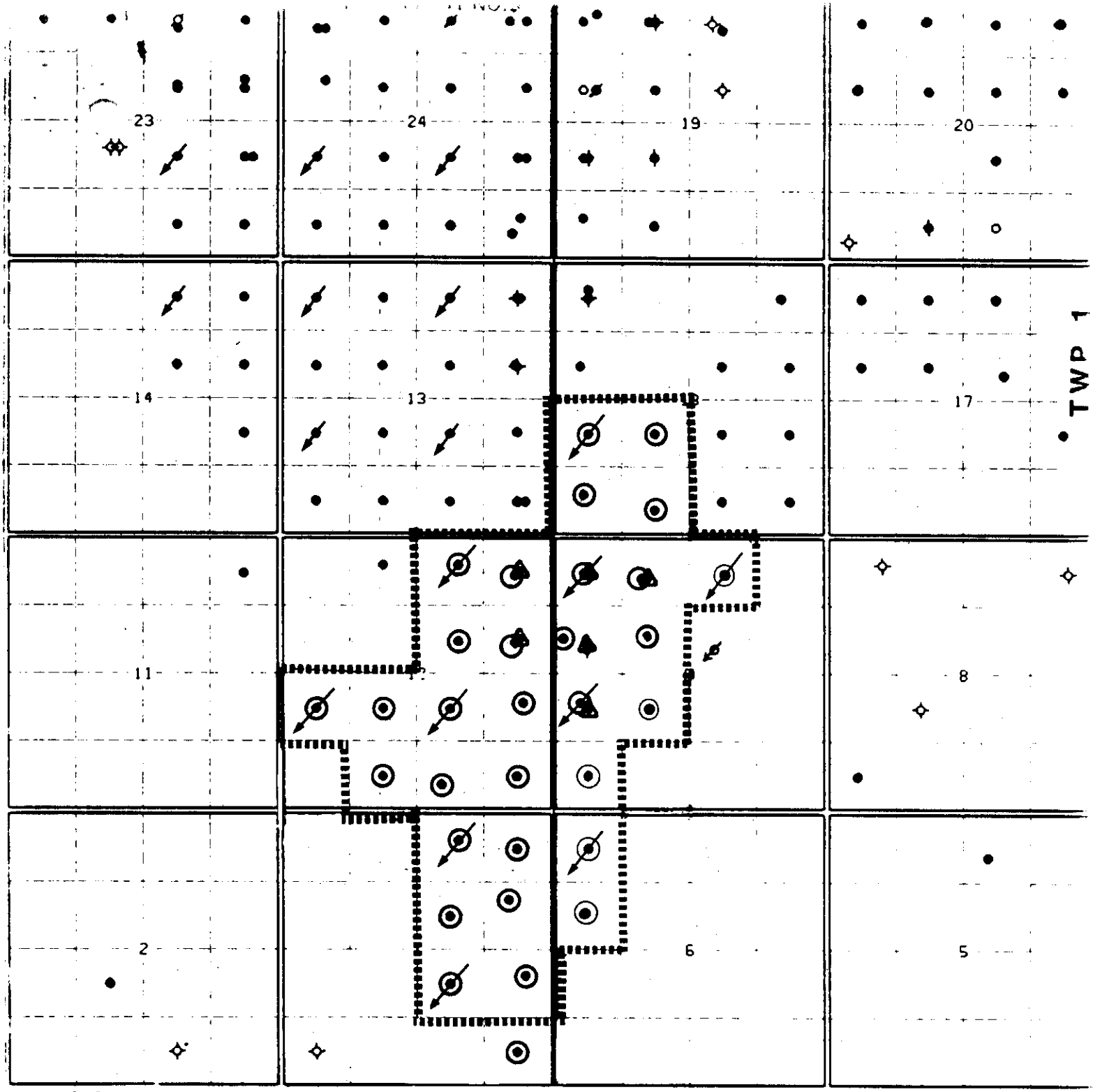
Yours very truly,

T. M. DOUGALL

NJS/sme
attachment

Inte.	t	Legal Description	Min/Surf	Owner/Lessor	Lessee
		Twp. 1, Rge. 25 WPM			
All		SW-1/4, Sec. 6	surface	Francis Hedley Lawrence	Newscope Resources
U-1/2		" "	minerals	Prudential Trust Co Ltd.	Dome Petroleum
U-1/2		" "	minerals	Elm American Minerals Inc	Omega Hydrocarbons
All		Lsd's 7 & 2, Sec. 6	surface	Francis Hedley Lawrence	Newscope Resources
U-1/4		" "	minerals	Curtis Wilbur Crane	Unknown
U-1/2		" "	minerals	Prudential Trust Co. Ltd.	Dome Petroleum
U-1/8		" "	minerals	Carroll Reid Pope*	
U-1/8		" "	minerals	Ben Wilson Harnon*	
All		Lsd's, 11 & 14, Sec. 6	surface	Francis Hedley Lawrence	Newscope Resources
U-1/2		" "	minerals	Dome Petroleum Ltd.	N/A
U-1/2		" "	minerals	Daisy May Lawrence	
All		Lsd's 10 & 15, Sec. 6	surface	Herbert Joseph Lawrence*	
All		" "	minerals	Manitoba Crown	Unknown
All		SE-1/4, Sec. 7	surface	Robert Donald McGregor	Newscope Resources
All		" "	minerals	59643 Manitoba Ltd.*	
All		SW-1/4, Sec. 7	surface	Leslie James McGregor	Newscope Resources
U-3/4		" "	minerals	59643 Manitoba Ltd.*	
U-1/4		" "	minerals	Roy Ovey Young*	
All		NW-1/4, Sec. 7	surface	Robert Donald MacGregor	Newscope Resources
U-1/2		" "	minerals	Glen Temple Rushton*	
U-1/2		" "	minerals	PanCanadian Petroleum	N/A
All ?		NE-1/4 Sec. 7	surface	PanCanadian Petroleum	N/A
U-1/2		" "	minerals	Rushton Resources Ltd.*	
U-1/2		" "	minerals	PanCanadian Petroleum	N/A
All		Lsd's 10 & 15, Sec. 8	surface	George Howard McMillan	Unknown
U-1/2		" "	minerals	59837 Manitoba Ltd.	Omega Hydrocarbons
U-1/2		" "	minerals	Millbridge Oil Ltd.	Omega Hydrocarbons
All		Lsd's 4 & 5, Sec. 17	surface	John Lloyd Millions and Kathlyn Dorothy Millions	Unknown
U-1/2		" "	minerals	Central Leduc Oils Ltd.	Unknown
U-1/4		" "	minerals	James Forbes Trewin	Omega Hydrocarbons
U-1/4		" "	minerals	John Lloyd Mllions and Kathlyn Dorothy Millions	Unknown
All		E-1/2, Sec. 18	surface	Theodore Norman McGregor	Omega Hydrocarbons
U-1/10		" "	minerals	Howard Glover Lee	Omega Hydrocarbons
U-4/10		" "	minerals	Millbridge Oil Ltd.	Omega Hydrocarbons
U-1/2		" "	minerals	Jacob Symons Brown	Omega Hydrocarbons
All		NW-1/4, Sec. 18	surface	Melvin James Lee	Unknown
All		" "	minerals	Manitoba Crown	Unknown
		Twp. 1, Rge. 26 WPM			
All		Lsd's 1 & 2, Sec. 1	surface	Franklin Ewald Smart*	
All		" "	minerals	Smart Oils Ltd.*	
All		SW-1/4, Sec. 1	surface	Franklin Ewald Smart*	

Interest	Legal Description	Min/Surf	Owner/Lessor	Lessee
All	SW-1/4, Sec. 1	minerals	Smart Oils Ltd.	Omega Hydrocarbons
All	NW-1/4, Sec. 1	surface	Franklin Ewald Smart	Omega Hydrocarbons
U-1/2	" "	minerals	Smart Oils Ltd.	Omega Hydrocarbons
U-1/4	" "	minerals	William Creighton Pearson	Shell Canada
U-1/4	" "	minerals	Agnes Muriel MacKay and Arthur MacDonald Pearson	Voyageur Petroleums
All	Lsd's 9 & 16, Sec. 2	surface	Franklin Ewald Smart	Unknown
U-1/8	" "	minerals	Andrew Murray Gardiner	Troy Oils
U-1/16	" "	minerals	Joyce Adelaide Barber	Unknown
U-1/16	" "	minerals	Donna Muriel Boyle	Unknown
U-1/2	" "	minerals	Alfred Heinzeg	Troy Oils/Page Petroleums
U-1/4	" "	minerals	Orland Malray Gardiner	Troy Oils
U-1/8	" "	minerals	Harry Andrew Gardiner	Troy Oils
All	E-1/2, Sec. 11	surface	William Lloyd McKinney	Omega Hydrocarbons
All	" "	minerals	Manitoba Crown	Unknown
All	Lsd's 4, Sec. 12	surface	Melvin James Lee*	
	" "	minerals	Manitoba Crown*	
All	NW-1/4, Sec. 12	surface	Melvin James Lee	Omega Hydrocarbons
All	" "	minerals	The Canada Trust Company	Omega Hydrocarbons
All	SE-1/4, Sec. 13	surface	Theodore Norman McGregor	Omega Hydrocarbons
U-1/2	" "	minerals	Canadian Gridoil Limited	Omega Hydrocarbons
U-1/4	" "	minerals	Cda Perm. Trust	Omega Hydrocarbons
U-1/4	" "	minerals	Edmund Albert McGregor and Mary Elizabeth McGregor	Omega Hydrocarbons
All	SW-1/4, Sec. 13	surface	Theodore Norman McGregor	Omega Hydrocarbons
U-1/2	" "	minerals	Canadian Gridoil Limited	Omega Hydrocarbons
U-1/2	" "	minerals	Edmund Albert McGregor and Mary Elizabeth McGregor	Omega Hydrocarbons
All	NW-1/4, Sec. 13	surface	Jack George McGregor	Omega Hydrocarbons
U-1/2	" "	minerals	Canadian Gridoil Limited	Omega Hydrocarbons
U-1/2	" "	minerals	Edmund Albert McGregor and Mary Elizabeth McGregor	Omega Hydrocarbons
All	NE-1/4, Sec. 13	surface	Jack George McGregor	Omega Hydrocarbons
U-1/2	" "	minerals	Canadian Gridoil Limited	Omega Hydrocarbons
U-1/4	" "	minerals	Cda. Perm Trust	Omega Hydrocarbons
U-1/4	" "	minerals	Edmund Albert McGregor and Mary Elizabeth McGregor	Omega Hydrocarbons



LEGEND

- SPEARFISH
- MC–3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA

Chevron Canada Resources Limited

WASKADA AREA
PROPOSED UNIT

FIGURE 1

PROVINCE: ALBERTA	SCALE:	DATE:
FIELD/AREA: WASKADA	AUTHOR: N. HALDNEY	DATE:
REGL:	DRAWN: L. CARLTON	CHK BY:
FORMATION:	DOCUMENT NO. A–10780	INTERPRETATION OVERLAY #

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

1985-02-25

Proposed Waskada Unit No. 6
Technical Committee Meeting Minutes
1985-02-19

TO: ALL WORKING INTEREST OWNERS
PROPOSED WASKADA UNIT NO. 6

A Waskada Unit No. 6 Technical Committee Meeting was held on 1985-02-19 at Chevron Plaza, Calgary. An attendence list is attached.

Newscope Resources moved that the minutes of the 1985-01-18 meeting be adopted, seconded by Great American Energy, carried.

A. Productivity Tract Factor Discussion

1. The productivity tract factors on Attachment No. 3 to the Notice of Meeting were reviewed by Chevron.

2. Great American asked why 1984-09 and 10 production data was used to generate current productivity factors. These months are the most current production data available with minimum interruptions from winter weather.

3. Suggestion was made to obtain current productivity data during 1985-04, 05 or 06. Spring break up and commencing the waterflood would disrupt this testing.

4. Newscope suggested using the last four months of production with some minimum production days required.

5. Colenco suggested at least 30 consecutive days on production would be required.

6. Suggested that a minimum 30 consecutive day production period be picked from the 1984-09-01 to 11-30 period for generating current productivity factors.

7. The individual well consecutive day rates would be added and the well oil rate factors determined from this total.

8. Newscope and Chevron will supply the data for determining the consecutive day periods.

9. Discussion started on whether to blend the initial/current productivity factors or just use the current productivity factors.

10. Current productivity should be used solely because it is more representative of current cash flow and a wells contribution to the Unit.

11. Newscope indicated that the Technical Committee should supply both initial and current productivity factors to the Operating Committee.

12. Colenco indicated that the Technical Committee should give both factors to the Operating Committee but recommend current productivity as most representative of the wells capability. What the wells are producing now is an indication of what they will produce when the waterflood is commenced.

13. Consensus of all companies present - The Technical Committee will supply both initial and current productivity tract factors to the Operating Committee, but will recommend that current productivity is more representative of what a well will contribute to the Unit.

Reserve Tract Factor Discussion

1. This discussion centered around the data on Attachment No. 2 to the Notice of Meeting.

2. Core and log data were used to determine Øh because not all wells were cored.

3. Core data was used to determine pay when using a .5 md cut off. Wells without cores were given the same pay for both the .5 md and 1 md cut offs.

4. Even using a .5 md cutoff, 3 wells still have unrealistically low reserves. They are 5-7, 10-1 and 15-12. A suggestion was made that the pay from log data could be doubled.

5. Colenco suggested using a Øh parameter instead of reserves. Colenco also commented that the nature of the Spearfish reservoir makes it very difficult to accurately determine pore volumes or reserves. A small change in the cutoff criteria has a large effect on the net pay. For this reason Colenco would be in favor of using just current productivity for determining tract factors.

6. Using different recoveries for determining well reserves was discussed. The problem is what criteria to use for assigning recoveries to the various wells.

7. Newscope commented that the reserve data is too inconsistent to use for tract factors but a Øh parameter should be included in the tract factor calculation.

8. Suggestion made to use log data with standard cutoffs for determining pay in all wells. Reasons for this method:

   a) Don't have cores for all wells.
   b) Logs look similar for all wells.
   c) Treat all wells the same.

9. Great American also commented that a Øh parameter should be used in the tract factor calculation.

10. Concensus - A Øh parameter requires further work and discussion by the Technical Committee. Chevron will generate Øh values from sonic logs and present these to the Technical Committee.

Unit Area Discussion

1. Chevron presented a updated map showing the initial boundaries for the proposed Waskada Unit No. 6 (copy attached).

2. Newscope indicated that the 10-7 well will be tested for Spearfish production and should be included in the initial Unit.

3. Colenco commented that 12-6 has oil production from the Spearfish and should be in the Unit.

4. The Committee discussed how to bring a tract like 5-12 into the Unit. The 5-12 well has never produced oil but is required by the Unit as an injection well. The Technical Committee recommends that the 5-12 tract/well be brought into the Unit. The preferential method would be for the Unit to buy the well from Chevron and give the tract a very small participation factor. The alternative would be to give the 5-12 tract a participation factor based on well count or on present value of the well versus the present value of the Unit (investment basis). The maximum present value of 5-12 would be its replacement value while the minimum value would be the salvage value.

5. The Technical Committee also recommends:

   a) The 10-7 tract be left out of the Unit until Spearfish production is proven.
   b) Tract 12-6 should be brought in to the Unit.

c) Tract 13-6 should be brought in to the Unit on the same basis as 5-12.

The meeting was adjourned at 1200.

Sincerely,

D. SCHIERMAN, Chairman
Waskada Unit No. 6
Technical Committee

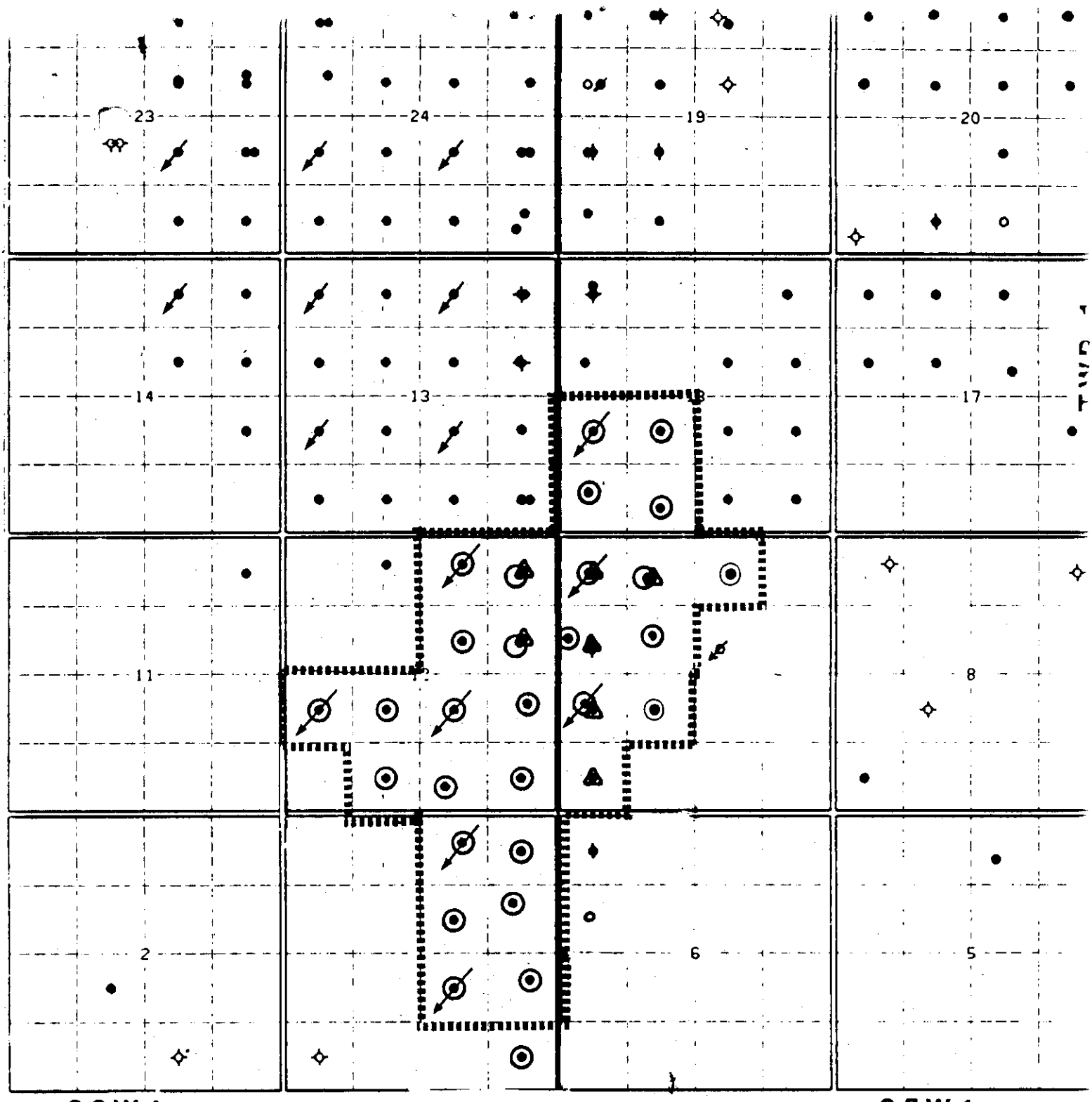
DS/ds
Attach.

1985-02-19

Waskada Unit No. 6

Technical Committee Attendence List

Representative	Company
Bob Weir	Newscope Resources
Percy Cole	Colenco
Todd Ballantyne	Great American Energy
Jill Kirker	Chevron
Mark Haughey	Chevron
Doug Schierman	Chevron



LEGEND

- SPEARFISH
- MC–3
- PROPOSED INJECTORS
- DISPOSAL WELL
- PROPOSED UNIT AREA

Chevron Canada Resources Limited

WASKADA AREA
PROPOSED UNIT

FIGURE 1

PROVINCE: MANITOBA	SCALE:	DATE:
FIELD/AREA: WASKADA	AUTHOR: R. HOLDNEY	CAD NUMBER:
POOL:	DRAWN: L. EMERSON	INTERPRETATION OVERLAY:
FORMATION:	DOCUMENT NO. A–10780	

1985-02-11

Proposed Waskada Unit No. 6
Technical Committee Meeting 1985-02-19

TO: ALL WORKING INTEREST OWNERS
PROPOSED WASKADA UNIT NO. 6

A Waskada Unit No. 6 Technical Committee Meeting is scheduled for 1985-02-19-09:00 in the Chevron Plaza 11th Floor Conference Room, 500 - 5 Avenue S.W., Calgary.

An agenda is attached (Attachment No. 1).

Also attached are two tables. Attachment No. 2 shows the reserves attributed to the various tracts when different methods and parameters are used for determining the reserves. Attachment No. 3 contains the oil rate, oil cut and reserve tract factors calculated using productivity and reserve parameters.

Sincerely,

Doug Schierman

D. SCHIERMAN, Chairman
Technical Committee
Proposed Waskada Unit No. 6

DS/ds
Attach.

1985-02-11

ATTACHMENT NO. 1

Waskada Unit No. 6
Technical Committee Meeting
1985-02-19

A G E N D A

1. Review productivity and reserve parameters for calculating tract factors:

   a. Initial or current productivity.
   b. Volumetric reserves - change net pay, recoveries.
   c. Decline curve analysis.

2. Discuss methods for calculating unit participation factors:

   a. Productivity and reserve parmeters.
   b. Well count.
   c. Other methods.

3. Discussion of tracts to be included in initial unit area.

4. Recommend parameters for calculating the Unit participation factor to the Operating Committee.

ATTACHMENT NO. 2

1985-02-08

Waskada Unit No. 6
Well Reserves

Reserves (m^3)

Well	Volumetrics Pay Cutoff k = 1 md	Volumetrics Pay Cutoff k = .5 md	Decline Curve Analysis		
			Chevron		D&S (N/S)
			m^3/d Curve	m^3/mon Curve	
4- 7-1-25	5 778	5 778			
5- 7	58	58	2 847	3 408	4 260
11- 7	6 315	6 315			
12- 7	2 734	19 079	6 023	4 308	10 990
13- 7	1 161	2 242			
14- 7	4 565	4 565			
15- 7	11 212	21 074			
3-18	2 555	10 930	1 169	1 296	
4-18	3 192	10 621	1 242	588	
5-18	6 496	12 035		1 248	
6-18	7 213	13 967			
7- 1-1-26	2 224	16 409			
8- 1	6 388	6 388			
9- 1	1 900	4 602		396	
10- 1	167	167		936	
15- 1	13 091	25 790			
16- 1	7 741	11 524	1 279	1 392	
1-12	6 253	14 628	1 242	1 008	3 695 (2 081)
2-12	8 452	34 659			
3-12	4 644	20 990			
6-12	3 214	11 319			
7-12	3 715	8 848	1 533	1 232	2 660 (1 170)
8-12	1 557	4 529	402		2 335 (2 105)
9-12	2 850	7 308	3 433	2 568	8 215 (2 406)
10-12	936	26 602	2 446		7 360 (3 574)
15-12	754	754	2 264		5 640 (3 241)
16-12	6	7 706	3 394	552	5 195 (2 739)
	115 173	308 887			

ATTACHMENT #3

FEBRUARY 8, 1985
INCLUDES NOV. 84 PROD

WASKADA UNIT # 6 OIL RATE, OIL CUT AND RESERVE TRACT FACTORS

	CURRENT PRODUCTIVITY OIL RATE FACTOR	OIL CUT FACTOR	UP TO FIRST FOUR MONTHS OIL RATE FACTOR	OIL CUT FACTOR	RESERVES 1 md CUTOFF m3	RESERVE TRACT FACTOR	RESERVES .5 md CUTOFF m3	RESERVE TRACT FACTOR
04-07-01-25W1	0.044229	0.026187	0.053098	0.042211	5778	0.050166	5778	0.018705
05-07-01-25W1	1.268370	1.246822	1.079861	0.999823	58	0.000502	58	0.000187
11-07-01-25W1	0.367055	0.132393	0.191023	0.092611	6315	0.054829	6315	0.020444
12-07-01-25W1	1.659995	1.040569	2.572494	1.387214	2734	0.023737	19079	0.061768
13-07-01-25W1	1.029007	0.582245	0.449014	0.284423	1161	0.010079	2242	0.007257
14-07-01-25W1	1.776934	1.358361	0.363068	0.519087	4565	0.039633	4565	0.014777
15-07-01-25W1	0.000000	0.000000	0.000000	0.000000	11212	0.097352	21074	0.068224
03-18-01-25W1	1.733334	1.533907	1.427059	1.196377	2555	0.022182	10930	0.035386
04-18-01-25W1	0.444106	1.546507	0.081327	0.281469	3192	0.027711	10621	0.034386
05-18-01-25W1	0.317551	1.383849	0.558543	1.095468	6496	0.056405	12035	0.038962
06-18-01-25W1	0.203111	0.798961	0.252996	0.598826	7213	0.062628	13967	0.045218
07-01-01-25W1	0.412062	0.348940	0.189502	0.225729	2224	0.019314	16409	0.053121
08-01-01-26W1	0.463830	0.414091	0.253633	0.374944	6388	0.055462	6388	0.020680
09-01-01-26W1	0.531428	2.059261	0.527769	1.171091	1900	0.016501	4602	0.014899
10-01-01-26W1	0.701816	0.708755	0.902258	0.740788	167	0.001452	167	0.000542
15-01-01-26W1	1.404890	0.894275	0.796089	0.685752	13092	0.113670	25790	0.083493
16-01-01-26W1	1.488282	2.116563	1.014928	1.260345	7741	0.067215	11524	0.037307
01-12-01-26W1	0.631304	1.984156	0.811448	1.251384	6253	0.054291	14628	0.047358
02-12-01-26W1	1.411223	1.258146	0.794072	0.974803	8452	0.073387	34659	0.112206
03-12-01-26W1	1.604993	1.240166	0.897207	0.905856	4645	0.040329	20990	0.067955
06-12-01-26W1	1.404890	0.894275	0.786531	0.672529	3214	0.027906	11319	0.036645
07-12-01-26W1	0.686666	2.284436	0.952384	1.327916	3715	0.032257	8848	0.028640
08-12-01-26W1	0.265934	1.770474	0.793356	1.408999	1557	0.013519	4529	0.014662
09-12-01-26W1	1.732743	1.895019	1.396895	1.034287	2850	0.024748	7308	0.023660
10-12-01-26W1	1.671903	2.141683	1.813980	1.468282	936	0.008125	26602	0.086127
15-12-01-26W1	1.035025	1.393503	1.141838	1.470000	754	0.006549	754	0.002442
[illegible]-12-01-26W1	1.699020	1.423771	2.217920	1.421156	6	0.000052	7706	0.024948
	25.9897	32.4773	22.3183	22.8914	115173		308887	