

The Oil and Natural Gas Conservation Board,
 Department of Mines and Natural Resources,
 Province of Manitoba,
 Winnipeg 1, Manitoba.

Gentlemen:

CHEVRON STANDARD LIMITED, being owner of a 100% Working Interest in Tracts numbered 7-5, 9-5, 10-5, 15-5, 16-5, 12-6, 13-6, 9-1, 10-1, 15-1, 16-1, 1-12 and 2-12 and a 50% Working Interest in Tracts numbered 5-7, 8-1, 7-12 and 8-12, hereby consent and agree to the Board approving the application submitted by Chevron Standard Limited for:

- (a) Proposal for Unit Enlargement - Virden-Roselea Unit No. 2, pursuant to Section 76 of The Mines Act.
- (b) Application for a Maximum Permissible Rate of Production for the Enlargement Tracts, pursuant to Section 59 of The Mines Act.
- (c) Amendment to Part XXVI, Section 26.07 (k) (iii) (a) of the "Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Virden-Roselea Unit No. 2", pursuant to Part VI, Section 6.03 (j) of the above "Plan" and also Section 75 (3) of The Mines Act.
- (d) Such other changes or amendments to existing Board Orders as may be necessary to give effect to the foregoing.

DATED this 23rd day of April, A.D. 1970.

CHEVRON STANDARD LIMITED

Per: L. F. Brown
 President

Per: H. G. Richardson
 Vice President

EXHIBIT "A" to the Affidavit of
 Ernest Hugh Gaudet, dated the
21st day of October, A.D. 1970.

[Signature]

A F F I D A V I T

C A N A D A)	IN THE MATTER OF AN APPLICATION BY CHEVRON
)	STANDARD LIMITED UNDER AND PURSUANT TO THE
PROVINCE OF ALBERTA)	MINES ACT, REVISED STATUTES OF MANITOBA,
)	1970 AND AMENDMENTS THERETO
TO WIT:)	

I, ERNEST HUGH GAUDET, of the City of Calgary in the Province of Alberta, Barrister and Solicitor, MAKE OATH AND SAY:

1. THAT I am an employee of Chevron Standard Limited.
2. THAT attached to this my Affidavit and marked Exhibit "A" is the agreement in writing of Chevron Standard Limited as a Working Interest Owner to the proposed unit enlargement - Virden-Roselea Unit No. 2.

SWORN BEFORE ME at the City of)
 Calgary, in the Province of)
 Alberta, this 21st day)
 of October, A.D. 1970.)

[Signature])
 A Notary Public in and for the)
 Province of Alberta .)

[Signature: Ernest Hugh Gaudet]

TRIMMED BY 2)
 OFFICE OF THE SUPERVISOR OF)
Oct 23, 1970)
 Enlargement of Virden-Roselea No. 2

COPY

R3C 0V8

JTC
DEC 1 1972
215D

F.S.G.

December 1, 1972.

Mr. L. D. Brown, Chairman,
Virden-Roselea Unit No. 2
Operating Committee,
Chevron Standard Limited,
400 - Fifth Avenue S.W.,
Calgary, Alberta.
T2P 0L7

Dear Mr. Brown:

Re: Channelblock Bypass Control Agents
Virden-Roselea Unit No. 2

This will acknowledge your letter of November 22, 1972, advising the Board of your plans to add Channelblock P polymer reagent powder and Channelblock C activator to the injection water for Chevron Virden Prov. WIW 2-6-11-25 and Chevron Virden Prov. WIW 10-36-10-26 wells.

It is understood that this treatment is of a temporary nature performed over a period of some 20 days, after which the wells will revert to the normal source of injection water.

The addition of Channelblock chemicals to the injection water is hereby approved for the purpose of evaluating this method of treatment as a means of improving waterflood efficiency.

Yours truly,

Jas. T. Cawley, P.Eng.,
Chairman.

MJG/as

✓ bcc: Mr. J. S. Roper

ROUTING SLIP

TO- Mr. F. S. Gamey

Mr. L.D. Brown, Chairman
Virdeu-Roselea Unit No. 2,
Box 100,
Virdeu, Manitoba.
ROM 200

Dear Sir:

Re: Channelblock Bypass Control Agents
Virdeu-Roselea Unit No. 2

This will acknowledge your letter of November 22, 1972, advising the Board of your plans to add Channelblock P polymer reagent powder and Channelblock C activator to the injection water for Chevron Virdeu Prov. WIW 2-6-11-25 and Chevron Virdeu Prov. WIW 10-36-10-26.

It is understood that this treatment is of a temporary nature performed over a period of some 20 days, after which the wells will revert to the normal source of injection water.

The addition of Channelblock chemicals to the source water is hereby approved for the purpose of evaluating this method of treatment as a means of improving waterflood efficiency.

Yours very truly,

November 22, 1972

The Oil & Natural Gas Conservation Board
Box 42, Legislative Building
Winnipeg, Manitoba

Attention: Mr. W. Winston Mair
Chairman

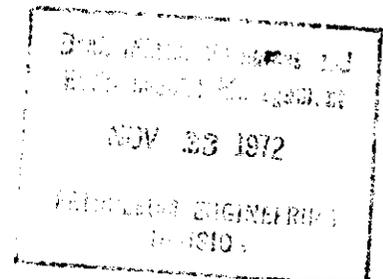
Gentlemen.

Chevron Standard Limited, as Unit Operator of Virden-Roselea Unit No. 2 wishes to advise the Board that we are proposing to treat two injection wells with Channelblock Bypass Control Agents. Working Interest Owner approval has been obtained to proceed with the Channelblock process.

Several wells in Virden-Roselea Unit No. 2 are presently injecting large quantities of water at very low sweep efficiencies. Attempts to improve the efficiency of injection wells by cement squeezing the highly permeable streaks have been unsuccessful in the past. A total of three cement squeezes and six hydromite plugs performed on 4-5-11-25 in 1970, failed to reduce the injection water volume, or increase the injection pressure.

The problem with the high volume injection wells in Virden-Roselea Unit No. 2 appears to be that the injected water is either channeling down into the aquifer, or to the producing wells via a network of fractures. The Channelblock process will presumably block off these flow channels up to a distance of several hundred feet from the injection well.

In performing the treatment, a Channelblock B Polymer powder will be added to the injection water for 2-4 and 10-25. Conversion into a gelatinous long chain, high molecular weight polymer solution results from the addition of a second chemical, Channelblock C activator. This highly viscous polymer solution adheres to fractures and high permeability zones, building up and restricting further flow, thereby redirecting flow into lower permeability zones. The initial injection rate is regulated at 500 RWPD and the injection of polymer solution is controlled in order to maintain a 25 psi per day injection pressure increase. The treatment will be performed over a period of approximately 20 days. Plugging in the high velocity channels will be reflected by slowly increasing wellhead pressures. The rate of pressure increase will be closely controlled by adjusting the concentration of Channelblock chemicals. When the desired injection pressure has been achieved, polymer additions will be terminated, and injection of water only will be continued.



November 22, 1972

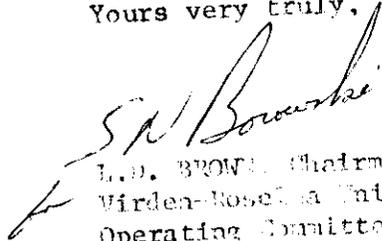
The Channelblock process has been proved successful in a pilot project in the Weyburn Unit. Plugging of highly permeable streaks appears to have been achieved in four out of five injection wells. The treatment on the fifth well has been partially successful. Individual well decline analysis indicates that the production in surrounding wells has increased 237 BOPD. In addition, a recent proposal to use Channelblock in the Hastings Unit has been approved by Working Interest Owners.

The Unit Operator believes that the Channelblock process will be an effective means of improving the waterflood efficiency in portions of Virden-Roselea Unit No. 2. Injection of water into the less permeable zones should improve the sweep efficiency and generate additional waterflood response.

The Unit Operator has recommended that injection wells 2-6 and 10-36 be treated with Channelblock Bypass Control Agents as outlined in the enclosed proposal prepared by the Dow Chemical Company. Successful treatment in the initial wells could lead to application in other Virden-Roselea Unit No. 2 injection wells.

If further information is required, please contact Mr. S. M. Borowski at the above letterhead address.

Yours very truly,



S.M. BOROWSKI, Chairman
Virden-Roselea Unit No. 2
Operating Committee

SMBorowski/rb
Encl.

cc: Mr. T. S. Garner ✓

THE DOW BYPASS CONTROL PROCESS
USING
CHANNELBLOCKTM BYPASS CONTROL AGENTS

SECONDARY OIL RECOVERY DEPARTMENT
DOW CHEMICAL U.S.A.
P.O. BOX 3387
HOUSTON, TEXAS 77001

THE DOW BYPASS CONTROL PROCESS

The Dow Bypass Control Process is a newly developed method of "blocking in-depth" water bypass channels using CHANNELBLOCK* Bypass Control Agents. The cost per unit volume is such that the complete bypassing system can be sealed economically.

Materials and Process

The material used to block the flow channels is a soft and gelatinous product that flows readily through pipes, yet exhibits a great resistance to flow in a porous media. For this reason, the material seeks those paths of least resistance in the reservoir. When injected under pressure, the material builds up a high yield strength that precludes flow through the channels where it is placed. The injected water is forced to seek new flow paths and, in so doing, displaces oil that has been dormant.

The process utilizes a two-phase system in the field. The first material added to the injection stream is the CHANNELBLOCK P Bypass Control Agent. This agent is a finely ground powder and is soluble in water. The CHANNELBLOCK P conditions the injection system chemically and provides the base for forming the gelatinous solution. For ease of handling, this agent is added to the low pressure side of the injection stream.

Downstream of the entry point of CHANNELBLOCK P, CHANNELBLOCK C is injected. When the two combine, the gelatinous solution is formed and proceeds to the injection well. CHANNELBLOCK C is a solution and is injected with a high pressure chemical injection pump.

Equipment

The Dow Bypass Control Process is designed to inject a volume of solution large enough to completely block the flow channels present. The equipment used is designed for continuous injection for an extended period of time.

The blending unit used to dissolve CHANNELBLOCK P in the water stream is a skid-mounted, electrically powered, automated unit. A diagram of the equipment may be found on page 3. A loop is formed in the suction line of the injection pump and a sufficient volume of water (300-600 BWP) to dissolve the powder is put through the unit. This concentrated solution is then pumped back into the main stream where dilution to the desired concentration takes place. A diagram may be found on page 4.

The unit is of a low pressure design. The water supply is limited to 100 psi and the discharge is rated at 150 psi. If the water supply is at a pressure of less than 30 psi, a charge pump is used to maintain adequate supply pressure.

* TRADEMARK

As these units will be in operation for several weeks, they must be protected from the elements. They are not weatherproof and are best placed in the same building with the field injection equipment. CHANNELBLOCK is highly hygroscopic and must be stored in a dry place.

Response to Treatment

The first response to treatment with CHANNELBLOCK Bypass Control Agents is an increase in the injection pressure at a constant injection rate. As the existing flow channels are blocked, the injected water is forced to seek new flow paths. These new paths will be through zones of lower permeability that have not yet been flooded. As the lower permeability zones exhibit a greater resistance to flow, an increase in injection pressure is necessary to maintain a constant rate.

As the flow channels become blocked and the water is forced to invade other sections of the reservoir, oil is displaced toward the producing well. The degree of oil production response depends on the oil saturation at the time of treatment. If the oil saturation is high and the reservoir is at fillup, oil production increases and water production decreases will occur quickly. If the reservoir is not at fillup, the production response will be slower, due to fillup requirements before response. In areas of extended flooding, oil production increases will occur quickly at a stabilized or slightly reduced water rate.

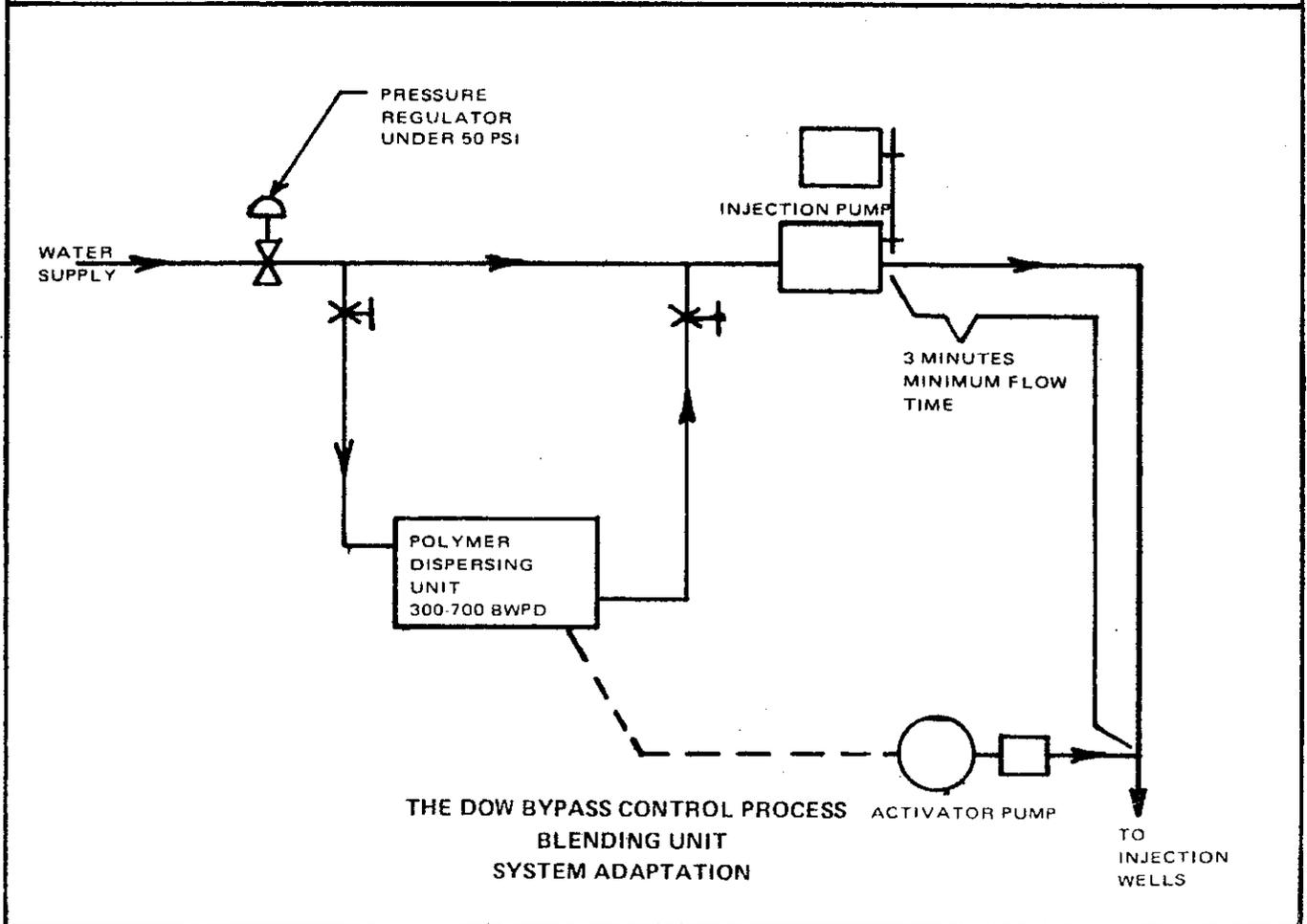
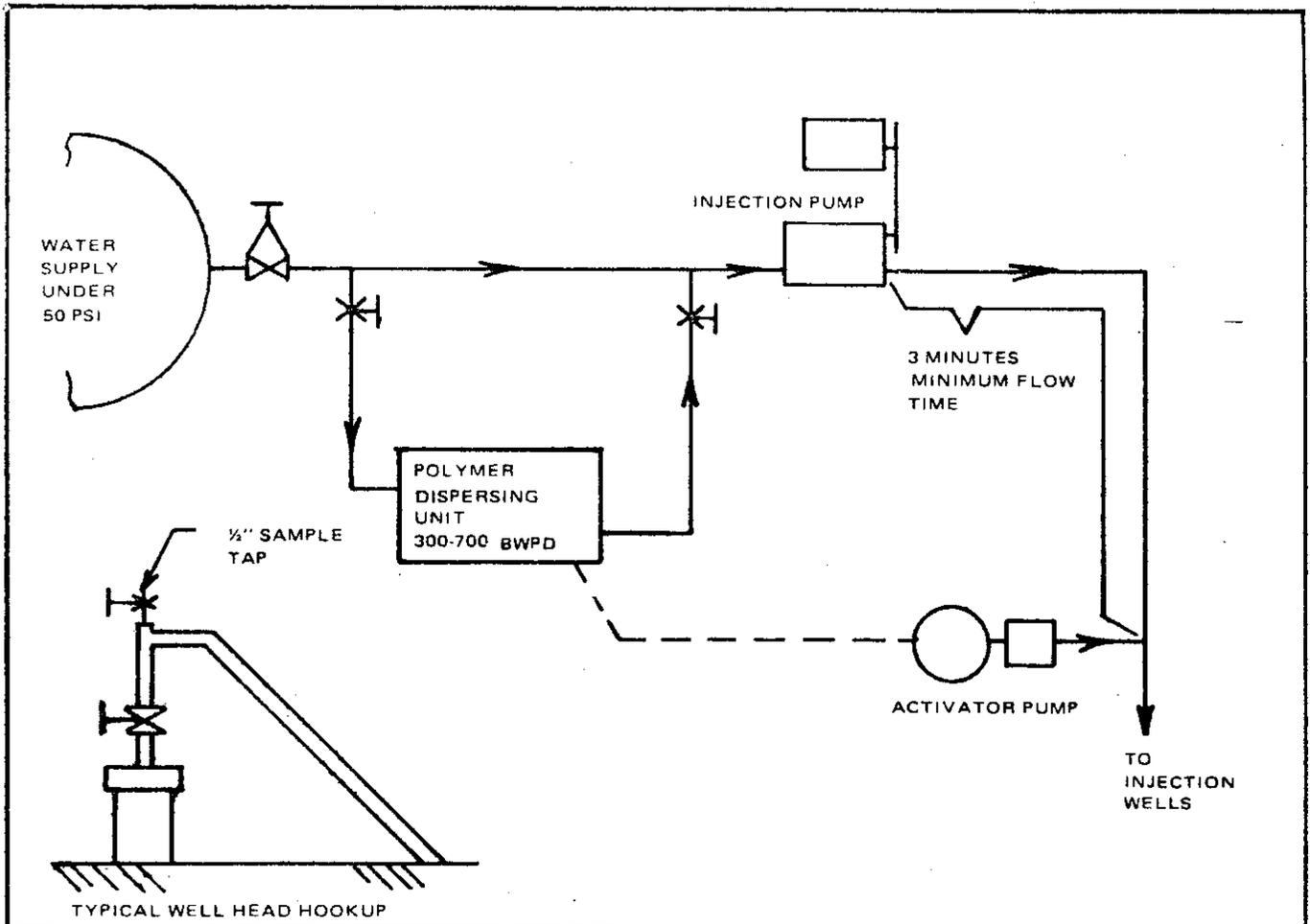
Services

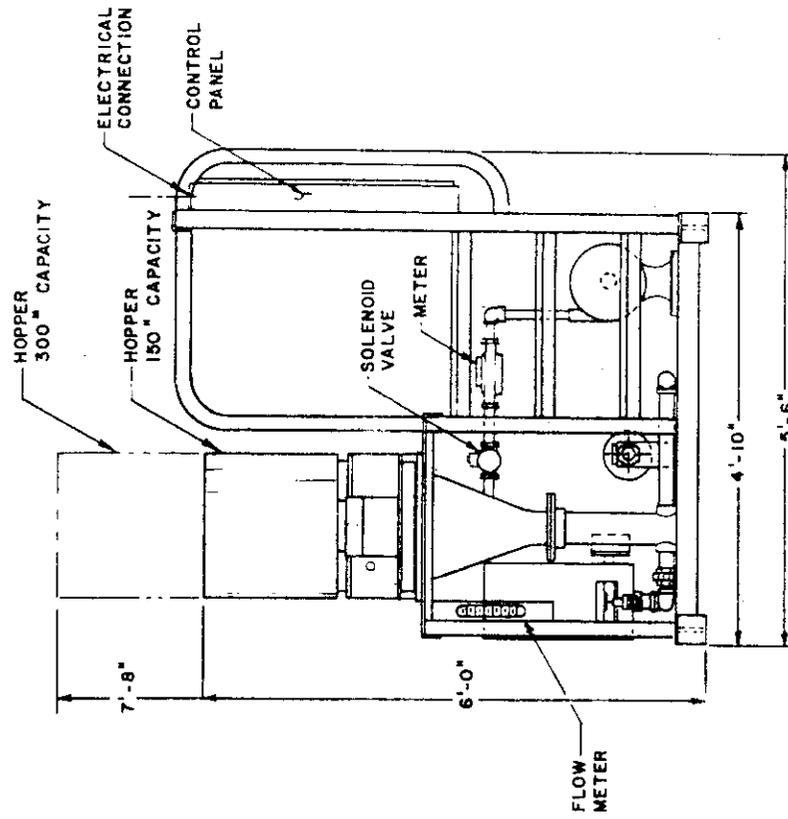
Dow is staffed to provide technical assistance to apply the Bypass Control Process. This staff is available to engineer, start-up and follow the treatment through to completion.

Prior to shipping materials and equipment, a Dow engineer will visit the field to coordinate the installation of equipment and work out other details of the process. He will work closely with the field people to assist them in plumbing in the unit and making the necessary connections with a minimum of time and materials.

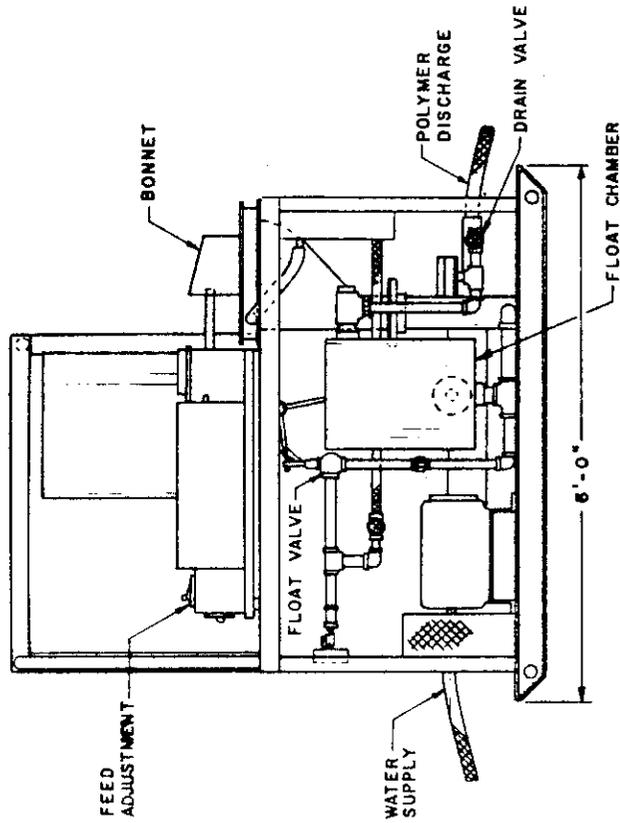
At the time the treatment begins, a Dow engineer will be on hand to put it into operation. He will train the field personnel in the daily operation and maintenance of the equipment so that they can continue the treatment alone. The time spent with the process should be less than 30 minutes a day—mainly refilling the hopper with CHANNELBLOCK P and checking the injection of CHANNELBLOCK C.

After the treatment is completed, Dow personnel will follow the data closely to aid in the interpretation of the response. At the conclusion, Dow will issue a report to the customer covering all phases of the treatment.





FRONT VIEW



SIDE VIEW

NOTES:

- Water supply and solution discharge are 2" pipe connections.
- Electrical power may be 115/230 vac, single phase or 220/440 vac, 3 phase.
- Adequate drainage should be provided under unit.
- Allow approximately 2 feet clearance around unit for access.
- Allow approximately 2 feet clearance above unit to fill hopper.

The Dow Chemical Company
 Secondary Oil Recovery Department
 Bypass Control Process
 Blending Unit

PROPOSAL
To Treat Two Water Injection Wells
With CHANNELBLOCKSM Agents
Viriden Roselea Unit No. 2
Manitoba, Canada
Chevron Standard, Ltd.
August 23, 1972

SUMMARY:

Two water injection wells, 2-6-11-25-W1 and 10-36-10-26-W1, are recommended for treatment with Channelblock Bypass Control Agents to block the fractures causing channeling to well 15-36 and to produce a more radial displacement from the injection wells. The off trend producing wells such as 9-36, 16-36 etc., should benefit from the treatment of the two subject wells.

The recommended treatment is a total of 25,000 barrels of solution in three stages. To prepare this amount of solution in the field will require 5,250 pounds of Channelblock P. The estimated cost for Dow furnished material, equipment and services is \$12,240.00 or \$6,120.00 per well when treated concurrently.

DISCUSSION:

The Viriden Roselea Unit No. 2 is productive from three zones; the lower one being a fractured cherty zone. The two subject injection wells have a history of excessive rates at relative low pressures. Response to injection has been directional with some water response in individual wells. By blocking the established flow paths with Channelblock, the injection pressure can be increased at optimum rates. This increased efficiency of the injected fluid will flood out the tighter zones in the direction of response and cause a more radial displacement of the injected fluid to eventually produce response in the off trend wells.

To properly evaluate the application, a regular frequent testing program should be initiated and maintained in the area. All producing wells in the area should be included in this program. These are: 7-36, 11-36, 15-36, 16-36, 9-36, 1-6, 3-6, 6-6 and 7-6. Those wells such as 9-36, 1-6 and 7-6 that are influenced by untreated injectors will have some masking effect to their response. However, they should be monitored closely.

TREATMENT PROCEDURE:

The treatment of injection wells 2-6 and 10-36 will be conducted concurrently. The treatment will be in three stages, each stage adjusted in the field during application to maintain the response desired at the injection well.

Three days prior to commencement of treatment, the rates into each of the two wells should be regulated at 500 BWPD per well. At this rate, 2-6 is estimated to be at 500 psig and 10-36 at 400 psig. The treatment is designed to increase the injection pressure 25 psi per day at the constant rate to a maximum of 1000 psig. After reaching 1000 psig, the treatment will be terminated and the wells put back on regular water injection. After a period of observation, a second treatment is available if required with the materials on hand.

Stage one of the treatment will be at 500 BWPD per well and at initial pressures. The concentration of Channelblock P will be 1000 ppm. This stage is estimated to require approximately five days. The primary function of stage one is to initiate initial response in the injection pressure. The concentration of agents after initial response will be altered to obtain the desired results.

The second stage of the treatment is designed to carry on to completion the response (25 psi/day) established during stage one. The separation between stage one and two is generally a transition and not a sharp reduction in concentrations. Stage two is anticipated to require about 15 days.

At the end of about 20 days, the well will be at 500 BWPD and 1000 psig. At this point, treatment will be terminated and the wells returned to the regular injection system. Rates and pressures will be monitored closely. A slight decrease in pressure is anticipated at a constant rate as new flow paths are established. When this occurs, generally within three to four weeks, the third stage will be initiated. This stage will require 3-5 days treatment to restore the wells to the desired 1000 psig.

TREATMENT SCHEDULE

- Days 1-5 Inject at 500 BWPD per well at 1000 ppm Channelblock P and 40 ppm Channelblock C (activator). Adjust as necessary to maintain 25 psi/day increase in pressure. Use rate - 350 pounds Channelblock P per day - total required 1,750 pounds.
- Days 6-20 Reduce concentration of Channelblock P to 500 ppm and Channelblock C to 20 ppm. Alter as required to maintain 25 psi/day pressure increase. Continue treatment until injection reaches 1000 psig. Estimated time - 15 days; use rate 175 pounds Channelblock P per day; total required, 2,625 pounds.
- Days 20-45 Observe rates and pressures, maintain constant 500 BWPD per well.
- Days ? When required, reinstate treatment at 500 ppm Channelblock P. Anticipated time - 5 days; use rate 175 pounds per day; total 875 pounds. When pressures are restored to 1000 psig, terminate treatment

COST ESTIMATE:

The total amount of Channelblock P required to perform this treatment is estimated to be 5,250 pounds. The cost for Dow furnished materials, equipment and services are tabulated below:

Engineering and Equipment	\$2,500.00
Well Royalty (\$200.00/well)	400.00
Technical Assistance (Est. 5 days at \$150.00/day)	750.00
Channelblock P Bypass Control Agent (5,250 pounds @ \$1.56/lb., f.o.b. Midland, Michigan)	8,190.00
Auxiliary chemicals (reducing agents and solids) est.	400.00
	<u>400.00</u>
	\$12,240.00

Materials and equipment are shipped prepaid and the freight is added to the invoices. The below estimate of freight is for your information.

Channelblock P (5,250 pounds, gross 5,353 pounds from Midland, Michigan to Virden, Manitoba, est. \$.04/lb.)	\$214.20
Equipment and Channelblock C is shipped from Houston, Texas and equipment is returned. Est. from and return to Houston, Texas	<u>350.00</u>
	\$564.20

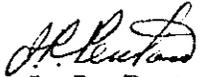
Add all local and federal taxes. Invoices payable in U.S. dollars.

CONCLUSION:

Channelblock agents are an effective, economical means of blocking water channels in depth. This blockage increases the efficiency of the water-flood and results in increased oil production.

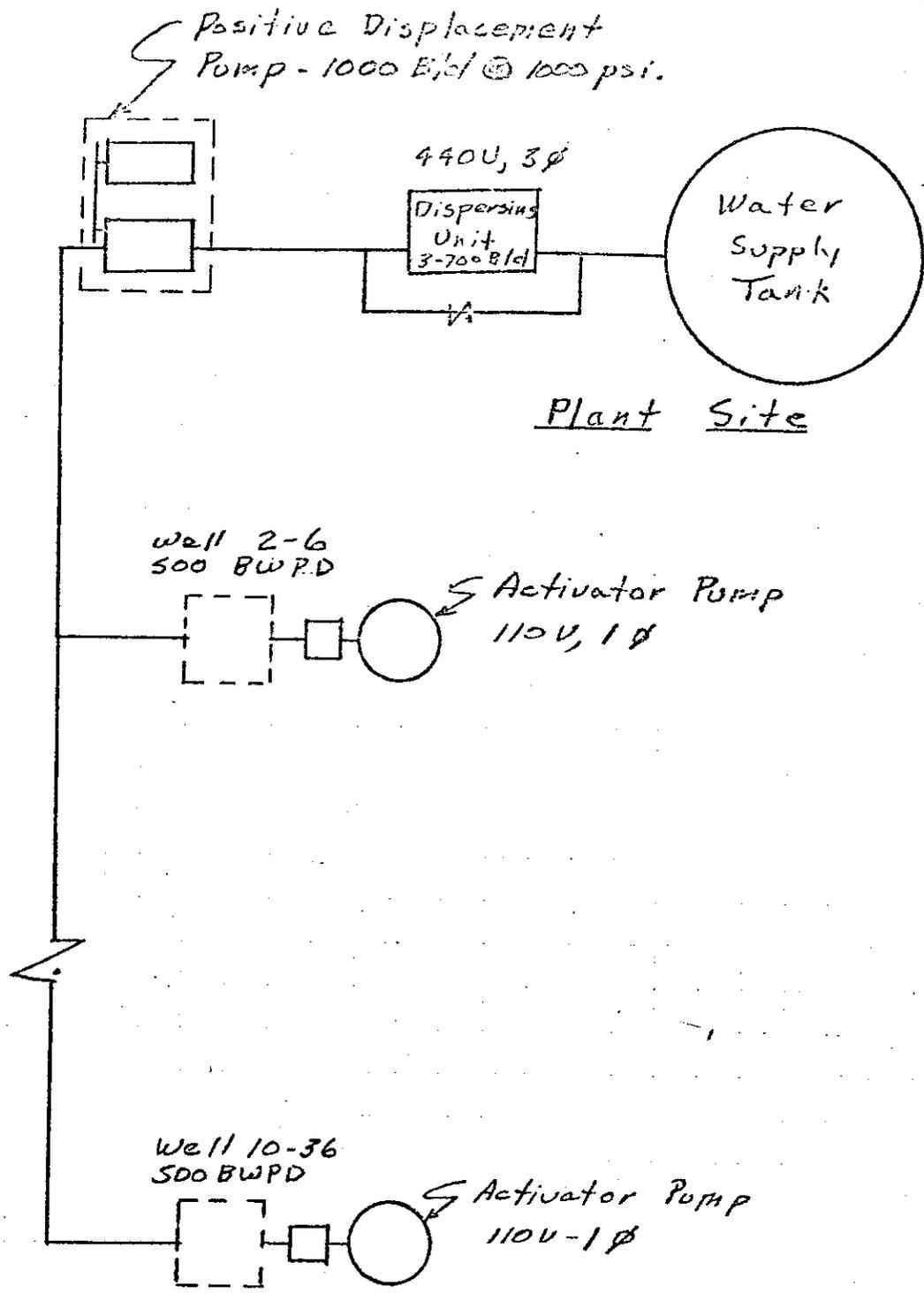
The two subject wells at Virden can be treated for an average of \$6,120.00 per well. Oil response can be expected from a number of producing wells to the south and west of the treated injectors. Limited response can be expected in those wells located east and north. The limited response is anticipated due to influence of untreated injectors.

Respectively submitted,



J. R. Penton
Project Manager

jk



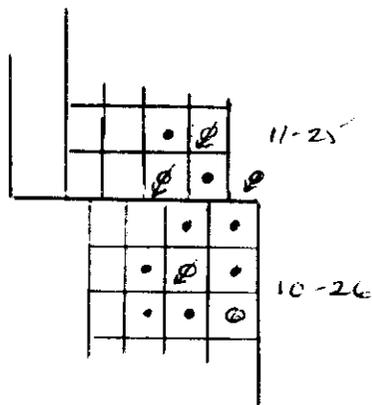
System layout
 Virdeu Roselea Unit #2
 Channelblock Treatment
 JRP 8-21-72

VIR-Rod Unit #2.
 CHANNEL BLOCK TREATMENT.
 Today treatment commencing -

	OCT.	NOV	DEC.	JAN	FEB.
WIW 2-6-11-25	37314				
10-36-10-26	30422				
Total injected	67,736				

PRODUCER	DATE	oil	water
1-6-11-25	oil 569	water 7765	
7-6	oil 2854	water 10,189	
7-36-10-26	oil 535	water 2693	
9-36	oil 1709	water 14,033	
11-36	oil 26	water 40	
15-36	oil 2365	water 29,526	
16-36	oil 486	water 2317	

TOTAL OIL 8544
 " WATER 66,563





MANITOBA

DEPARTMENT OF MINES AND NATURAL RESOURCES
THE OIL AND NATURAL GAS CONSERVATION BOARD

901 NORQUAY BUILDING
401 YORK AVENUE
WINNIPEG 1

W. Winston Mair	946-7419
STUART ANDERSON	
CHAIRMAN	
J. S. RICHARDS	946-7429
DEPUTY CHAIRMAN	
M. J. GOBERT	946-7859
MEMBER	
R. R. MCDANIEL	
CONSULTANT	

October 7, 1970.

Mr. E.H. Gaudet,
Chairman,
Virден-Roselea Unit No. 2
Legal Committee,
Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alberta.

Dear Mr. Gaudet:

Re: Virден-Roselea Unit No. 2 Extension

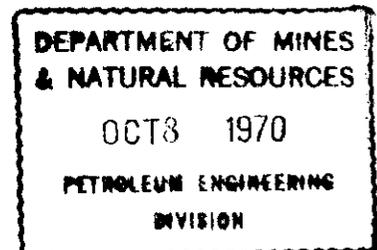
The Oil and Natural Gas Conservation Board
Hearing of March 19, 1970 will resume on October 23,
1970 commencing at 3:00 p.m. in Room 118 Norquay Building,
Winnipeg, Manitoba.

Yours sincerely,

M.J. Gobert,
Member.

MJG/ia

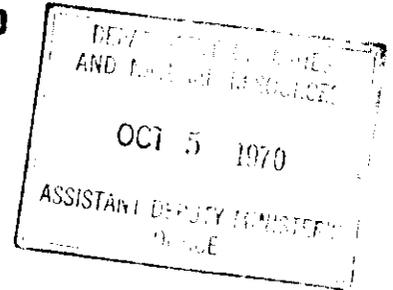
c.c. W. Winston Mair
D.W. Moylan
R.R. McDaniel
J.S. Roper
F.S. Gancey ✓



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

September 29, 1970



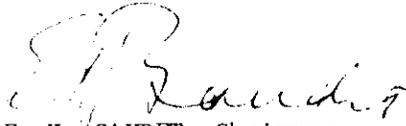
Proposed Enlargement
Virden-Roselea Unit No. 2

Mr. W. Winston Mair, Chairman,
The Oil and Natural Gas Conservation Board,
Department of Mines and Natural Resources,
Province of Manitoba,
Winnipeg 1, Manitoba.

Dear Sir:

At the conclusion of the Hearing in Virden on March 19, 1970 we were directed to obtain Royalty Owners' Consents to the proposed enlargement pursuant to Section 74 of The Mines Act. We now have sufficient Royalty Owners' Consents and would ask that you reconvene the Hearing at your convenience to receive these Consents and finalize the enlargement.

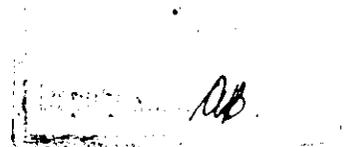
Yours very truly,


E. H. GAUDET, Chairman,
Virden-Roselea Unit No. 2
Legal Committee.

EHG/ps

Hearing

Friday - Oct 23 - 3pm.



October 2, 1970

Mr. E. H. Gaudet, Chairman
Virden-Roselea Unit No. 2,
Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alta.

Re: Amendment to Plan
Virden-Roselea Unit #2

Dear Sir:

Regarding the proposed "Amendment to the Plan", I think the participation formula, tract intervals, etc., were covered by Mr. Pisio, plus the increase in charges under 26.07 (k) (iii) (a), and this was approved in principle by the Board.

The only error in printing that I have found in the Plan is on page 9 -

Chevron Virden-Roselea Prov. 12-6-11-25

should read

Chevron Virden Prov. 12-6-11-26.

The application to the Board (filed as Exhibit No. 6) contained an amendment to Part V - Clause 5.06 which, I understand, was submitted in error. A letter to the Board, dated January 29, 1970, and signed by Mr. Pisio, requested that this amendment be withdrawn.

The application for Maximum Permissible Rate of Production will be handled by amending Board Order No. 41A.

If there were any other points not covered in the Hearing, please advise.

Yours very truly,

F. S. Gancey,
Reservoir Engineer.

FSG/h



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

September 29, 1970

Proposed Enlargement
Virден-Roselea Unit No. 2

Mr. F. S. Gamey,
Reservoir Engineer,
Mines Branch,
Department of Mines and Natural Resources,
911 Norquay Building,
401 York Avenue,
Winnipeg 1, Manitoba.

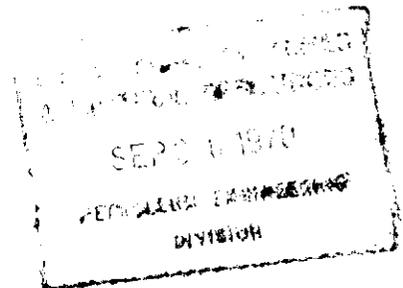
Dear Sir:

Thank you very much for your letter of September 24, 1970 enclosing the Consent of the Crown. We are today, by separate letter, asking that the Hearing be reconvened for the purpose of filing Consents. Prior to the Hearing we would be pleased to hear whether or not you have any comments in connection with the proposed Amendment to the Plan which we sent you with our letter of February 26, 1970. ✓

Yours very truly,

E. H. GAUDET, Chairman,
Virден-Roselea Unit No. 2
Legal Committee.

EHG/ps



September 21, 1970

Mr. E. I. Gaudet, Chairman
Virten-Rosella Unit No. 1,
Legal Committee,
Chevron Canada Limited,
100 Fifth Avenue N.W.,
Calgary 1, Alta.

Re: Crown consent
Virten-Rosella Unit No. 1 Enlargement

Dear Sir:

Inclosed herewith please find two (2) copies of the Crown consent as Royalty Owner of five percent (5%) of the Royalty interest in a portion of NE/4 Sec. 5 - Twp. 11 - Rge. 35 NPM., and one hundred percent (100%) of the Royalty interest in a portion of NE/4 Sec. 6 - Twp. 11 - Rge. 35 NPM., signed by Mr. Sid Green, Minister, Department of Mines and Natural Resources.

Yours very truly,


F. S. Gandy,
Reservoir Engineer.

FOG/h

registered.

April 27, 1970

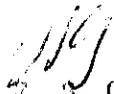
Mr. W. H. Gaudet, Chairman
Virden-Roselea Unit No. 2
Legal Committee,
Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alt .

Re: Virden-Roselea Unit No. 2
Enlargement
Union Oil Company Tract 7-5

Dear Hugh:

Enclosed please find a duplicate copy of consent of above company, received by the Board April 27, 1970.

Yours very truly,


T. S. Ganey,
Reservoir Engineer.

ESG/h

April 1, 1970

Chevron Standard Limited,
400 Fifth Avenue N.W.,
Calgary 1, Alberta.

Attention: Mr. S.H. Borowski

Re: Virnen-Kosulea Unit - 2 enlargement

Dear Sir:

This will acknowledge, with thanks, your outline of the Crown participation in the above, and the summary of remaining oil reserves.

Yours very truly,

F. S. Ganey,
Reservoir Engineer.

fsg/h



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

March 25, 1970

Virден-Roselea Unit No. 2
Enlargement

Department of Mines and Natural Resources
Province of Manitoba
911 Norquay Building
401 York Avenue
Winnipeg 1, Manitoba

Attention: Mr. F. S. Gamey

Gentlemen:

In response to your request, we have reviewed the position of the Crown tracts in the proposed Virден-Roselea Unit No. 2 enlargement. This data is presented in Tables I and II.

Data compiled in Table I indicates that the participation for Crown tracts in the enlarged unit will be reduced from 66.72264% to 51.49598%. A review of current income indicates that Crown tracts would have been allocated 504 BOPD if enlargement had been effective during December 1969. The production allocated to Crown tracts in a 37 well unit plus production for Crown tracts outside the present unit was 574 BOPD during December 1969. However, it is anticipated that production allocated to Crown tracts will increase to the pre-enlargement rate in less than one year, and by December 1971 will reach 695 BOPD.

A review of remaining reserves, presented in Table II, indicates that ultimately the Crown tracts will gain approximately 389,000 bbls. of oil as a result of this enlargement. This gain can be divided into 81,000 bbls. for Crown tracts in the original 37 well unit and 308,000 bbls. for the Crown enlargement tracts.

It should be mentioned that the reserves estimates for the enlargement tracts are conservative because:

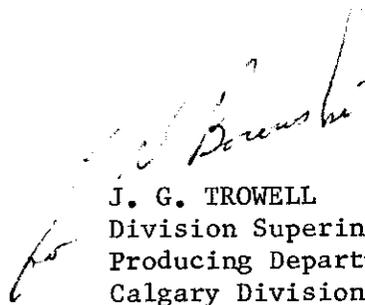
1. Only penetrated section was considered in establishing pay. Extrapolations of pay in unpenetrated sections were utilized in reserve calculations in the original 37 well unit.

March 25, 1970

2. A recovery factor of 26.4% of the original oil-in-place was used for the enlargement tracts. The corresponding recovery factor in the 37 well unit was 35% of the original oil-in-place.

Please contact Mr. S. N. Borowski at the above letterhead address if you have any questions regarding the enclosed data or if we can be of any further assistance.

Yours very truly,

A handwritten signature in dark ink, appearing to read "J. G. Trowell", is written over the typed name and title. The signature is slanted and somewhat stylized.

J. G. TROWELL
Division Superintendent
Producing Department
Calgary Division

SNB/cs
Attachs.

TABLE I

PARTICIPATION OF CROWN LANDS

VIRDEN-ROSELEA UNIT NO. 2

<u>Tract No.</u>	<u>Participation Prior to Enlargement</u>	<u>Participation After Enlargement</u>
11-5	1.35852	.91435
12-5	.67100	.45162
13-5	3.38232	2.27647
14-5	3.78228	2.54566
1-6	5.68432	3.82583
2-6	5.10142	3.43351
7-6	5.37332	3.61651
8-6	5.07445	3.41536
9-6	1.24417	.83739
10-6	4.00052	2.69255
11-6	2.84384	1.91405
14-6	.91632	.61673
15-6	1.39246	.93719
16-6	1.95104	1.31315
9-36	7.39762	4.97897
10-36	3.51169	2.36354
15-36	7.27279	4.89495
16-36	5.76456	<u>3.87984</u>
Subtotal		44.90767
9-5	(5% of .64269)	.03213
16-5	(5% of .92105)	.04605
12-6		4.92991
13-6		<u>1.58022</u>
Subtotal		<u>6.58831</u>
TOTAL	66.72264	51.49598

TABLE II

RESERVES SUMMARY

VIRDEN-ROSELEA UNIT NO. 2 ENLARGEMENT

1. 37 Well Unit

Ultimate Reserves	5,000,000 barrels
Cumulative Pre-Unit Production	1,145,935 barrels
Cumulative Unit Production 12/31/69	824,666 barrels
Remaining Unit Reserves 12/31/69	3,029,399 barrels

2. 18 Enlargement Wells

Ultimate Reserves	1,850,000 barrels
Cumulative Production 12/31/69	197,904 barrels
Remaining Reserves 12/31/69	1,652,096 barrels

A. Remaining Reserves for Crown Lands
in Present 37 Well Unit 12/31/69

$3,029,399 \times .6672264$	2,021,000 barrels
-----------------------------	-------------------

Remaining Reserves for Crown Lands
in an Enlarged 55 Well Unit 12/31/69

$4,681,495 \times .5149598$	2,410,000 barrels
-----------------------------	-------------------

Increase in Remaining Reserves for Crown Lands Due to Enlargement	389,000 barrels
--	-----------------

B. Remaining Reserves for Crown Lands
in Present 37 Well Unit 12/31/69

$3,029,399 \times .6672264$	2,021,000 barrels
-----------------------------	-------------------

Remaining Reserves Allocated to Crown
Lands in Original 37 Well Unit

$4,681,495 \times .4490767$	2,102,000 barrels
-----------------------------	-------------------

Increase in Remaining Reserves for Crown Lands in Original 37 Well Unit	81,000 barrels
--	----------------

Increase in Remaining Reserves for Crown
Interest in Enlargement Tracts

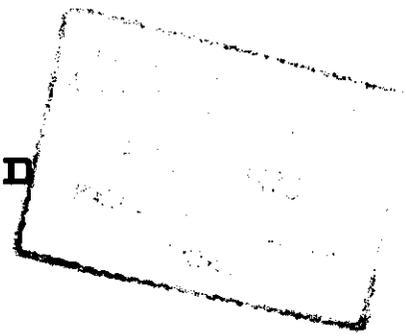
$(389,000 - 81,000)$	308,000 barrels
----------------------	-----------------



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

April 8, 1970



Virden-Roselea Unit No. 2
Application for Enlargement
Our File No. 54,803-C

Mr. F. S. Gamey,
Reservoir Engineer,
Department of Mines and Natural Resources,
Mines Branch,
Petroleum Engineering Division,
911 Norquay Building,
401 York Avenue,
Winnipeg 1, Manitoba.

Dear Sir:

I have your letters of April 1 and April 3 in connection with Exhibits 9 and 10 for the above Hearing on March 19, 1970. It is correct that Exhibit 9 was intended to cover the consents of the Working Interest Owners in the enlargement Tracts only and Exhibit 10 was to cover the consents of the Working Interest Owners in the Unit as presently constituted.

My Affidavits in connection with the consents were based on the information which I had on hand at the time and in reply to your enquiry I have had the matter reviewed again and I am advised that the interests of Bralorne Oil & Gas Ltd. in certain of the Tracts and the other parties holding interests therein are as follows:

Tract No. 6-36:

75% - Bralorne
25% - Holyk, J.F.

Tracts Nos. 5-7, 7-12 and 8-12:

50% - Bralorne
50% - Chevron

I am obtaining a new form of consent from Chevron Standard Limited to

Mr. F. S. Gamey

April 8, 1970

include Tracts Nos. 5-7, 7-12 and 8-12 and wil forward the same to you in due course. In addition the new Consent Form will include Chevron's consent for Tracts Nos. 9-1, 10-1, 15-1, 16-1, 1-12 and 2-12 which were inadvertently missed from the previous Consent Form filed.

The person who did the preliminary titles work on Tract No. 6-36 advises that he did not know of the Holyk's interest, but he has now confirmed that he has retained an undivided 25% interest which is not leased. The interests of Bralorne and Holyk in Tract No. 6-36 are compulsorily pooled.

Thank you for drawing these matters to our attention. If I can be of further assistance, please let me know.

Yours very truly,

A handwritten signature in cursive script, appearing to read "E. H. Gaudet".

E. H. GAUDET, Chairman,
Virden-Roselea Unit No. 2
Legal Committee.

EHG/ps

April 3, 1970

Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alberta.

Attention: Mr. Hugh Gaudet

Dear Hugh:

Enclosed are copies of Exhibit No. 5 which, I believe, you requested at the meeting.

With reference to my last letter regarding Exhibits #9 and #10, I have gone over the tapes and believe that Exhibit #9 refers to the consent of 100% of the Working Interest Owners in the proposed enlargement tracts and that Exhibit #10 referred to 94.3 percent of the Working Interest Owners in the present Unit. Is this correct?

Yours very truly,

F. S. Gamey,
Reservoir Engineer.

FSG/h

April 1, 1970

Chevron Standard Limited,
400 Fifth Avenue S.E.,
Calgary 1, Alberta.

Attention: Mr. J. H. Gaudet

RE: Working Interest Consents
Virden-Doselea Unit No. 2 Enlargement

Dear Hugh:

I am having difficulty figuring out the exhibits filed at the hearing of March 19, 1970, regarding the above. Possibly you could explain them.

Exhibit #9 is your affidavit taken at Calgary, March 13, 1970, and indicates the Working Interest Owners, owning 100% of the participating interest, have signed the enlargement proposal. They are listed as:

1. Chevron Standard Limited
2. Tri-West Petroleum Ltd.
3. Bralorne Petroleum Ltd.

This lists ownership of the tracts.

Exhibit #10 is your affidavit taken at Virden, March 17, 1970, indicating the Working Interest Owners, owning 94.38371% of the participating interest, have signed the enlargement proposal. They are listed as:

1. Chevron Standard Limited
2. Bralorne Petroleum Ltd.
3. Continental Leaseholds Ltd.
4. K & N Developments

Percentage interests are:	1	=	76.56891
	2	=	11.95841
	3	=	2.40033
	4	=	3.45606
			<hr/>
			94.38371

Exhibit #11 Shannon Oils

5.61629

TOTAL

100.00000%

Mr. E. H. Gaudet - 2

Are the Working Interest Owners listed in Exhibit #9 the operators only, or should Shannon Oils, Continental Leaseholds, and K & N Developments be included as Working Interest Owners?

Also, on the breakdown of Bralorne Petroleum Ltd., working interests are shown thus:

- 100% - 1/4 interest covering Lsd. 6-36-10-26
- 100% - 1/4 interest covering Lsd. 6-36-10-26
- 50% - whole interest lease covering Lsds 7 & 8-12-11-26
- 50% - whole interest lease covering Lsd. 5 of 7-11-26

Who owns the remaining fractions?

These exhibits were not discussed in detail at the hearing and I will likely be questioned by the Board regarding them.

If you could enlighten me further on Exhibits 9 and 10, it would be greatly appreciated.

Yours very truly,

F. S. Ganey,
Reservoir Engineer.

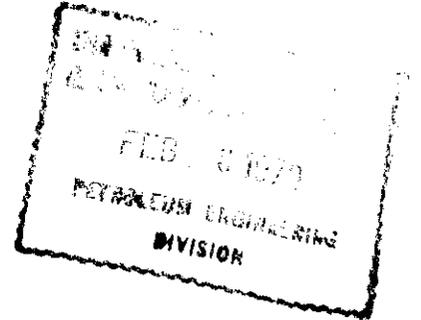
PSG/h



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

February 18, 1970



Proposed Enlargement
Viriden-Roselea Unit No. 2

Mr. Ted Haig,
Mines Branch,
Department of Mines and Natural Resources,
Province of Manitoba,
911 Norquay Building,
401 York Avenue,
Winnipeg 1, Manitoba.

Dear Sir:

For your information we enclose a copy of a letter dated February 18, 1970 which we are sending to the Royalty Owners in the existing Unit and a copy of our letter dated February 18, 1970 which we are sending to the Working Interest Owners in the existing Unit and in the Tracts proposed for enlargement. A copy of the letter to the Royalty Owners is sent to the Department of Mines and Natural Resources as a Royalty Owner as a matter of course.

Yours very truly,

E. H. GAUDET, Chairman,
Viriden-Roselea Unit No. 2
Legal Committee.

EHG/ps
Encls.



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

February 18, 1970

Application to Enlarge
Virden-Roselea Unit No. 2

TO: ALL ROYALTY OWNERS
VIRDEN-ROSELEA UNIT NO. 2

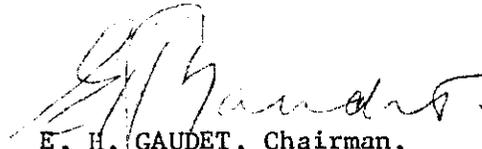
Gentlemen:

Enclosed are copies of the following:

1. Application filed by Chevron Standard Limited on behalf of the Working Interest Owners in Virden-Roselea Unit No. 2 and lessees of the proposed Enlargement Area.
2. Notice of Hearing to be held in the Court Room, Town of Virden, Province of Manitoba, on Thursday March 12, 1970, at 9:30 a.m., Central Standard Time, for the purpose of hearing representations with respect to the Application of Chevron Standard Limited.
3. Notice entitled "Change of Date of Hearing" to the effect that the Hearing will be held at 9:30 a.m. Central Standard Time, Thursday, March 19, 1970 in the Court Room, Town of Virden.

If you have any questions or concern over this Application you are invited to attend the Hearing or to make enquiries of your lessee or representatives of Chevron Standard Limited at its Virden or Calgary offices.

Yours very truly,



E. H. GAUDET, Chairman,
Virden-Roselea Unit No. 2
Legal Committee.

EHG/ps
Encls.



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

February 18, 1970

Proposed Unit Enlargement
Virден-Roselea Unit No. 2

TO: ALL WORKING INTEREST OWNERS
VIRDEN-ROSELEA UNIT NO. 2

Dear Sirs:

I enclose herewith the following:

1. Copy of an Application by Chevron Standard Limited, dated January 15, 1970 on behalf of the Working Interest Owners of the Unit and the lessees in the proposed Enlargement Area.
2. Notice of Hearing to be held in the Court Room, Town of Virден, Province of Manitoba, on Thursday, March 12, 1970, at 9:30 a.m., Central Standard Time, for the purpose of hearing representations in respect to Chevron Standard Limited's Application.
3. Notice entitled "Change of Date of Hearing" to the effect that the Hearing will be held at 9:30 a.m., Central Standard Time, Thursday, March 19, 1970 in the Court Room, Town of Virден.
4. Two (2) copies of a Consent Form to be signed by your company indicating your approval of the Enlargement.

We must file Consents from the Working Interest Owners at the Hearing and we would, therefore, be pleased if you would return one (1) copy of the completed form to us at your earliest convenience.

Yours very truly,

E. H. GAUDET, Chairman,
Virден-Roselea Unit No. 2
Legal Committee.

EHG/ps
Encls.

February 11, 1970

Chevron Standard Limited,
400 Fifth Avenue S. E.,
Calgary 1, Alta.

Attention: Mr. E. H. Gaudet

Re: Holy Flood Area -- Royalty Owners

Dear Sir:

This will acknowledge receipt of the List of Royalty Owners having agreements with your company in the above area.

The notice of the Board hearing for March 12, 1970, will be forwarded, by registered mail, to all parties listed.

Thank you for your assistance in obtaining this information.

Yours very truly,

F. S. Ganey,
Reservoir Engineer.

REG/h

February 6, 1970

Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alta.

Attention: Mr. E. H. Gaudet

Re: Virden-Roselea Unit #2 enlargement
Royalty Owners

Dear Sir:

This will acknowledge receipt of your letter of February 5th, confirming the Royalty Interest in Tracts 9-5, 10-5, 15-5, 16-5. The Crown Interest in Tracts 9-5 and 16-5 corresponds with our records.

I will correct the previous list submitted, as to Crown Interest and Freehold.

Yours very truly,

F. S. Gamey,
Reservoir Engineer.

FSG/h



PROVINCE OF MANITOBA

THE OIL AND NATURAL GAS CONSERVATION BOARD

WINNIPEG 1

VIRDEN EMPIRE ADVANCE FEB 25, 1970

NOTICE OF HEARING

A public hearing will be held in the Court Room, Town of Virden, Province of Manitoba, on Thursday, March 19, 1970, at 9.30 A.M., Central Standard Time, for the purpose of hearing representations with respect to:

1. Continuation of the Routledge Unit No. 1 hearing for the purpose of filing the consents of the Royalty Owners.
2. An application by the Unit Operator for Unit enlargement and expansion of water injection system, Virden-Roselea Unit No. 2, to include the following well locations:
 - In Township 11 - Range 25 WPM**
 - Legal subdivisions 7, 9, 10, 15 and 16 — Section 5
 - Legal subdivisions 12 and 13 — Section 6
 - Legal subdivision 5 — Section 7
 - In Township 10 - Range 26 WPM**
 - Legal subdivision 6 — Section 36
 - In Township 11 - Range 26 WPM**
 - Legal subdivisions 8, 9, 10, 15 and 16 — Section 1
 - Legal subdivisions 1, 2, 7 and 8 — Section 12
3. An application for Maximum Permissible Rate of production for the enlargement tracts, Virden-Roselea Unit No. 2.
4. Amendment to Part XXVI, clause 26.07 (k)(iii)(a) of the "Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Virden-Roselea Unit No. 2.
5. An application by Chevron Standard Limited to carry out a pilot high pressure waterflood scheme in the Daly waterflood area.
6. Application for exemption of the provisions of Order 14A, pertaining to the maximum rate of production in the North Virden Scallion Field, for the wells known as Chevron Scallion 14-16-11-26, Chevron Scallion Prov. 15-16-11-26 and Chevron Scallion 3-21-11-26.
7. Such other changes, or amendments, to existing Board Orders as may be necessary to give effect to the foregoing.

Copies of material filed in support of 2, 5 and 6 are available at the offices of Chevron Standard Limited, 400 Fifth Avenue S.W., Calgary 1, Alberta.

Written submissions in respect to the subjects of the hearing must be submitted to the Board, at Room 1010, Norquay Building, Winnipeg 1, Manitoba, on or before March 9, 1970.

J. S. Richards,
Deputy Chairman.

February 4, 1970 The Oil and Natural Gas Conservation Board.

February 2, 1970

Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alta.

Attention: Mr. Pete Pizio

Re: Board hearing for -
(1) Virden-Roselea Unit #2 Enlargement
(2) Routledge Unit #1
(3) Daly "High Pressure" Pilot Flood

Dear Pete:

I have contacted the Board with regard to the possibility of having "one" hearing to consider the submissions relating to the above applications.

It has been suggested that the Board should be informed as soon as you are certain that the seventy-five (75) percent of the Royalty Owners' consents for the Routledge Unit have been obtained (hopefully, towards the end of February), and the Board can then set a date for "one" hearing in March. A minimum of 10 days clear between date of notice and date of hearing would be required.

We have just received the application and copies of the "Proposal for Daly High Pressure Waterflood". Could you send us the names and addresses of the Royalty Owners affected by this scheme so that they can be notified of any hearing.

Yours very truly,

F. S. Ganey,
Reservoir Engineer.

FSG/h

January 30, 1970

Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alberta.

Attention: Mr. E. H. Gaudet

Re: Virden-Roselea #2 enlargement
List of Royalty Owners

Dear Sir:

Returned herewith is a copy of the above list which we believe to be in error as regards Crown Tracts.

You are referred to page 1 and the following corrections:

1. Second line - refers to all Tracts on 11-26 WPM. This should read 11-25 WPM., according to the Proposed Plan.
2. Tracts 9-5, 10-5, 15-5 and 16-5 are not Crown Tracts according to our records, if they are in Twp. 11 - Rge. 25 WPM.

Would you please recheck the location of the tracts and the royalty owners, and advise us of your findings.

Yours very truly,

F. S. Gamey,
Reservoir Engineer.

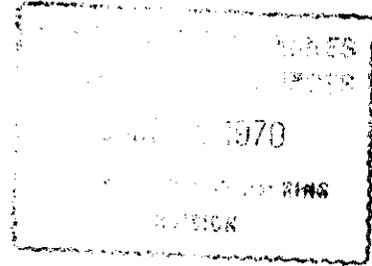
FSG/h



CHEVRON STANDARD LIMITED

400 FIFTH AVENUE S.W., CALGARY 1, ALBERTA

January 28, 1970



Proposed Enlargement
Virden-Roselea Unit No. 2

Mr. F. S. Gamey,
Reservoir Engineer,
Mines Branch,
Department of Mines and Natural Resources,
Province of Manitoba,
911 Norquay Building,
401 York Avenue,
Winnipeg 1, Manitoba.

Dear Sir:

Attached are four (4) copies of a Prima Facie List of Working Interest Owners and Royalty Owners for the Tracts proposed for enlargement into the Unit.

Yours very truly,

E. H. GAUDET, Chairman,
Virden-Roselea Unit No. 2
Legal Committee.

EHG/ps
Encls.

January 21, 1970

Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alberta.

Attention: Mr. N. Pizio

Re: Proposed enlargement of
Virden-Roselea Unit No. 2

Dear Sir:

Regarding the application for enlargement of the above Unit, would you please forward, to the undersigned, a list of the names and addresses of the Royalty Owners and a list of the Working Interest Owners in the proposed enlargement Tracts.

Yours very truly,

F. S. Ganey,
Reservoir Engineer.

FSG/h

December 9, 1969

Chevron Standard Limited,
400 Fifth Avenue S.W.,
Calgary 1, Alberta.

Attention: Mr. Pete Lisio

Re: Corrections to 1117
Routledge Unit #1

Dear Pete:

Enclosed please find a corrected copy of the Plan for the above unit, and a list of the corrections compiled by page reference.

Would you kindly arrange to forward 35 copies of the corrected Plan to - Mines Branch, 911 Norquay Bldg., Winnipeg 1, when they are available.

Three copies of the 1968 Production Statistics are being forwarded under separate cover, to your attention.

Yours very truly,

F. S. Ganey,
Reservoir Engineer.

FSG/h

Corrections to "Plan for Unit Operation" - Routledge Unit No. 1

- Page 1 1.01 (e) 3rd line - insert "herein" after "not" ✓
3 (o) change 34.9723 to 34.9722 ✓
3 (r) 3rd line - change "solid" to "dashed" ✓
 (r) 6th line - delete comma after "lands" and insert comma
 after "any" ✓
5 (v) line 5 - insert "Prov." after "Routledge" ✓
 line 16 - change "share" to "shale" ✓
7 2.03 (b) 5th line - insert "full" after "in" ✓
8 2.04 7th line - add "s" to "well" ✓
 2.04 15th line - insert "but subject to The Mines Act" after
 "foregoing" ✓
9 3.07 (b) (3) 5th line - insert comma after "THAT" ✓
12 4.03 3rd line - delete "it" and insert "to" ✓
21 6.03 (d) 2nd line - add "e" to "arrang" ✓
23 7.01 (e) 2nd line - delete "of" ✓
 add "in" to "operation"
 insert "on"
26 7.06 (c) 1st line - insert "Conservation" before "board" ✓
27 7.08 6th line & 7th line - add "s" to "operation" and insert "on"
 after "operations"
 insert "from" after "production" and delete "of" before "The" ✓
 7.09 1st line - delete "of" after removed and insert "or" ✓
28 8.01 4th line - interchange the words "development" and "operation" ✓
 5th line - insert "Area" after "Unit" ✓
34 17th line - add "d" to "construe" ✓
 21st line - insert "certified" before "true" ✓
35 8.08 9th line - complete "work- ✓
 last line - complete "Operator's" ✓
37 10.01 9th line - insert "certified" before "true" ✓
38 9th line - delete "Operating Committee" and insert "Unit Operator"
 20th line - insert comma after "pits" ✓
39 10.03 3rd line - delete "and" - insert "or" ✓

Page 44 11.02 line 8 - insert "on" after "exploration"
 insert "from" after "operations" ✓
 delete "for before "strata"

46 1st line - insert "period" after "~~sample~~" ✓

47 12.02 17th line - "Account" to be spelled with small "a" ✓

51 3rd line - capitalize "t" for "The Mines Act" ✓

53 16.08 2nd line - insert semi-colon after "following" ✓

56 17.03 14th line - insert semi-colon after "Operator" ✓

64 26.06 4th line - insert semi-colon after "unless" ✓

66 delete "CPR" from the well name "Chevron Routledge CPR SWD
 13-21-9-25 ✓

replace "SWD" with "CPR" in the well name - "Chevron
 Routledge SWD 16-21-9-25 ✓

87 electrical log

NOTE: Do not change "Samedan W. Routledge" as mentioned in the hearing

Chevron



Chevron Standard Limited

400 - Fifth Ave. S.W., Calgary, Alberta T2P 0L7

May 30, 1973

copy

Application

The Oil and Natural Gas Conservation Board
Room 310, Legislative Building
Winnipeg, Manitoba
R3C 0V8

Attention: Mr. J. T. Cawley, P. Eng.
Chairman

Gentlemen:

Chevron Standard Limited, as Unit Operator of Virden-Roselea Unit No. 2, under and pursuant to The Mines Act, Chapter M160, Revised Statutes of Manitoba, 1970 and Amendments thereto, hereby, on behalf of the Working Interest Owners in Virden-Roselea Unit No. 2, and on behalf of Chevron Standard Limited and Bracell Petroleum Limited requests The Oil and Natural Gas Conservation Board to hold a hearing to consider for approval the following:

1. Proposal for Unit Enlargement of Virden-Roselea Unit No. 2, pursuant to Section 79 of The Mines Act.
2. Application for a Maximum Permissible Rate of Production for the Enlargement Tracts pursuant to Section 62 of The Mines Act.
3. Amendment to Part XXVI, Clause 26.07 (k) (iii) (a) of the "Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Virden-Roselea Unit No. 2" pursuant to Part VI, Clause 6.03 (j) of the above "Plan" and also Section 78 (3) of The Mines Act.

In support of this application, Chevron Standard Limited will endeavour to file with the Board, consents to this application signed by at least 75% of the Working Interest Owners in Virden-Roselea Unit No. 2 and consents to the application for enlargement only, by at least 75% of the owners of the royalty interest and working interest in the enlargement tracts.

Respectfully submitted,

for *John D. Smith P. Eng.*
J. D. BROWN, Chairman
Virden-Roselea Unit No. 2
Operating Committee

SNBorowski/lw
Attachments

A. Proposal for Unit Enlargement of Virden-Roselea Unit No. 2

It is proposed that tract 6-7-11-25 be included in Virden-Roselea Unit No. 2 by means of enlargement. (See Figure 1.) This tract adjoins the present Virden-Roselea Unit No. 2 area, and has a well situated thereon which is completed in the producing horizon that is a lateral extension of the formation that is unitized in Virden-Roselea Unit No. 2. This well was placed on production in November 1971 and has since produced oil in commercial quantities. During a current six month production period specified as September 1, 1972 to February 28, 1973, the well produced an average of 22 BOPD with a water cut of 64 percent.

There are mutual benefits to the owners of the Royalty Interest and Working Interest in the proposed enlargement tract and in the present Virden-Roselea Unit No. 2. The enlargement tract will be capable of producing more reserves under the more efficient unit operating conditions. Lower operating cost will result in a lower economic producing limit. The present Virden-Roselea Unit No. 2 will benefit because the enlargement tract will contribute more reserves than the participation factor allocates.

Tract Participation

Part III of the "Plan for Unit Operation Governing the Unitized Management and Further Development of Virden-Roselea Unit No. 2" discloses the method originally used for determining tract participation for each tract as one-half (1/2) of each of the following:

- (a) a current production factor
- (b) a penalized average monthly oil production factor.

An identical formula was utilized in determining tract participations for fifteen of the Enlargement No. 1 tracts. The remaining three tracts in the enlargement received token participations.

For this enlargement, it is proposed that participation be calculated based on current production. Evidence of pressure support in the proposed enlargement well, and surrounding Virden-Roselea Unit No. 2 wells indicate that the area is receiving some waterflood response. Since both the enlargement well and Virden-Roselea Unit No. 2 are producing under pressure maintenance, current production represents both the present and future worth of the enlargement well.

The proposed current production period for the 55 well unit and enlargement tract is September 1, 1972 to February 28, 1973. As well as being a recent six months of production, this interval best represents the present capability of 6-7-11-25. The tract factor based on current production from September 1, 1972 to February 28, 1973 is 2.76646 percent.

It is proposed that upon tract 6-7-11-25 being admitted into Virden-Roselea Unit No. 2, the Tract Participation of all tracts within the Unit area prior to enlargement and after enlargement will remain the same one to the other by multiplying each of the Tract Participations by the factor $(1.000000 - 0.0276646)$ or .9723354.

Production Reserves

Figure 2 represents the production history of 6-7-11-25. Cumulative production to December 31, 1972 was 13,075 barrels.

The estimated original oil-in-place for the enlargement well is 506,000 barrels. The predicted ultimate recovery for the well, as part of the unit, is 140,000 barrels, of which 60,000 barrels are primary reserves. The estimated allocable reserves to the enlargement well, as part of the Unit, as of December 31, 1972 is 109,000 barrels. The estimated remaining reserves of the enlargement tract as of December 31, 1972 is 127,000 barrels.

Enlargement Tract Requirements

Upon the proposed enlargement tract being admitted to the Unit, it is proposed that the Working Interest Owners of this enlargement tract participate in the investment account established by Part X of the "Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Virden-Roselea Unit No. 2," dated April 1, 1966, as of the effective date of this enlargement.

It is proposed that the Working Interest Owners of the enlargement tract contribute \$2,500 as their proportionate share of the unit investment for the injection plant, water supply system, battery consolidation and well conversions. In addition to this expenditure it is proposed that the expense to tie in the well to unit facilities also be the responsibility of the enlargement tract. The enlargement tract would, however, retain ownership of the battery facilities.

B. Application for a Maximum Permissible Rate of Production for the Well on the Enlargement Tract

The applicants propose that the same production flexibility that has been permitted for the original Virden-Roselea Unit No. 2 also be provided for the enlarged Unit.

Currently the production at the enlargement tract may be considered to be unrestricted since the well on this tract is producing at capacity. It is the applicants' contention that no reservoir damage has resulted from producing the well at capacity.

The present waterflood project may, at some future date, increase the productive capacity of the enlargement tract. There is no reason to believe that reservoir damage would result from producing the increased capacity at unrestricted rates.

The applicants respectfully request that, on and after the effective date of enlargement, the well on the tract brought in by enlargement be excluded from any provisions governing the limitations and allocation of oil production.

C. Amendment to Part XXVI, Clause 26.07 (k) (iii) (a) of the "Plan for Unit Operation Governing the Unitized Management Operation and Further Development of Virden-Roselea Unit No. 2"

The Unit Operator has reviewed the district and administrative overhead charges to the Unit under Part XXVI, Clause 26.07 (k) (iii) (a) of the "Plan" resulting from the proposed addition of one well to the 55 well Unit. The result of this review is a proposed increase of \$60 per month.

Approval to increase the charges, under the subject clause, by \$60 per month to a new total of \$3,510 per month was obtained by mail ballot. It is therefore requested that the "Plan" be amended by replacing the wording in Part XXVI, Clause 26.07 (k) (iii) (a) with the following:

"\$3,510 per month for all producing operations."

Pursuant to Part VI, Clause 6.03 (j) of the "Plan" and Section 78 (3) of The Mines Act, the applicants hereby respectfully request the Board to consider and approve the proposed district and administrative overhead charges and proposed amendment to the "Plan" in conjunction with the proposed Unit enlargement.

R. 26

R. 25

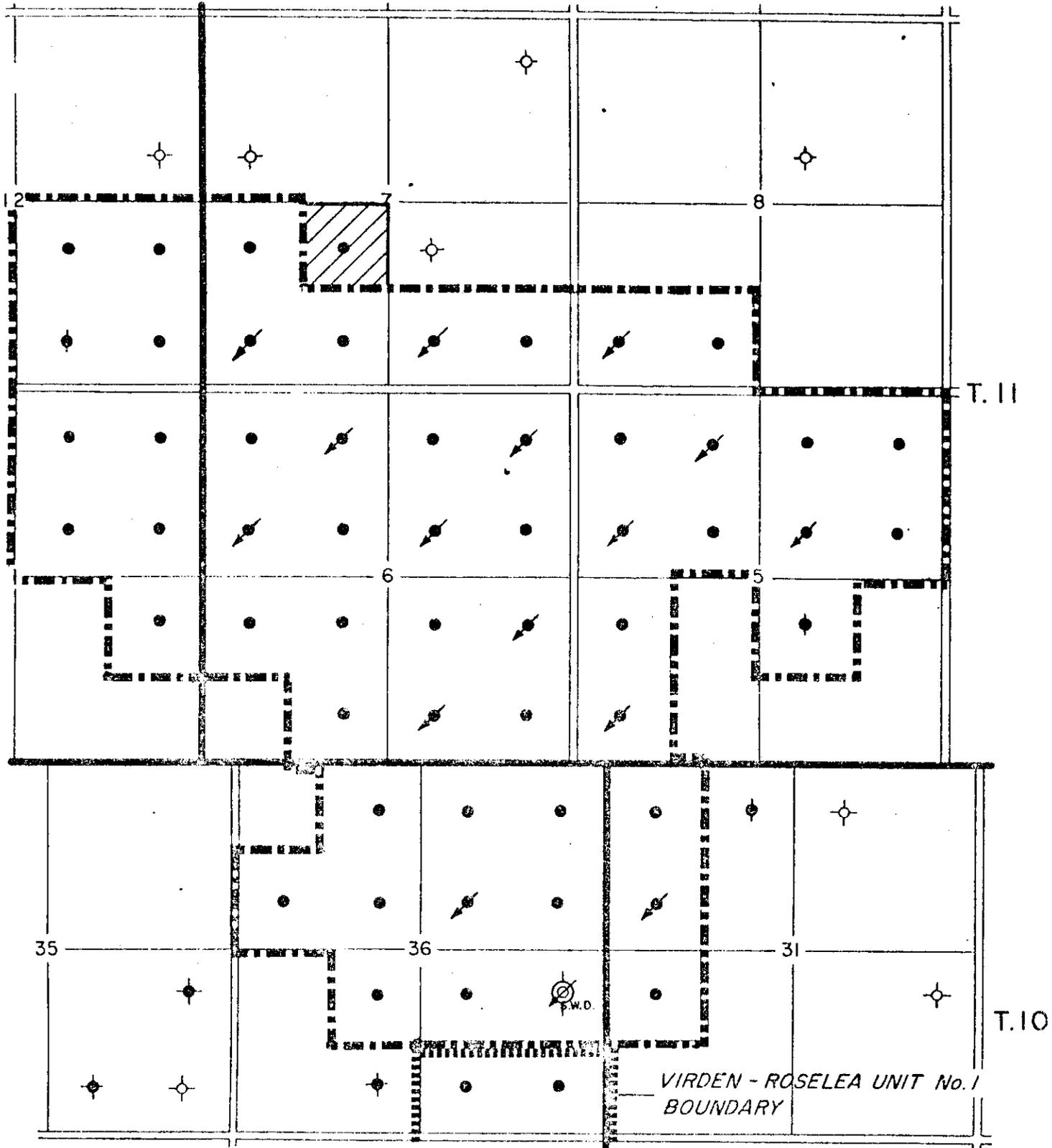


FIGURE 1
 VIRDEN-ROSELEA UNIT No. 2

LEGEND

- UNIT BOUNDARY
- INJECTION WELL
- ⊙ S.W.D. WELL
- ⊕ SUSPENDED WELL
- ⊕ ABANDONED WELL

 PROPOSED ENLARGEMENT OF UNIT BOUNDARY

March 10, 1970

PS-453

T. E. Hage
Petroleum Engineer

W. Winston Blair
M. J. Gobert
J. S. Richards

COPY

HEARING - March 19, 1970

Mr. Pete Pisco, of Chevron Standard, called today and suggested a different approach in Chevron's presentation of the proposed Virden-Roselea Unit #2 enlargement to the Board.

Instead of a long detailed dissertation giving the lists of wells, complete history, etc., as has been done in the past, Pete would rather give a brief summary of Chevron's proposal for the enlargement. He suggests giving an explanation of what is proposed, the reasons for it and how it is to be done, followed by a question and answer period for the Board and others.

Mr. Pisco would like to hear from us in a few days as to whether or not this approach would be acceptable so that he can plan the proper presentation.

TEH/h

cc: F. S. Gamey ✓

February 11, 1970

F. S. Gamay
Reservoir Engineer

M. J. Gobert
Assistant Deputy Minister

Board Hearing - March 12, 1970

1. Notice of hearing has been sent out, double registry, to Royalty and Working Interest Owners in the enlargement Tracts for Virden-Roselea Unit #2; the Royalty Owners in the Daly Waterflood area, including those with lands outside the application area; and the Royalty Owners and Working Interest Owners (Sun Oil Company) who might be affected by the exemption of allowables in the North Virden Scallion Field.
2. Notices are to be placed, by the Queen's Printer, in various newspapers and the Manitoba Gazette.
3. Mr. E. H. Gaudet (by phone) agreed to have Chevron notify the Working Interest Owners and the Royalty Owners in the original Virden-Roselea Unit, of the Board hearing for unit enlargement.
4. Mr. Gaudet also informed me that the Minister's consent (Crown Tracts) and the consent of the Canadian Pacific Oil & Gas, for the Routledge Unit No. 1, have been received. This would total about 65% of the Royalty interests.



DEPARTMENT OF MINES AND NATURAL RESOURCES
ROUTE SLIP

TO Mr. Richards

FROM M.J. Gobert

TO

FROM

- | | | |
|--|--|--|
| <input type="checkbox"/> For your approval or revision | <input type="checkbox"/> Reply direct with copy to me | <input type="checkbox"/> Please sign |
| <input type="checkbox"/> For your information | <input type="checkbox"/> Please supply data for my reply | <input type="checkbox"/> Please return |
| <input type="checkbox"/> Please take action | <input type="checkbox"/> Return with comments and/or recommendations | <input type="checkbox"/> Please see me |
| <input type="checkbox"/> Extracts of minutes for your information and action | <input type="checkbox"/> Investigate and report | <input type="checkbox"/> Please phone |
| <input type="checkbox"/> Please draft reply for signature of | | |

Date January 28, 1970

Subject

Message

Please note before sending to F.S. Gamey

MNR-A-94

Use reverse side if necessary

INTER-DEPARTMENTAL MEMORANDUM

FROM: F. S. Gamsy
Reservoir Engineer



DATE: January 22, 1970

The Oil & Natural Gas Conservation Board
J. S. Richards, Deputy Chairman
M. J. Gobart, Member

SUBJECT: Chevron Standard Limited

Hearing date - Virden-Roselea #2 Unit Enlargement

January 22, 1970 - Mr. Pete Pizio phoned to inquire if the Board had firmed up a possible date for a hearing regarding the above. I told him the Board had made no decision as yet.

Mr. Pizio then informed me that Chevron would be submitting two (2) more applications for the Board's consideration, namely:

- (1) Daly Field - high pressure pilot flood,
- (2) North Virden Scallion - waiver of production restriction on certain wells.

It is possible the Board could handle these later submissions without a hearing. However, if a hearing were required, then possibly the Board would consider all the submissions at one hearing.

Further, it is possible that Chevron will have the necessary Royalty Owners' consents for the Routledge Unit by the end of February, and that the Routledge hearing could be reconvened in March.

The company (Chevron) would prefer that one hearing be held during the first or second week of March which would consider all these applications, if the Board would consider such a suggestion. They hope to have the Daly "pilot flood" and North Virden "production waiver" applications ready in another week.

Second week of March probably OK. Unless 75% consents in no hearing. Why not suggest in no hearing. As passed and when 75% is certain we will set date giving usual period.

fronkel

J.S.G.

DEPARTMENT OF MINES
NATURAL RESOURCES

JAN 23 1970

ASSISTANT DEPUTY MINISTER'S OFFICE

F.S. Gamsy

60

9

January 22, 1970

F. S. Gamey
Reservoir Engineer

The Oil & Natural Gas Conservation Board
J. S. Richards, Deputy Chairman
M. J. Gobert, Member

Chevron Standard Limited

Hearing date - Virden-Rosales #2 Unit Enlargement

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