

D R A F T

July
Fourth
1975

Chairman,
Oil & Gas Conservation Board
Winnipeg, Manitoba

Gentlemen:

RE: Application For An Exploratory Permit - Daly Area

- I. Great Winnipeg Gas Company, a company engaged in the business of selling and distributing gas in the Province of Manitoba hereby applies for an exploration permit under Section 2(1) of the Gas Storage & Allocation Act for the purpose of locating a reservoir suitable for gas storage, in the Daly area of Manitoba.

It is requested that the following lands be declared a designated area in accordance with Section 3(1) of the Act:

Sections 31,32, Twp 9, Rge 27, W1M

Sections 34,35,36, Twp 9, Rge 28, W1M

Sections 5,6,7,8,17,18,19,20,29,30 of
Twp 10, Rge 27, W1M

Sections 1,2,3,10,11,12,13,14,15,22,23,
24,25,26,27 of Twp 10, Rge 28, W1M

a total of approximately 19,200 acres

All in the Daly area of the Province of Manitoba, as outlined by a heavy black line on the accompanying maps designated as Figures I and II.

- II. Upon approval of the application and issuing of a permit the applicant proposes to carry out an exploration program in the designated area to determine the presence of a reservoir suitable for gas storage in the formations of Devonian Age as encountered in the drilling interval 2598 feet to 3560 feet in the well Apache Darling Daly 15A-18-10-27 as depicted on the Sonic log, a portion of which is shown in Figure III attached.

The primary objective of the exploration program would be the basal carbonate zone of the Souris River formation of the Manitoba Group encountered over the interval 3460 feet to 3520 feet in the above well.

A secondary objective would be the Duperow formation of the Saskatchewan Group encountered over the interval 2704 feet to 3220 feet in the above well, or such other zones that prove to be potential storage reservoirs.

III. In support of the application it is submitted that the subject area is suitable for the intended exploration and the following information and data is supplied in support of this submission:

(A) Introduction & Geology

The Daly area is located in Township 10, Ranges 27 and 28, W1M, approximately 22 miles south-southwest of TransCanada's main line transmission facility at Miniota, Manitoba. Exploratory drilling early in the year 1950 in this area by Chevron Standard, then known as the California Standard Company discovered oil in the Mississippian Lodgepole formation and also uncovered inert gas reservoirs in the Upper Devonian (Duperow and Souris River formations). The most promising of the inert gas reservoirs occurs in a carbonate, semi-reefoid type rock, over the interval 3460 feet to 3520 feet in the California Standard Daly 15-18-10-27 well. A drill stem test of the interval 3494 feet to 3515 feet resulted in gas flows up to 12.15 MMcf per day with no recovery. A flowing pressure of 1536 psia was recorded with a shut-in pressure of 1576 psia.

The Souris River formation of the Upper Devonian in the Daly 15-18 well is predominantly an earthy dolomite with intergranular and pin-point vuggy porosity. The upper 27 feet (3460' to 3487') is interbedded with anhydrate and has streaky porosity (approximately 13 feet net out of 27 feet interval). The basal 33 feet (3487' to 3520') has relatively continuous porosity. The interval 3509' to 3520' was cored and has an average porosity of 14.9%. This data, however, does not correlate with a Sonic log run over the same interval (8.7%). The Sonic log (using a matrix velocity of 21,000 ft./sec.) indicates an average porosity for the entire section of 13% (52 ft. net out of 60 ft. gross). The microlog indicates 46 feet of net effective porosity. Irreducible water saturations are expected to average 15 to 20% over the entire section (Mercury injection data).

The trapping mechanism appears to be related to a major structural linement which strikes NW/SE through the approximate centre of Township 10, Range 27, W1M. This alinement

which was caused by Post Mississippian salt collapse shows reversal in all horizons mapped up to the top of the Lower Cretaceous. To the southwest (towards the 8-14-10-28 well), the Souris River appears to be gently dipping at 40 to 50 feet/mile. To the northeast and in the direction of the major structural alinement the dips are much steeper (100 ft./mile). It is believed that the structure on top of the Souris River will conform to that on top of the Mississippian. This is indicated by mapping the Bakken formation which is uneroded in this area. This being the case, rather steep dips will occur to the northwest and southwest of the 15-18 well thereby giving the necessary closure for the trap. An interpretation of old seismic data supports this contention.

The cap rock, from samples, appears to be predominantly an evaporitic facies with some argillaceous material and therefore should be competent.

The gas/water contact has not been established for this reservoir. A drill stem test over the basal portion of the Souris River in the 15-18 well yielded over 10 MMcfd of inert gas with very little draw and no pipe recovery. The reservoir

pressure is approximately 1600 psia. Water is not inciated to be present to -1895 feet subsea. In the 8-14 well a drill stem test recovered salt water at an elevation of -1968 feet subsea. However, the upper portion of the Souris River in this well could be gas bearing. The logs are inconclusive because of the streaky porosity in that part of the section. The gas/water contact is therefore between -1895 and -1968 feet subsea. The actual location of the gas/water contact will have a significant effect on the possible size of the reservoir.

Figure 4 is a map showing the structure on top of the Bakken formation. Figure 5 is a cross section of the area from southwest to northeast.

B. Average Reservoir Parameters

Based on well 15-18-10-27 W1M

Porosity	13%
Water Saturation	20%
Initial Reservoir Pressure	1600 psia
Reservoir Temperature	75°F
Zo	.82
Gas in Place	560 Mcf/acre ft.

Compressibility factor

Based upon available subsurface geological control, it would appear that the maximum reservoir size is in the order of 65 Bcf of gas in place (possible). The probable size of the reservoir is 40 Bcf and the proven or assured size is in order of 10 to 25 Bcf of gas in place.

Figure 6 represents an estimate of the maximum size of the reservoir.

C. Analysis of Gas in Reservoir

Gas samples from the well 15-18-10-27, tested by the California Research Corporation, using a mass spectrometer, March 2, 1951, gave the following analysis:

Sample Zone Tested (Feet)	No. 1 3005-3018	No. 2 3499-3511
<u>Analysis</u>	<u>Gas Vol. %</u>	<u>Gas Vol. %</u>
Nitrogen	94.3	96.6
Oxygen	0.0	0.6
Hydrogen	0.1	0.1
Methane	5.3	2.4
Ethane	0.1	0.1
Propane	0.0	0.1
Helium	<u>0.2</u>	<u>0.1</u>
	100.0	100.0

D. Other Exploratory Objectives

The Duperow formation would also receive attention during the exploration program. In a drill stem test over the interval 3020-3042 in the well 15-18, nitrogen gas was recovered at rates up to 2 MMcf per day. Geological data indicates that there could be a potential gas storage reservoir of some size. Any other potential zones detected during exploration would also be investigated.

E. Land

Figure 7 is a map showing the owner of minerals rights in the area.

IV. If this application is successful and upon issuing of a permit the applicant proposes to carry out the following exploration program:

1. Complete purchase or acquisition of the necessary surface and subsurface rights to carry out the intended exploration program.
2. Acquire, if possible, the existing Well Apache Darling Daly E 15-18-10-27 WLM for the purpose of extensive flow testing to determine its flow capacity, the possible areal extent and transmissibility of the reservoir, and to obtain representative samples of reservoir fluids.
3. If the above tests indicate the reservoir is not of limited size, proceed with the drilling of four additional wells to adequately define the reservoir and obtain additional information with respect to structure, lithology, permeability, water saturation, reservoir fluids, pressure deliverability, water levels and other pertinent data.

4. In conjunction with the above drilling and testing program, conduct an environmental study on the effects of blowing down the inert reservoir gas to atmosphere with particular attention to noise and air pollution.
5. With results from the above operations conduct a study to determine the feasibility of converting the high nitrogen content reservoir to a gas storage reservoir. This study would also examine the possibility of using the original reservoir gas as cushion gas by determining the extent of diffusion and mixing of the injected gas with the native gas.

Such a study would also give information on maximum injection rates, water drive activity, storage qualities of the reservoir and effects of overpressuring.

6. Insure that all wells drilled and tested as a result of the exploration program are properly completed so that existing wells in the area will receive no harmful effects.

7. All the above being satisfactory, apply for a gas storage permit under Section 2(21) of the Act.
8. Table I is a preliminary estimate of the costs to carry out the exploration program.
9. Table II is a list of the lease holders of mineral rights in the designated area and the approximate acreage held by each.

TABLE I

ESTIMATE OF COSTS
EXPLORATION PROGRAM

	<u>\$M</u>
1. Acquisition	\$ 75
2. Purchase Well 15-18	50
3. Drill and Test 4 Wells	450
4. Environmental Impact Study	5
5. Diffusion Study	<u>30</u>
	\$ 610

TABLE II
LEASE HOLDERS OF MINERAL RIGHTS
(Designated Area)

	<u>Approximate Acres</u>
Bravo Resources	960
Canada Northwest Land	320
Canada Permanent Trust	800
Canadian Pipeline Producers	120
Centoba Oil	480
Chevron Standard	10,080
Crown (Manitoba) Unleased	2,240
Dominion Crown Unleased	480
Ferguson Oil & Gas	480
Freehold Lands Unleased	960
Garvey Exploration	640
Houston Oils	160
Imperial Oil	320
Rundle Oils	360
Scurry Oils	80
Siebens Oil & Gas	320
Teck	80
Triton	320
	<hr/>
	<u>19,200</u>

- V. Great Winnipeg Gas respectfully requests that the Board issue a permit for which application is herein made.

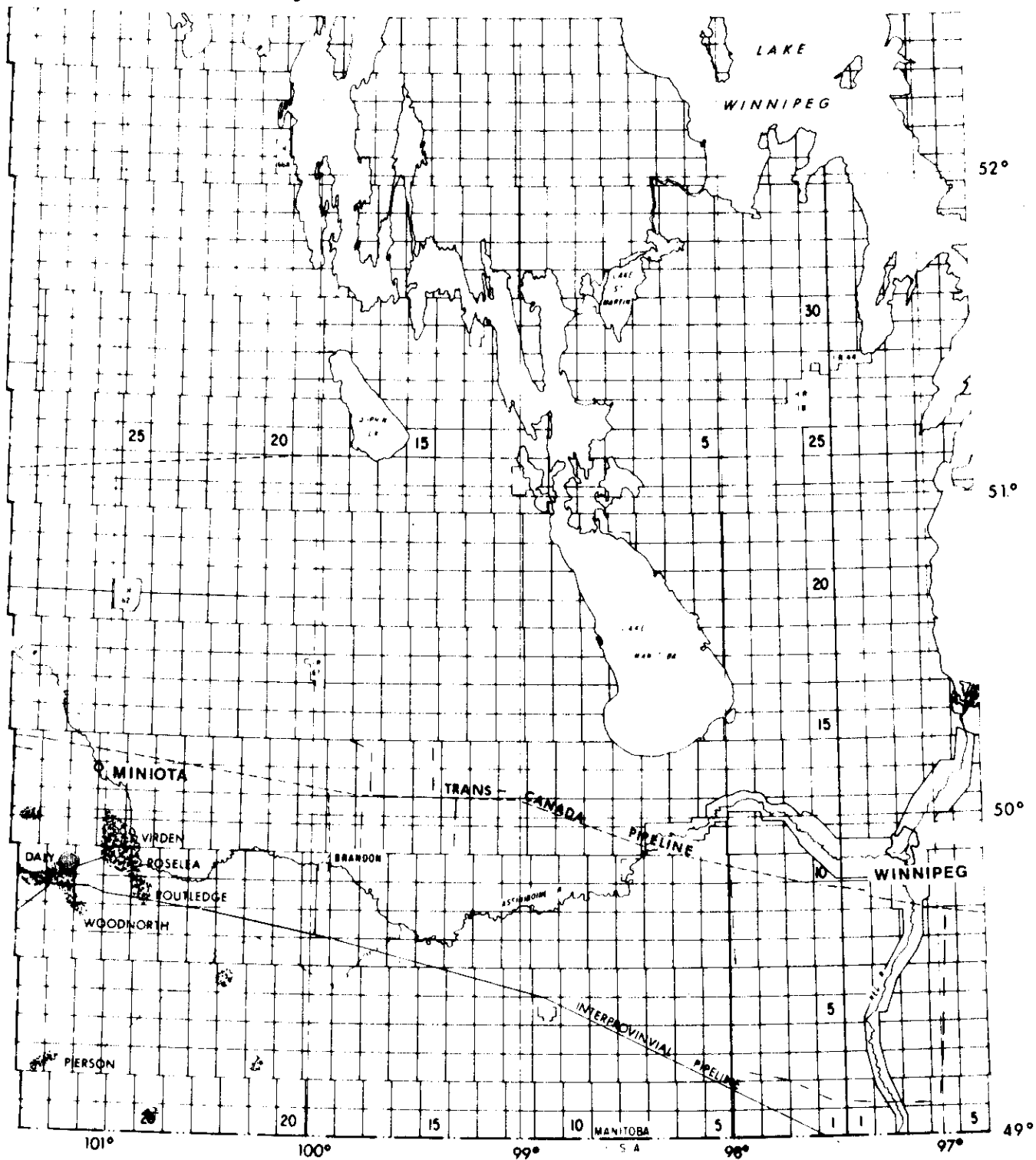
DATED AT WINNIPEG IN THE PROVINCE OF MANITOBA THIS _____

DAY OF _____ A.D., 1975

GREATER WINNIPEG GAS COMPANY

PER _____





GREATER WINNIPEG GAS COMPANY

LOCATION OF POTENTIAL STORAGE RESERVOIR

FIG. 1

Scale: 1" = 32 miles

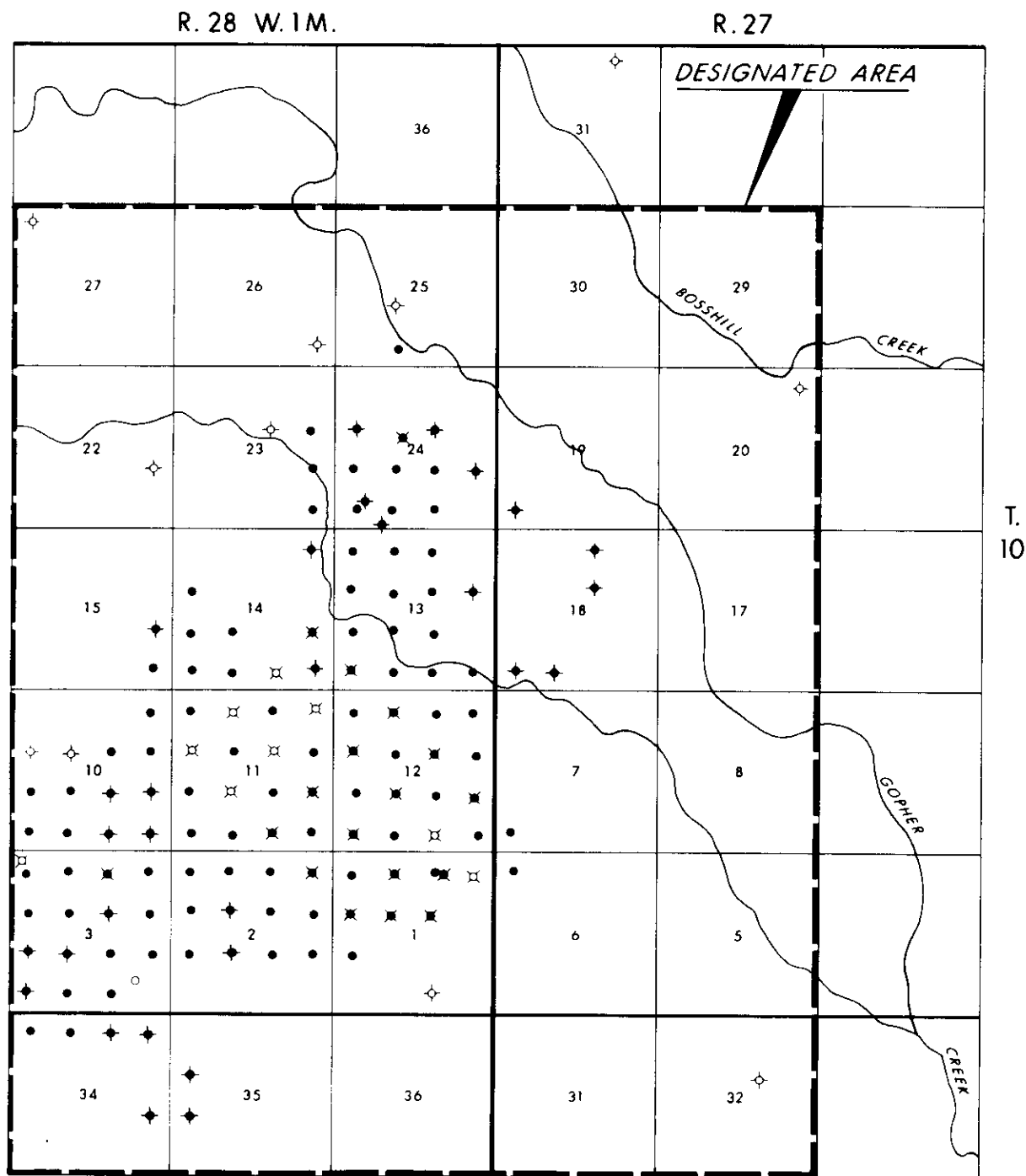
Contour Interval:

Date: July '1975 Revised:

Drawn by:

Map of

File number:



GREATER WINNIPEG GAS COMPANY

DALY AREA
LANDS REQUESTED AS
DESIGNATED AREA

FIG. 2

Scale: 1" = 1 Mile

Contour Interval:

Date: July 1975

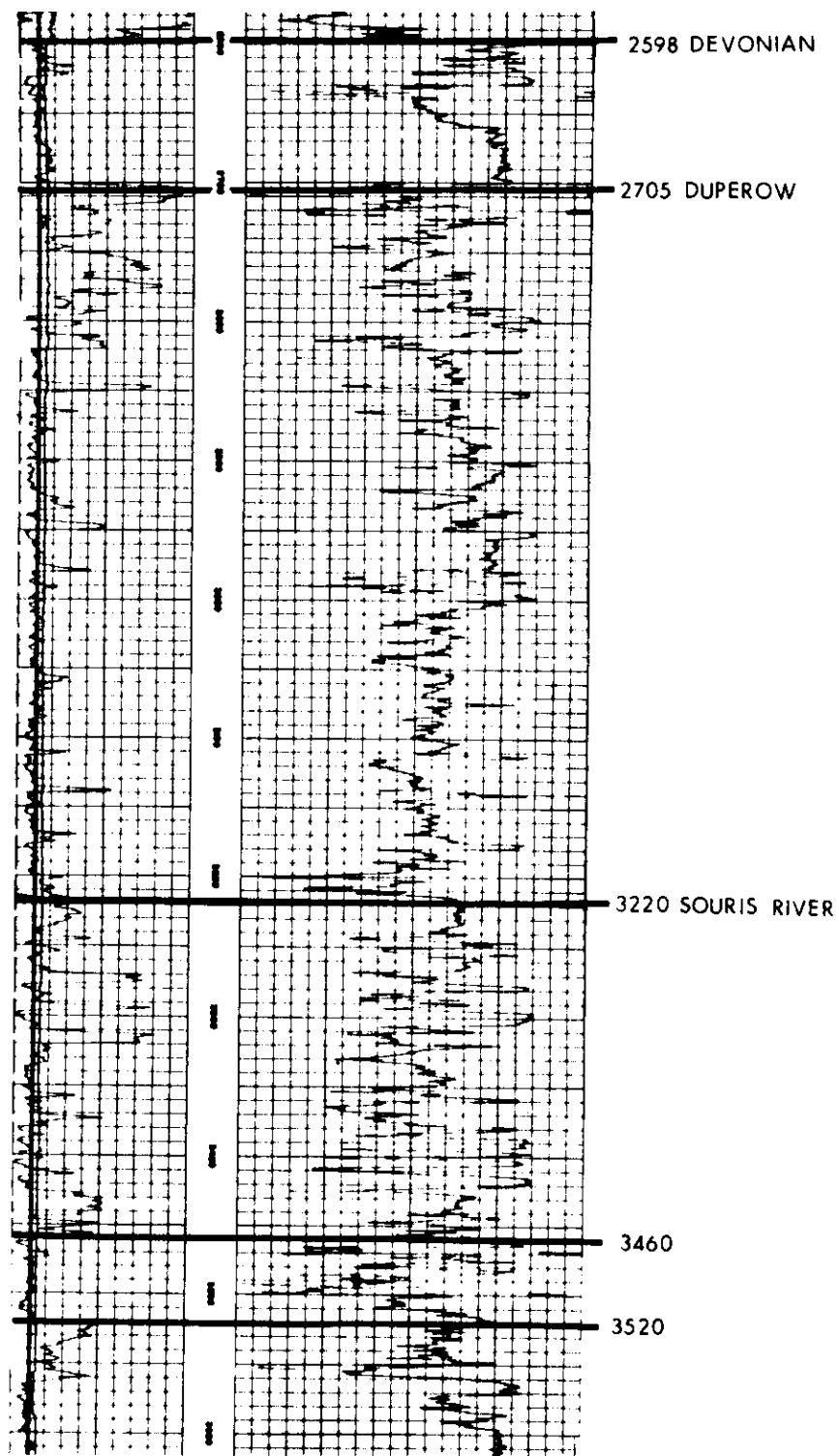
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Map

of

File number:



GREATER WINNIPEG GAS COMPANY

DALY AREA

PORTION OF SONIC GAMMA RAY LOG
RECORDED AT THE WELL
APACHE DARLING 15A-18-10-27W1M
KELLY BUSHING 1624 FT.

FIG. 3

Scale:

Date: July 1975

Revised:

Contour Interval:

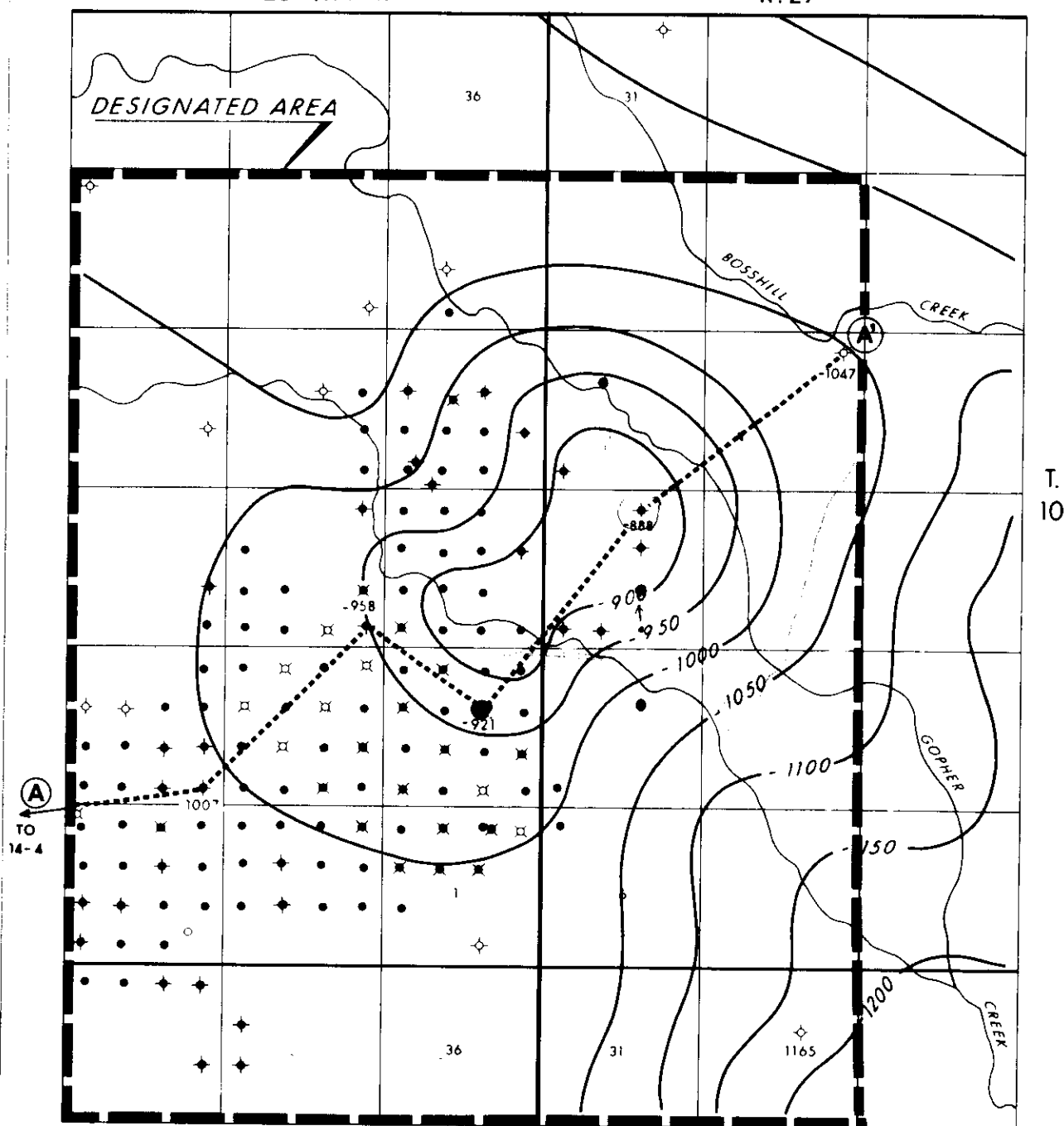
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Map

of

File number:

R. 27



DALY AREA

STRUCTURE
TOP OF BAKKEN FORMATION
Top of upper Devonian

FIG. 4

Scale: 1" = 1 Mile

Contour interval: 50'

Date: July 1975

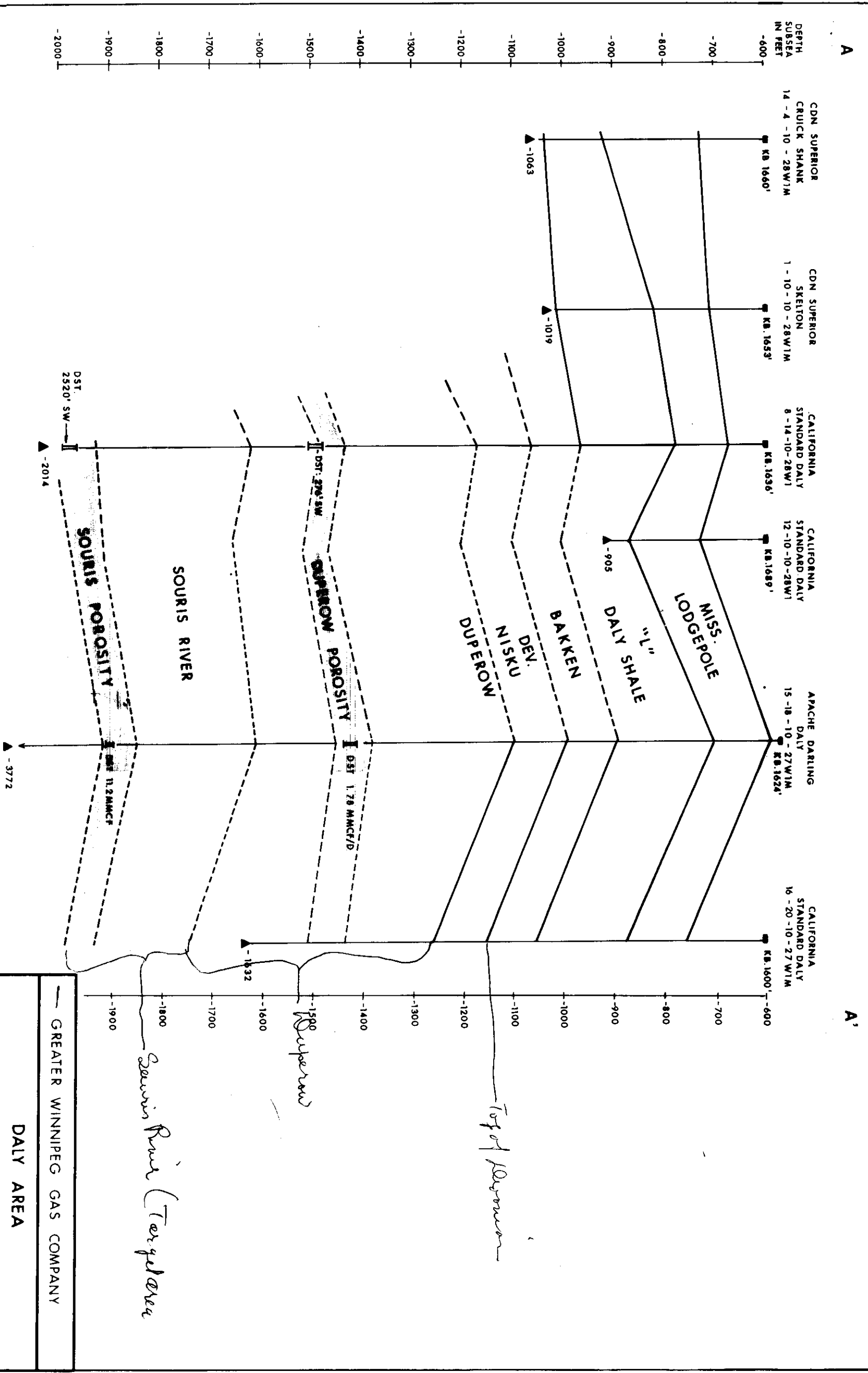
Revised:

Drawn by: B. COCHRANE

Map

of

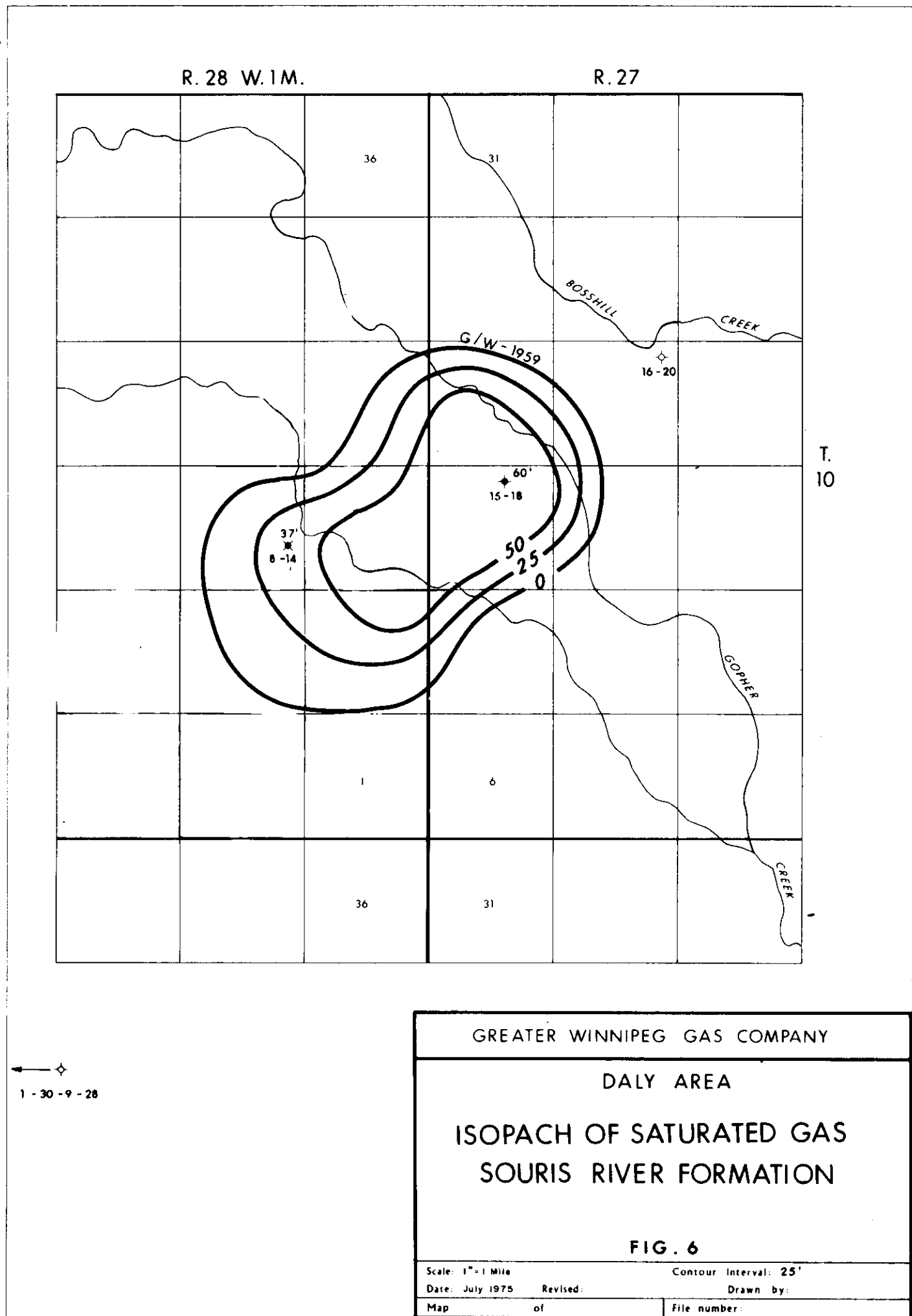
File number:



DALEY AREA
CROSS SECTION A-A'

FIG. 5

Scale: Contour Interval: 100 feet
Date: July '75 Revised: Drawn by: M. Womack



R. 28 W. 1 M.

R. 27

FREEHOLD (UNLEASED)	CANADA	GARVEY	FREEHOLD	CROWN (PROV.)
27	26	25	30	29
CANADA NORTHWEST LAND	PERM. TRUST	EXPLORATION	(UNLEASED)	(UNLEASED)
FERGUSON OIL & GAS	CHEVRON STD	TRITON PET. LTD.	CHEVRON STD	CHEV. STD.
22	23	24	19	20
CROWN (PROV.) (UNL.)	CHEVRON STD	CHEVRON STD	CHEVRON STD	CROWN (PROV.) (UNLEASED)
CAN. PERM. TRUST	CENT. OIL CO. LTD.	CHEVRON STD	CHEVRON STD	CHEVRON STD
15	14	13	18	17
CENTOBA OIL CO. LTD.	CHEVRON STD	CHEVRON STD	CHEVRON STD	CHEVRON STD
CROWN (PROV.) (UNL.)	CHEV. STD	CDN PIPELINE PRD	CHEVRON STD	CHEV. STD
10	11	12	7	8
CHEV. STD	RUNDLE OIL	CHEVRON STD	RUNDLE OIL	HOUSTON OILS
CHEV. STD	BRavo RES.	CHEV. STD	CHEV. STD	CROWN (PROV.) (UNL.)
3	2	1	6	5
BRavo RES.	IMPERIAL OIL	CHEV. STD	CROWN (PROV.) (UNL.)	CHEVRON STD
BRavo RES.	CHEV. STD	CROWN PROV. (UNL.)	CHEV. STD	CROWN (PROV.) (UNL.)
34	35	36	31	32
CHEV. STD	BRavo RES.	CHEVRON STD	CHEVRON STD	CHEV. STD

11 W. 1 M.
CROWN

T. 10

T. 9

GREATER WINNIPEG GAS COMPANY

DALY AREA

MAP SHOWING
LEASE HOLDERS OF MINERAL RIGHTS
(DESIGNATED AREA)

FIG. 7

Scale: 1" = 1 mile

Contour Interval:

Date: July 1975

Revised:

Drawn by:

Map

of

File number:

APPLICATION BY
THE DALY GAS STORAGE LTD.
FOR AN EXPLORATION PERMIT PURSUANT TO
SECTION 2(1) OF THE GAS STORAGE AND ALLOCATION ACT
1975

IN THE MATTER of the Gas Storage and
Allocation Act and the Regulations
made thereunder; and

IN THE MATTER of an Application by
the Daly Gas Storage Ltd. for an
Exploration Permit pursuant to
Section 2(1) of the said Act.

APPLICATION

Whereas Daly Gas Storage Ltd. (hereinafter called the Applicant),
a wholly owned subsidiary of Northern and Central Gas Corporation
Limited, wishes to explore for a reservoir suitable for gas storage in
the Daly area of Manitoba;

Now, therefore, the Applicant hereby applies for an Exploration
Permit with the following lands being declared a "designated area" in
accordance with Section 3(1) of the Act:

Township 9, Range 27, West of the Prime Meridian

All of Sections 31 and 32

Township 9, Range 28, West of the Prime Meridian

All of Sections 34, 35 and 36

Township 10, Range 27, West of the Prime Meridian

All of Sections 5, 6, 7, 8, 17, 18, 19, 20, 29 and 30

Township 10, Range 28, West of the Prime Meridian

All of Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23,
24, 25, 26 and 27

The supporting evidence and information upon which this Application
is based is included in this volume.

Dated at the City of Winnipeg
this 20th day of August, 1975.

Respectfully submitted,

DALY GAS STORAGE LTD.

A. P. Rathke
V, President

1. INTRODUCTION

The Daly area is located in Township 10, Ranges 27 and 28, W1M, approximately 22 miles south-southwest of TransCanada's main line transmission facility at Miniota, Manitoba. Exploratory drilling early in the year 1950 in this area by Chevron Standard, then known as the California Standard Company discovered oil in the Lodgepole Formation of Mississippian age and also uncovered inert gas reservoirs in the Upper Devonian (Duperow and Souris River formations). The most promising of the inert gas reservoirs occurs in a carbonate, semi-reefoid type rock, over the interval 3460 feet to 3520 feet in the California Standard Daly 15-18-10-27 well, and later re-entered in 1968 and renamed Apache Darling Daly 15A-18. A drill stem test of the interval 3494 feet to 3515 feet resulted in gas flows up to 12.15 MMcf per day with no fluid recovery. *A Flowing pressure of 1536 psia was recorded with a shut-in pressure of 1576 psia.*

Upon approval of this application and the issuing of an Exploratory Permit, the Applicant proposes to carry out an exploration program in the designated area, as outlined by a heavy black line on the accompanying maps designated as Figures 1 and 2, to determine the presence of a reservoir suitable for gas storage in the formations of Devonian Age as encountered in the drilling interval 2598 feet to 3560 feet in the well Apache Darling Daly 15A-18-10-27 as depicted on the Sonic log, a portion of which is shown in Figure 3 attached.

The primary objective of the exploration program would be the basal carbonate zone of the Souris River formation of the Manitoba Group encountered over the interval 3460 feet to 3520 feet in the above well.

A secondary objective would be the Duperow formation of the Saskatchewan Group encountered over the interval 2705⁴ feet to 3220 feet in the above well, or such other zones that prove to be potential storage reservoirs.

2. GEOLOGY

The Souris River formation of the Upper Devonian in the Daly 15-18 well is predominantly an earthy dolomite with intergranular and pin-point vuggy porosity. The upper 27 feet (3460' to 3487') is interbedded with anhydrite and has streaky porosity (approximately 13 feet net out of 27 feet gross interval). The basal 33 feet (3487' to 3520') has relatively continuous porosity.

The trapping mechanism appears to be related to a major structural lineament which strikes northwest to southeast through the approximate centre of Township 10, Range 27, W1M. The lineament, which was possibly caused by Post Mississippian salt collapse, shows reversal in all horizons mapped up to the top of the Lower Cretaceous. To the southwest (towards the 8-14-10-28 well), the Souris River appears to be gently dipping at 40 to 50 feet/mile. To the northeast and in the direction of the major structural lineament the dips are much steeper (100 feet/mile). It is believed that the structure on top of the Souris River will conform to that on top of the Mississippian. This is indicated by mapping the Bakken formation which is uneroded in this area (Figure 4). This being the case, rather steep dips will occur to the northwest and southwest of the 15-18 well

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thereby giving the necessary closure for the trap. An interpretation of old seismic data supports this contention.

A schematic cross-section, through the proposed designated area, is shown on Figure 5.

The cap rock, from samples, appears to be predominantly an evaporitic facies with some argillaceous material and therefore should be competent.

3. RESERVOIR CHARACTERISTICS

The anticipated average reservoir characteristics, for the Souris River Formation, based on the data from the Daly 15-18 well, are as follows:

Porosity (%):	13.0
Water Saturation (%):	20.0
Initial Reservoir Pressure (psia):	1600
Reservoir Temperature (^o F):	75
Compressibility Factor:	0.82
Initial Gas in Place (Mcf/acre ft.):	586 ⁵⁶⁰

With respect to the anticipated average porosity, the interval ^{0?} 3513 feet to ²⁰ 3522 feet was cored in the Daly 15-18 well and has a weighted average porosity from core analysis of 14.9 per cent. There is a problem correlating the core analysis data and the porosity calculations made from the Sonic log run over the same interval. ^{8.7%} For the purpose of this submission we have chosen the Sonic log, assuming a matrix velocity of 21,000 ft./sec., to calculate the porosity. This log shows 52 feet out of the 60 feet of gross section as being porous, with an average of 13 per cent. By comparison the microlog indicates 46 feet of net effective porosity.

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Mercury injection data indicates that the irreducible water saturation will be in the order of 15 to 20 per cent.

The reservoir pressure and temperature was determined from drill stem test data on the Daly 15A-18 well. This data indicated very good permeability with minor draw-down being recorded between the shut-in and flowing pressures.

The gas/water contact has not been established for the Souris River reservoir. No fluid was recovered on the drill stem test over the basal portion of the Souris River in the 15A-18 well (to a depth of minus 1895 feet subsea). In the 8-14 well; a drill stem test of the Souris River recovered salt water at an elevation of minus 1959 feet subsea. However, the upper portion of the Souris River in the 8-14 well could be gas bearing, as the log data is inconclusive because of the streaking porosity in that part of the section. The gas/water contact can therefore be placed between minus 1895 feet and minus 1959 feet. The actual location of the gas/water contact will have a significant impact on the ultimate usable volume of the reservoir.

4. RESERVOIR VOLUME

Using the Bakken Formation structure map as a guide and the lowest possible gas/water contact, the maximum potential initial gas-in place is 65 Bcf. In the Applicant's opinion the probable size of the reservoir is 40 Bcf with the proven or assured size being in the order of 10 to 25 Bcf. Figure 6 is an isopach map of the gross gas saturated Souris River Formation using as a zero limit the lowest possible gas/water contact.

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5. ANALYSIS OF GAS IN RESERVOIR

Gas samples from the well 15-18-10-27, tested by the California Research Corporation, using a mass spectrometer, March 2, 1951, gave the following analysis:

Sample Zone Tested (Feet)	No. 1 3005-3018	No. 2 3499-3511
<u>Analysis</u>	<u>Gas Vol. %</u>	<u>Gas Vol. %</u>
Nitrogen	94.3	96.6
Oxygen	0.0	0.6
Hydrogen	0.1	0.1
Methane	5.3	2.4
Ethane	0.1	0.1
Propane	0.0	0.1
Helium	0.2	0.1
	<hr/> 100.0	<hr/> 100.0

6. OTHER EXPLORATORY OBJECTIVES

The Duperow formation also has potential storage possibilities. In a drill stem test over the interval 3020-3042 in the 15-18 well, nitrogen gas was recovered at rates up to 2 MMcf per day. Geological data indicates that the reservoir could be quite extensive.

7. LAND

Figure 7 is a map showing the owners of mineral rights in the area.

The following list shows the lease holders of mineral rights within the proposed designated area and the approximate acreage held by each.

<u>Lessee</u>	<u>Approximate Acres</u>
Bravo Resources	960
Canada Northwest Land Limited	320
Canada Permanent Trust Company	800
Canadian Pipeline Producers	120
Centoba Oil	480
Chevron Standard Limited	10,080
Crown (Manitoba) Unleased	2,240
Dominion Crown Unleased	480
Ferguson Oil & Gas	480
Freehold Lands Unleased	960
Garvey Exploration Ltd.	640
Houston Oils Limited	160
Imperial Oil Limited	320
Rundle Petroleums Ltd.	360
Scurry Rainbow Oils Limited	80
Siebens Oil & Gas Ltd.	320
Teck Corporation Limited	80
Triton Petroleum Limited	320
	<u>19,200</u>

...cont'd. / 7

8. PROPOSED EXPLORATION & EVALUATION PROGRAMS

The Applicant proposes to carry out the following exploration program within the designated area upon approval of the application and the acquisition of the necessary surface and subsurface rights.

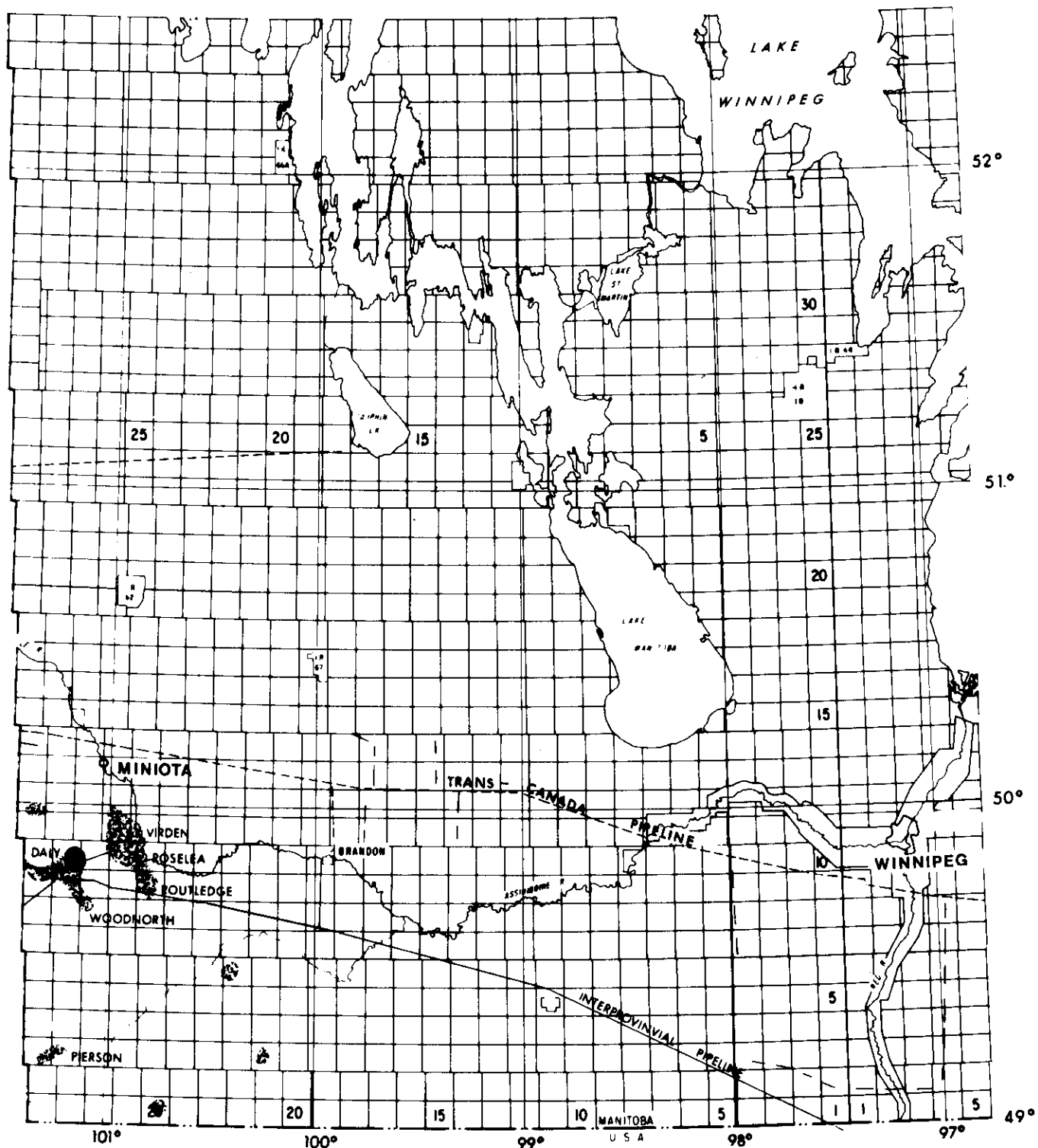
- a) Acquire, if possible, the Apache Darling Daly 15A-18-10-27 well for the purpose of extensive testing to determine its flow capacity, the possible areal extent and transmissibility of the reservoir, and to obtain representative samples of reservoir fluids.
- b) If the above tests indicate the reservoir is not of limited size, proceed with the drilling of four additional wells in order to adequately define the reservoir and obtain additional information with respect to structure, lithology, permeability, water saturation, reservoir fluids, pressure, deliverability, water levels and other pertinent data. All wells drilled and tested as a result of the exploration program would be properly completed so that existing wells in the area would not suffer any harmful effects.
- c) In conjunction with the above drilling and testing program, conduct an environmental study on the effects of blowing down the inert reservoir gas to atmosphere with particular attention to possible noise and air pollution.

d) Conduct a feasibility study on the conversion of the ^{high Nitrogen} inert ^{Content} Reservoir gas reservoir to a gas storage reservoir using the information collected from the drilling and testing program. This study would also examine the possibility of using the original reservoir gas as cushion gas by determining the extent of diffusion and mixing of the injected gas with the native gas. Such a study would also give information on maximum injection rates, water drive activity, storage qualities of the reservoir and effects of overpressuring.

9. PRELIMINARY ESTIMATE OF COSTS

Acquisition of Surface and Mineral Rights (Including 15 A-18 well)	\$125,000
Drilling and Testing of Four Wells	\$450,000
Environmental Impact Study	\$ 5,000
Diffusion and Reservoir Model Studies	<u>\$ 30,000</u>
	<u>\$610,000</u>





DALY GAS STORAGE LTD.

LOCATION OF POTENTIAL STORAGE RESERVOIR

FIG. 1

Scale: 1" = 32 miles

Date: July '75

Revised:

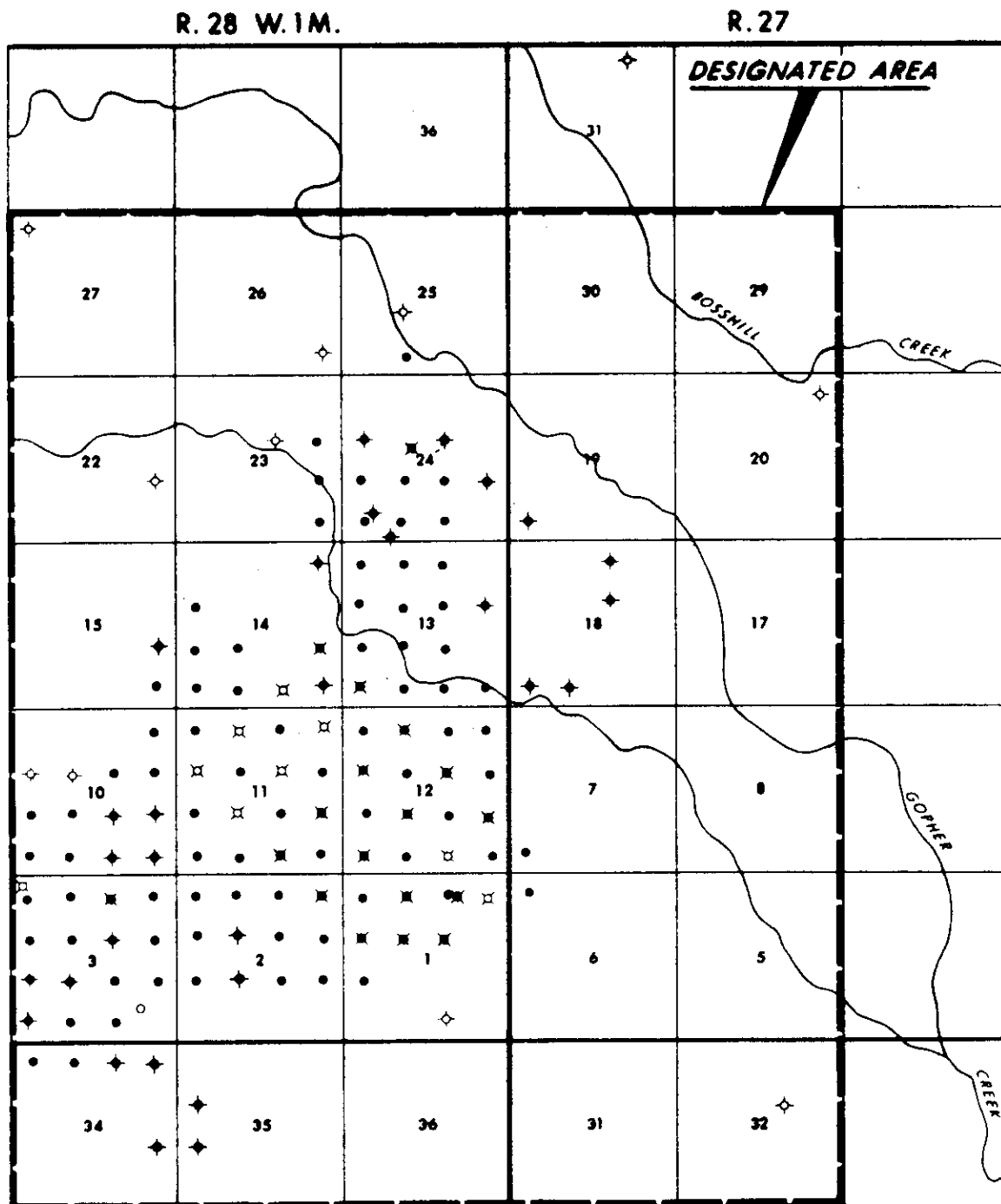
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Drawn by:

Map

of

File number:



DALY GAS STORAGE LTD.

DALY AREA
LANDS REQUESTED AS
DESIGNATED AREA

FIG. 2

Scale: 1" = 1 Mile

Contour Interval:

Date: July 1978

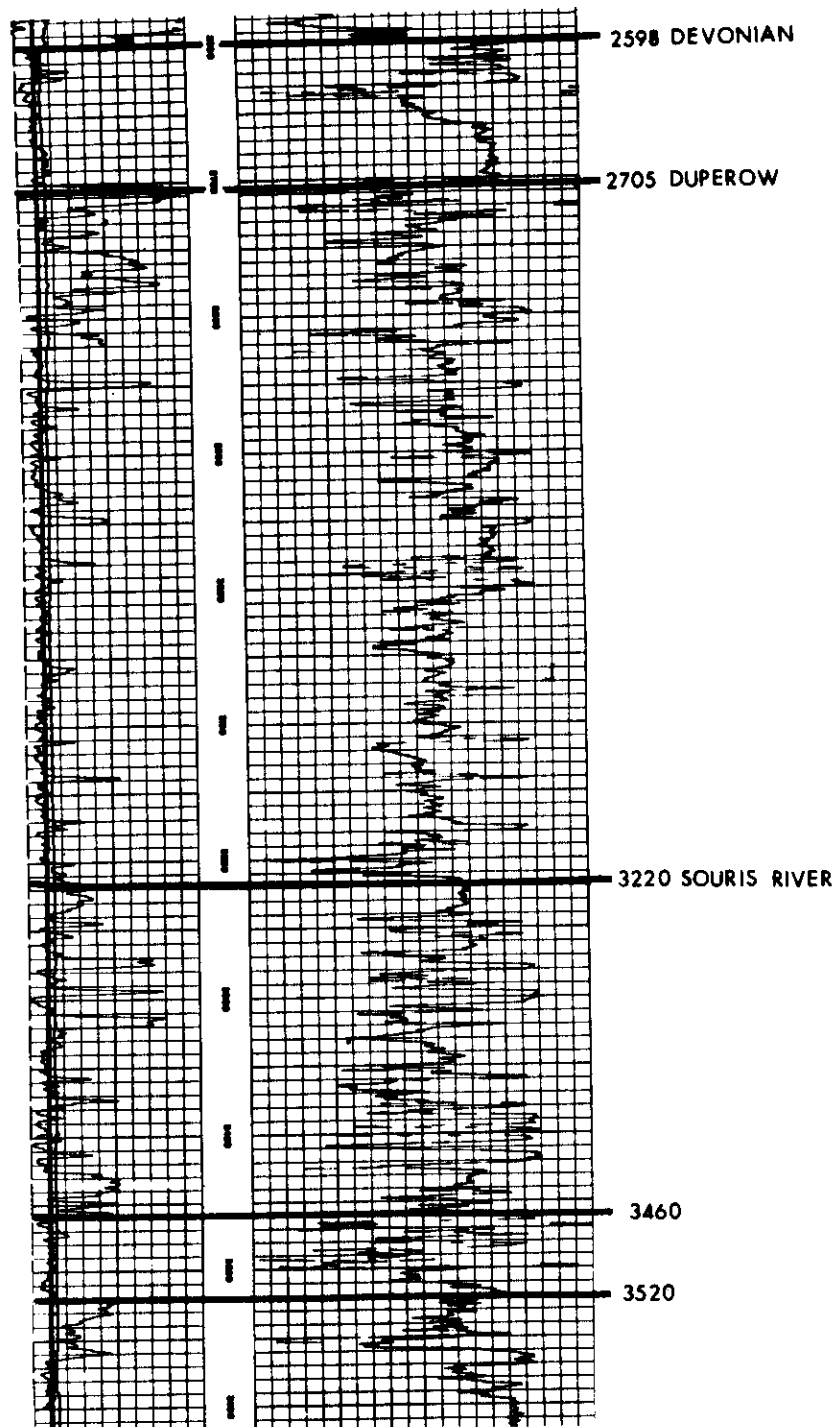
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Drawn by:

Map

of

File number:



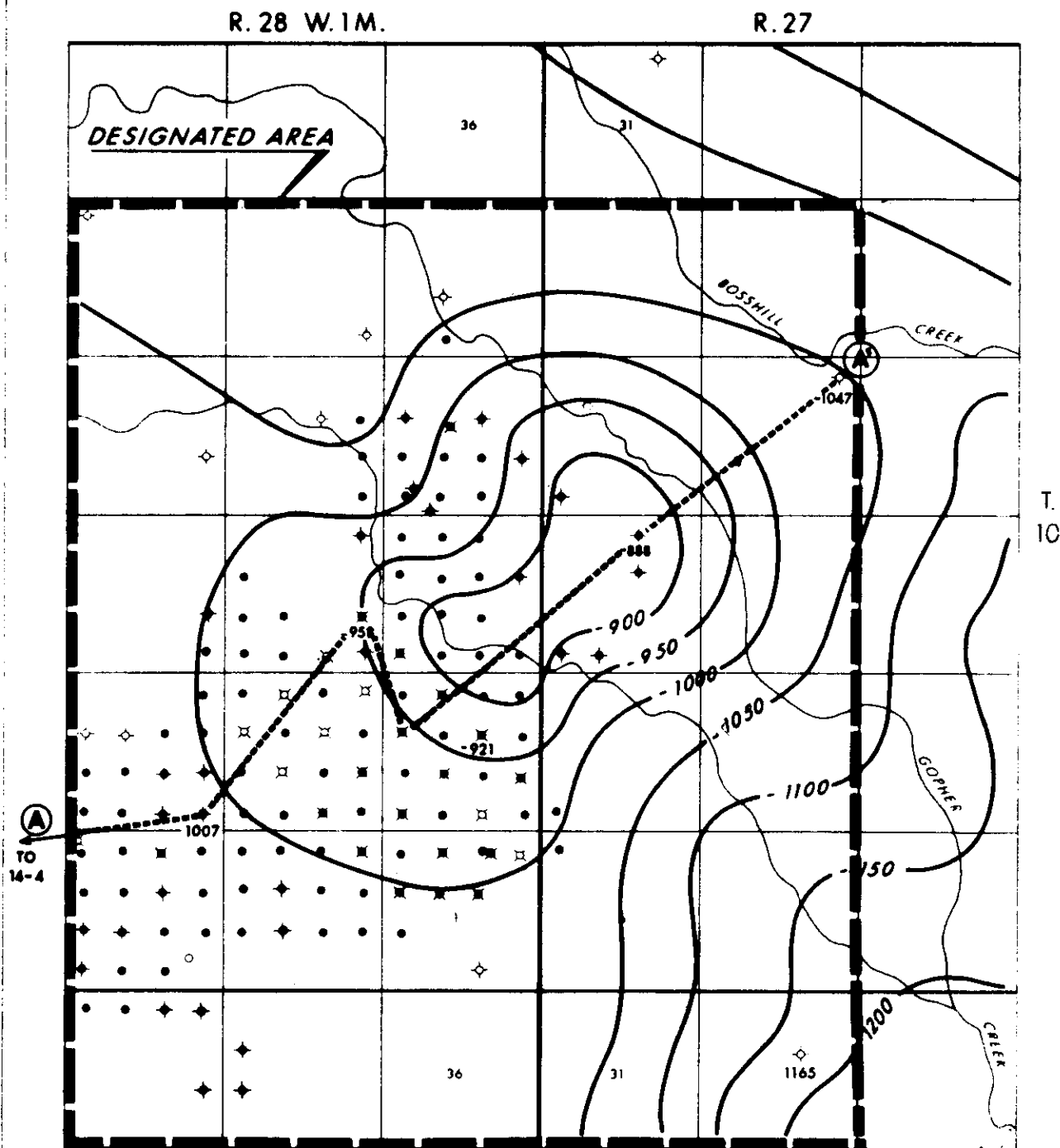
DALY GAS STORAGE LTD.

DALY AREA

PORTION OF SONIC GAMMA RAY LOG
RECORDED AT THE WELL
APACHE DARLING 15A-18-10-27W1M
KELLY BUSHING 1625 FT.

FIG. 3

Scale:	Contour Interval:
Date: July 1975	Revised:
Map	File number:



DALY GAS STORAGE LTD.

DALY AREA

STRUCTURE
TOP OF BAKKEN FORMATION

FIG. 4

Scale: 1" = 1 Mile

Contour Interval: 50'

Date: July 1976

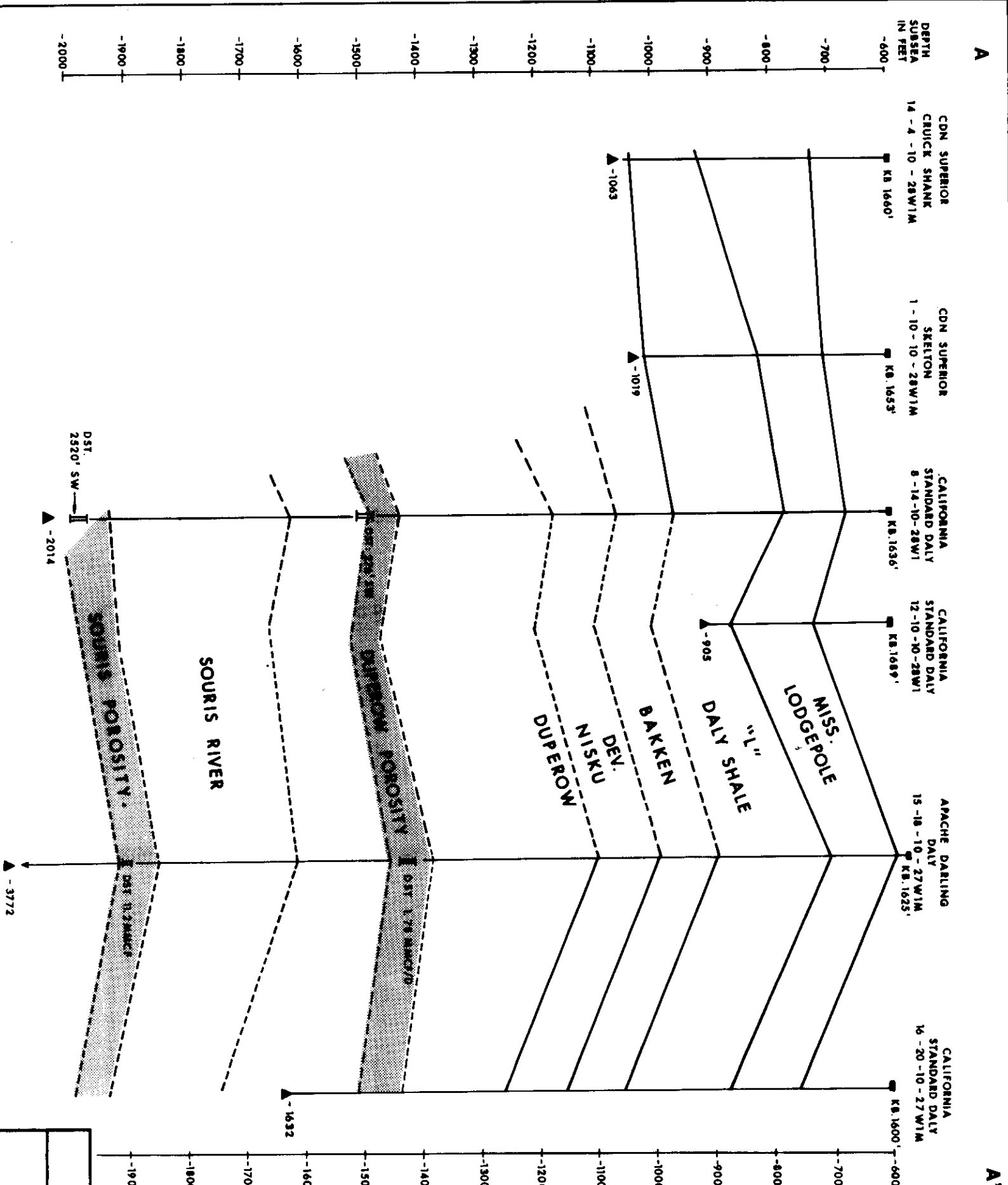
Revised:

Drawn by: B. COCHRANE

Map

of

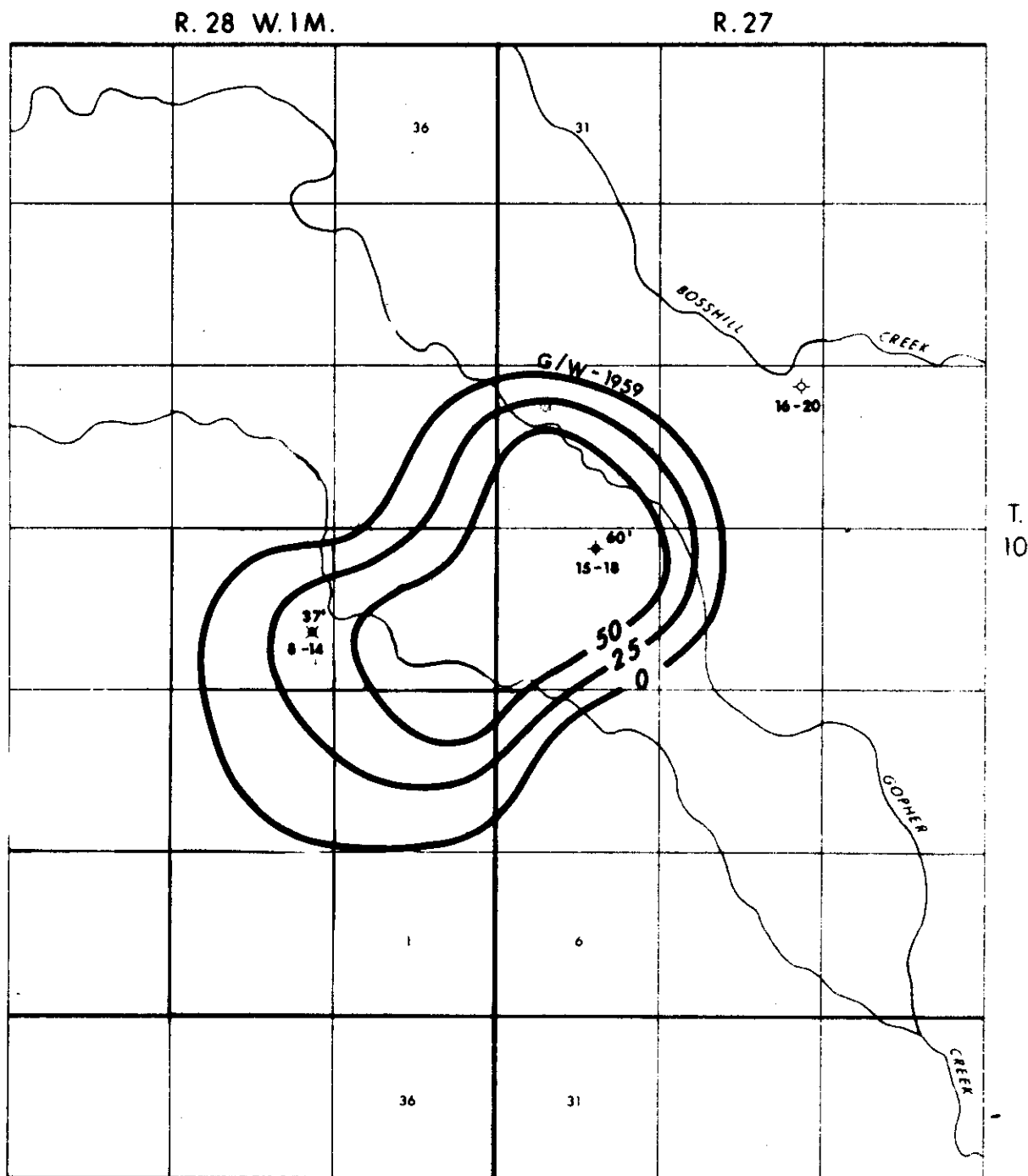
File number:




DALY GAS STORAGE LTD.
DALY AREA
CROSS SECTION A-A'

FIG. 5

Scale	Contour Interval
Date July '75	Revised
Map	of
File number	
Drawn by M. Wootton	




 1-30-9-28

DALY GAS STORAGE LTD.

DALY AREA

ISOPACH OF SATURATED GAS SOURIS RIVER FORMATION

FIG. 6

Scale: 1" = 1 Mile

Contour Interval: 25'

Date: July 1975 Revised:

Drawn by:

Map

of

File number:

R. 28 W. 1 M.			R. 27		
FREEHOLD (UNLEASED)	CANADA	GARVEY	FREEHOLD	CROWN (PROV.)	
27	28	25	30	29	
CANADA NORTHWEST LAND	PERM. TRUST	EXPLORATION	(UNLEASED)	(UNLEASED)	
FERGUSON OIL & GAS	CHEVRON STD	TRITON PET LTD	CHEVRON STD	CROWN (PROV.) (UNLEASED)	CHEV. STD.
22	23	24	19	20	
CROWN (PROV.) (UNL.)	FERGUSON OIL & GAS	CHEVRON STD	CHEVRON STD	CROWN (PROV.) (UNLEASED)	DOMIN. CROWN (UNL.)
CAN. PERM. TRUST	CENT. OIL CO. LTD.	CHEVRON STD	CHEVRON STD	CHEVRON STD	CHEVRON STD
15	14	13	18	17	
CENTOBA OIL CO. LTD	CHEVRON STD	CHEVRON STD	CHEVRON STD	CHEVRON STD	CHEVRON STD
CROWN (PROV.) (UNL.)	CHEV. STD	CHEVRON STD	CHEVRON STD	CHEV. STD	CHEV. STD
10	11	12	7	8	
CHEV. STD	RUNDLE OIL	CHEVRON STD	RUNDLE OIL	CHEV. STD	HOUSTON OILS
CHEV. STD	BRAY RES.	CHEV. STD	CHEVRON STD	CHEV. STD	CHEVRON STD
3	2	1	6	5	
BRAY RES.	BRAY RES.	IMPERIAL OIL	CHEV. STD	CROWN (PROV.) (UNL.)	CHEVRON STD
BRAY RES.	BRAY RES.	CHEV. STD	CROWN PROV. (UNL.)	CHEV. STD	CHEVRON STD
BRAY RES.	BRAY RES.	CHEV. STD	CROWN PROV. (UNL.)	CHEV. STD	CHEVRON STD
34	35	36	31	32	
CHEV. STD	BRAY RES.	CHEV. STD	CHEVRON STD	CHEV. STD	CROWN (PROV.) (UNL.)

T. 10

T. 9

DALY GAS STORAGE LTD.

DALY AREA
MAP SHOWING
LEASE HOLDERS OF MINERAL RIGHTS
(DESIGNATED AREA)
FIG. 7

Scale: 1" = 1 mile

Date: July 1975

Revised:

Contour Interval:

Drawn by:

Map

of

File number: