GREAT SOUTH LAND MINERALS LIMITED

ACN 068 650 386

THE TASMANIA BASIN
ONSHORE PETROLEUM RESOURCES

EXPLORATION AND DEVELOPMENT STRATEGY

SAL SUBMITTED TO THE GOVERNMENT OF TASMANIA

OCTOBER 1998

COMMERCIAL IN CONFIDENCE

Exploration and Development Strategy Proposal - The Tasmania Basin Onshore Petroleum Resources
Great Southland Minerals NL*
Anon
EL13/98

Table of Contents

List of Figures

List of Attachments

Attachment 1: Heads of Agreement

Attachment 2: Exploration Time line and Budget

Attachment 3: Special Exploration Licence Application

Attachment 4: Gordon Below Franklin Dam Compensation Overview

Attachment 5: Tasmania Basin Resource Estimates

Attachment 6: Extract from the MINERAL RESOURCES DEVELOPMENT ACT 1995; Division 4–Special exploration licences

Attachment 7: Tasmanian Energy Market Overview

Attachment 8: Hard Copy of Presentation Overheads

1. SUMMARY

621003

This submission proposes that a Joint Venture be established between Great South Land Minerals Limited (GSLM) and the State Government of Tasmania (TASGOV). The purpose of this Joint Venture would be to explore for hydrocarbons in the Tasmania Basin and to establish the first production of discovered petroleum resources by the Year 2001.

A draft Heads of Agreement is attached for consideration (Attachment 1).

2. INTRODUCTION

The Tasmania Basin appears to contain all the essential pre-requisites to be considered prospective for hydrocarbons, namely the appropriate juxtapositions of seals, reservoirs and perhaps most importantly, source rocks. Evidence that these source rocks are widely distributed and mature is provided by the extensive record of oil and gas seeps both active and ephemeral across the basin margins.

Geochemical analysis indicates the presence of at least two source rock systems, the Permian Quamby Formation (including the *Tasmanites* oil shale) and inferred organic rich units of the Ordovician Gordon Limestone. Geological structures which could host hydrocarbon accumulations derived from these source rocks are anticipated to lie at depth in the basin.

This possibility, however, has not been tested by drilling, since some thirty-five historical petroleum exploration wells (mostly sited near surface seeps) have penetrated no deeper than 400 metres.

3. THE CASE FOR ONSHORE PETROLEUM EXPLORATION

In the past, development of the industrial base of the Tasmanian economy has been sustained by the hydro-electric generating system. This is no longer possible because:

- the existing system is operating at full long term capacity, with concern regarding the consequences of extended dry weather, and
- hydro-electric expansion is not an option because of political, environmental and financial constraints.

Accordingly, a number of industrial projects of significant potential to the economy remain uncommitted, pending the establishment of an additional dependable and competitively priced energy supply. Indigenous hydrocarbons, particularly gas, could provide this resource.

A reliable supply of natural gas is an essential prerequisite for future industrial growth, and could play a key role in retaining some existing industries.

621004

The Tasmania Basin

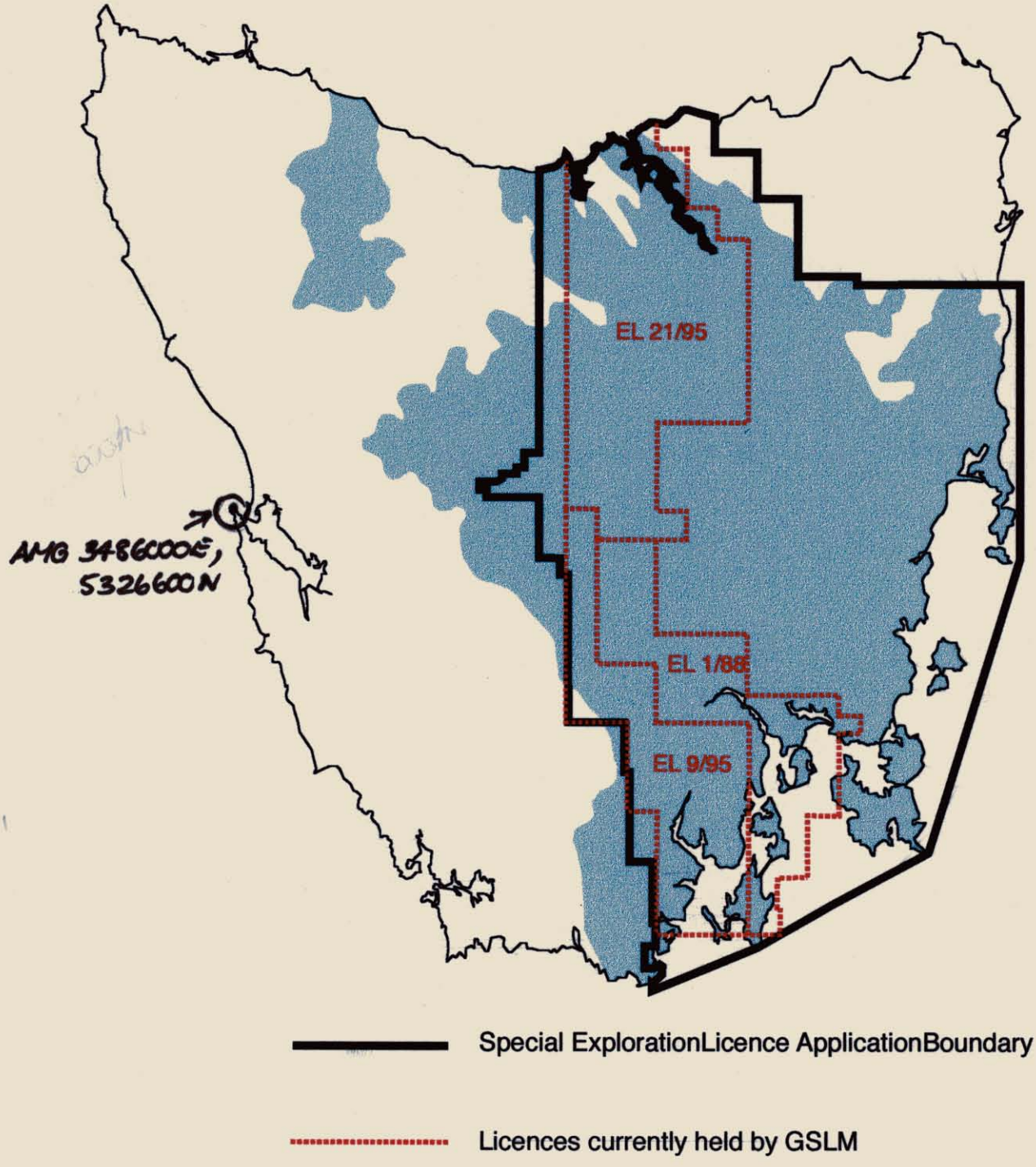


Fig. 1 GSLM's currently held Exploration licences and special exploration licence application boundary, superimposed over the onshore Tasmania Basin, displayed in blue.

5 cm

For more than thirty years, Tasmanian petroleum exploration has been focussed exclusively offshore, with thirty-one wells having been drilled in the period 1965 to 1998. Offshore drilling costs are substantial, being typically A$12-15 million per well, and despite some encouraging results no gas has yet been landed. The aggregate costs of drilling and constructing offshore facilities and pipelines, in comparison with the limited return afforded by a modest initial market of about 20Bcf per year, has proven prohibitive.

Pipeline gas from Victoria is unlikely to be any more attractive, given the additional pipeline cost and the uncertainty as to the future sale price of gas into the pipeline. Security of uninterrupted supply must also be of concern. Although this could be addressed by a combination of the above options (connecting an offshore supply to the pipeline), the projected market is insufficient to support the required capital expenditure.

In contrast, the cost of drilling an industry standard well onshore Tasmania could be as low as A$1 million. Any discovery of gas or oil could be brought onstream with minimal delay and in the case of gas, production increases could be phased incrementally to maintain step with market requirements.

This onshore scenario does not require the major upfront capital expenditure on offshore facilities (with the concomitant long lead times) and in principle would enjoy a major competitive advantage over any alternative energy supply.

4. IMPEDIMENTS TO EXPLORATION ONSHORE.

The major impediment facing any onshore exploration programme is the cost of land seismic survey, typically A$4000 per km. Whereas past decades of exploration survey (however intermittent) over the mainland onshore basins have provided a legacy framework to guide future work, this does not exist for the Tasmania Basin.

The subsurface basin architecture remains completely unknown, requiring extensive regional survey in addition to the detailed high-density survey necessary to define specific drilling targets. That it was even possible to acquire useful seismic data was considered by many to be doubtful because of the presence of thick dolerite sills over much of the basin. However, the conspicuously successful results of a modern experimental seismic line recorded in the basin have recently been released by AGSO, demonstrating that the perceived problem had been largely over estimated.

It is considered that the exploration effort necessary to meet the objectives of this proposal will require, over the next three years, approximately 2000 line km of regional survey in addition to a further 2000 line km of prospect delineation survey, at a total cost of A$16 million. As noted previously, a well may be expected to cost A$1 million.

A comparison with the offshore regime is instructive. The cost of marine seismic can be of the order of A$400 per km or A$1.6 million for a 4000 line km survey. On the other hand, as for the Bass Basin offshore Tasmania, a well may cost A$12-15 million. In this environment, data acquisition is within the financial capacity of small explorers, after which the farmout of identified prospects for a free carry on the drilling costs has a realistic chance of success.

In contrast, the onshore exploration costs are hugely front loaded by the seismic survey, and in the case of the Tasmania Basin, at a stage when no drillable targets have been identified to promote such a farmout. This situation also prevails to a large extent even in semi-explored onshore mainland basins such as the Canning, the onshore Bonaparte and the Officer, all of which have demonstrated petroleum potential and in all of which exploration progress has been marginal.

5. EXPLORATION SCHEDULE

From the above, it is seen that the main challenge is not expected to relate to technical capability, but rather that of the establishment of an appropriate funding agreement. The objective of "first flow in 2001", while admittedly a stretch target, may nevertheless be met by a fast track approach, whereby the regional work is conducted as a concurrent individual project in co-operation with but separate to the detailed prospect level exploration work.

Regional Basin Evaluation

It is proposed to enlist the skill pool of the National Centre for Petroleum Geology and Geophysics (NCPGG) to conduct this evaluation as a public good project, including the acquisition of the 2000 line km regional seismic survey and the drilling of a number of stratigraphic wells.

The principle arguments in support of the use of Public (i.e. Government) funds for these purposes are:

- The work can be considered pre-commercial in that the deliverable is an understanding of the basin at the Macro Level and will not identify drillable oil prospects.

- The seismic imaging together with gravity and magnetic data may well be expected to define an extension to the boundaries of the heavily mineralised Mt. Read Volcanics and therefore encourage mineral exploration with substantial consequential benefit to the economy.

- The seismic data may be calibrated against the stratigraphic drilling results, and thus allow the presence and distribution of subterranean water resources to be mapped. Water for agricultural purposes is becoming a highly valued resource, particularly through Central Tasmania.

This proposal falls within the precedent established by the Commonwealth Government Policy whereby the resources of AGSO (and formerly the BMR) were employed to acquire open file seismic data in Frontier Basins (e.g. the Officer Basin) to encourage industry interest.

Discussions have been held with Dr. J. Kaldi, Director of the NCPGG and agreement reached on the Project Scope. Given project approval, it is intended that a cooperation agreement be concluded between GSLM and the NCPGG to establish inter alia right of access and ensure optimal operational synergy with the exploration programme including seismic survey operations proposed to be carried out concurrently by GSLM.

The detailed NCPGG proposal is costed at A$15.4 million over the period 1999 to 2001, and is the subject of a separate accompanying submission.

Commercial Exploration Programme

This programme calls for the acquisition, processing and geological interpretation of some 2000 line km of prospect oriented seismic data, to be followed by the drilling of exploration wells on identified prospects.

Seismic survey would commence in the first quarter of 1999, with the aim of having first prospects mature for drilling by the second half of year 2000.

This survey would be conducted concurrently with the regional survey, and initially would be located in the vicinity of known hydrocarbon seeps. Placement of the survey would subsequently be determined taking into consideration the results emerging both from this survey and the NCPGG regional survey and evaluation work.

It is proposed that this exploration programme be conducted by GSLM as Operator, and is costed at A$14.3 million over the period 1999 to 2001. Approximately A$8 million is allocated to seismic survey work, and it is worth noting that around 40% of this remains in the local communities by reason of crew wages, accommodation and expenditure on goods and services.

A detailed programme schedule and budget breakdown is presented in Attachment 2.

6. EXPLORATION LICENCES

GSLM currently holds all onshore petroleum Exploration Licences in Tasmania, covering an area of about 12,000 sq.km.

Further details are covered in the Information Memorandum, a copy of which accompanies this proposal.

A copy of the new application (replacing the existing Application for SEL 13/98) is attached (Figure 1 & Attachment 3), and existing Licences EL 1/88, EL 9/95 and EL 21/95 would be extinguished on the granting of this new Special Exploration Licence. (see Attachment 6: an extract from the MINERAL RESOURCES DEVELOPMENT ACT 1995; Division 4–Special exploration licences)

This application essentially includes the entire Tasmania Basin, since at this time there is no way to identify the most prospective fairways. Experience has shown that even in basins considered highly petroliferous, the producing fairways (i.e. the areas where conditions have been suitable for entrapment of hydrocarbons) tend to be highly localised and occupy a very small proportion of the total basin area.

Early survey results are anticipated to give some indication as to which areas are least prospective, and allow the subsequent work to be focussed on those areas of highest potential.

It is requested that this special exploration licence be granted for a minimum period of at least five years without mandatory partial relinquishment, and hence provide security of tenure while this high level grading process takes place.

7. G.S.L.M. FUNDING

The Board of Directors of GSLM has resolved to proceed to a Float and ASX Listing of the Company, to be completed by mid-1999. A float vehicle based on the tax effective model pioneered by SOCDET has been secured, and an initial capital raising of some A$5 million will be sought, with an ongoing target of A$2-3 million per annum.

In the current economic climate, security of tenure of the Exploration Licence is seen as a critical item in establishing Broker confidence and ensuring that the Float is fully underwritten.

It is worth noting here that the present shareholders of the Company are predominantly Tasmanian, and in favourable circumstances local brokers expect to be able to raise the major part of the new capital within Tasmania.

8. JOINT VENTURE PROPOSAL

Taking into account the limited available data, it is estimated that an accelerated exploration programme with a total capital requirement of some $30 million will be required to meet the objective of commercial production within 3 years.

While it is proposed that the regional framework be established by the NCPGG at a cost of $15 million, funding for the commercial exploration will still require the balance of $15 million.

In the current market environment, it is not realistic to expect that investment funding to this extent will be forthcoming, given the current industry preference for offshore areas of proven production.

Therefore, a proposal has been developed by GSLM based on the Japanese National Oil Company model illustrated diagrammatically in Figure 2. The essential components of this arrangement are as follows:

- An unincorporated Joint Venture would be established between GSLM and the Tasmanian Government (TASGOV).
- GSLM provides 30% of the capital funds, with 70% provided by TASGOV
- Of this 70%, equity capital comprises 30%, with the remaining 40% being loan funds.
- TASGOV would take up a 45% to be held interest in the Licences, with 55% being retained by GSLM.
- In the event that a commercial return is not achieved, the loan funds would not be considered repayable, and the debt would be forgiven.
- If the venture achieves commercial production, then the loan becomes repayable, with interest capitalised at an agreed rate (say 4%).

The resulting schedule of funding arrangements for the Joint Venture to meet the proposed budget of $14.3 million is shown in Table 1:

Funding Source	1999	2000	2001
GSLM Equity	$1,700,000	$1,300,000	$1,300,000
TASGOV Equity	$1,700,000	$1,300,000	$1,300,000
TASGOV Loan	$2,100,000	$1,800,000	$1,800,000

Table 1

A beneficial interest of 45% by the State Government has the potential for generating a very large income for the people of Tasmania, in addition to statutory royalty payments at 12% of wellhead petroleum value. It also ensures that majority ownership of the resource remains in Tasmanian hands, and most of the profit is retained within the State.

621010

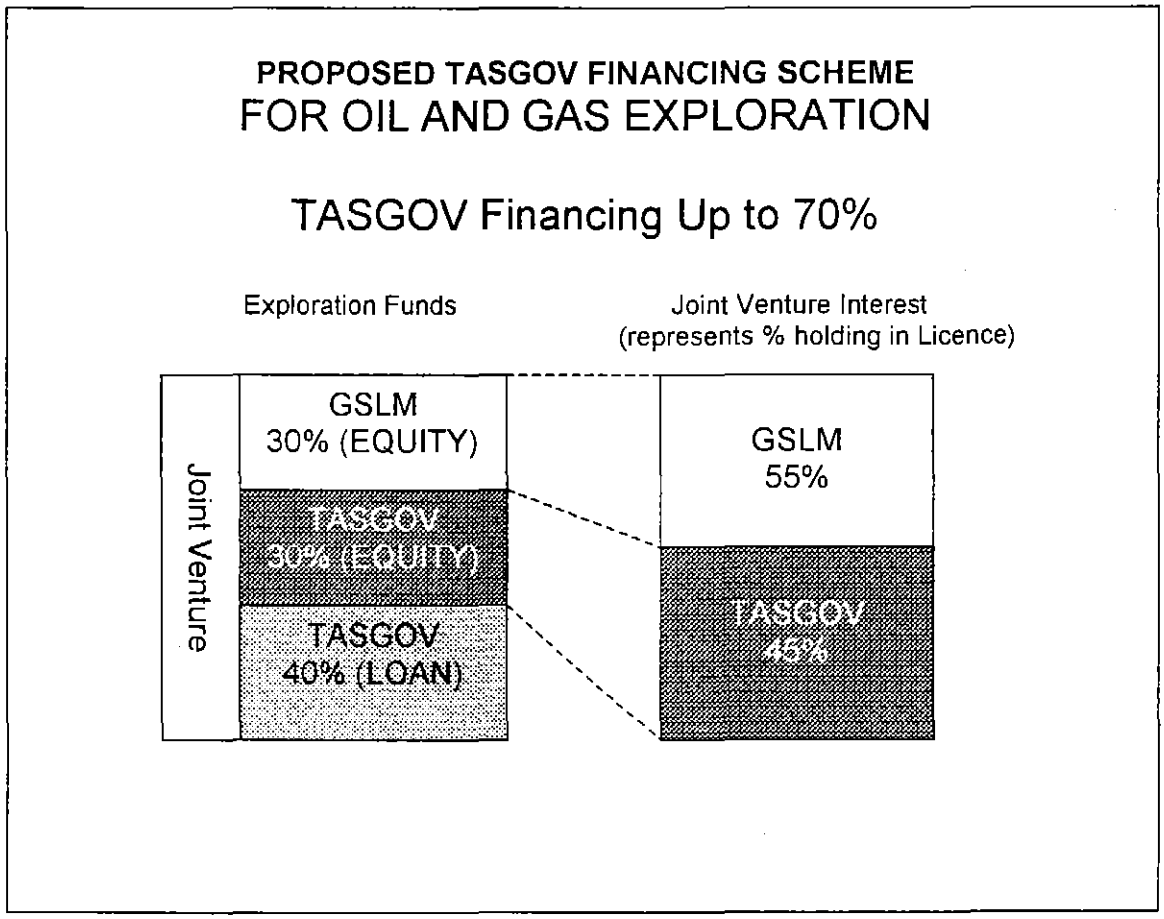


Fig. 2 Proposed TASGOV Financing Scheme, Oil and Gas Exploration Onshore Tasmania Basin.

621011

9. FUNDING BY GOVERNMENT

If both the proposed NCPGG project and the GSLM/TASGOV Joint Venture were run in parallel, economies could be achieved in mobilisation costs and better utilisation of seismic resources through a co-tendering process. Total funding requirements from Government is therefore estimated at $25 million over three years, $6 million of which would be loan funds.

Should the State Government be constrained in their ability to finance these proposals directly, an option would be to approach the Federal Government for funding. The two obvious sources of funding are as follows:

9.1 Gordon-below-Franklin (GbF) Dam Compensation Fund

The remaining commitment by the Federal Government relates to subsidising the cost of producing a further 68 MW of long term electrical power forgone as a result of the High Court decision in 1983. Details of these arrangements are provided in Attachment 4.

In summary, an increase in electrical energy cost of one cent per unit results in an annual subsidy of $6 million. A gas fired power station would produce energy at a premium of at least 3 cents per unit over GbF costs, which would therefore attract an annual subsidy of $18 million, or $360 million over 20 years. On the same basis, it is estimated that a local gas supply could reduce these energy costs by up to $9.6 million per annum compared to electrical energy produced from imported gas. Thus there would be a saving to the Federal Government of $192 million over 20 years.

An up-front investment of $19 million in this project could lead to a reduction in the subsidy, which would repay this investment in just two years.

9.2 Regional Minerals Program

This Program was established in August 1996 by the previous Federal Government to encourage a co-ordinated regional approach to minerals development, involving a partnership between the Commonwealth, State governments and industry.
The key objective is to create employment in rural Australia and encourage value-added processing involving world's best technology.
The program is also designed to help reduce costs to industry and to generate income earlier than might otherwise be expected.

The NCPGG proposal may well qualify for support under this Program.

621012

ATTACHMENT 1

Heads of Agreement

CONFIDENTIAL

621013

TASMANIAN BASIN EXPLORATION VENTURE

HEADS OF AGREEMENT

THIS HEADS OF AGREEMENT is made this day of 1998

BETWEEN

THE STATE GOVERNMENT OF TASMANIA ("TASGOV")

AND

GREAT SOUTH LAND MINERALS LIMITED ("GSLM")
(ACN 068 650 386) having an office a Level 3, MLC Building, 65 Murray Street, Hobart, Tasmania 7000.

WHEREAS:

A. GSLM is a company formed for the exploration for the production of subsurface hydrocarbons;

B. TASGOV means the State Government of Tasmania and any Corporation therof;

C. The parties desire to facilitate and expedite the discovery and exploitation of hydrocarbons in the Tasmania Basin.

D. For the foregoing purposes the Parties have agreed to enter into this Heads of Agreement, as follows:

1. PRELIMINARY MATTERS

The Parties acknowledge that this Heads of Agreement is a preliminary document stating the intentions of the Parties, and shall terminate upon the date of the further agreement referred to in clause 2.

2. JOINT VENTURE

The Parties agree to establish an unincorporated Joint Venture to conduct exploration and production activities in the Tasmania Basin, and further agree to negotiate in good faith the terms of a Joint Operating Agreement with the objective that this Agreement be concluded before 31 December 1998. Joint Venture Operations will be governed under the terms and

conditions of this Joint Operating Agreement. GSLM will provide a model agreement incorporating accepted Australian industry practices as a basis for discussion.

3. OPERATOR

621014

GSLM will be designated Operator of the Joint Venture.

4. JOINT VENTURE EQUITY

The beneficial equity holdings in this Joint Venture shall be:

TASGOV	45%
GSLM	55%

5. JOINT VENTURE LICENCES

TASGOV will use its best endeavours to ensure security of tenure of licences over the Tasmania Basin as requested by GSLM (as Operator) so as to carry out the Joint Operations in an effective and timely manner.

6. FUNDING EXPLORATION AND APPRAISAL OPERATIONS

Notwithstanding that the beneficial equity of TASGOV shall be 45% as provided in Article 4, funding of the exploration and appraisal activities shall be in the following proportions:

GSLM	30%
TASGOV	70% of which 30% represents equity contribution, with the remaining 40% in the form of a loan bearing interest at the rate of 4% per annum.

In the event that commercial production is not established, this loan will not be considered repayable and the loan and interest forgiven.

In the event that commercial production is established, then the interest will be capitalised and the aggregate loan repaid from production income either in cash or in kind at the election of TASGOV. If TASGOV should elect to receive repayment as a production entitlement, this repayment shall not exceed 50% of the entitlement due to GSLM at any particular time.

7. ADVANCE TO GSLM

Recognising that operations should commence as early as possible in 1999 if the objective of achieving first flow in 2001 is to be met, and recognising that GSLM major funding by way of float will not be concluded until mid 1999, TASGOV agrees to advance the GSLM share of the project funding without interest until the conclusion of the float, but in any case not beyond end July 1999. Following completion of the float, this advance will be repaid by way of GSLM additional contribution to the costs of the ongoing project.

8. FUNDING DEVELOPMENT OPERATIONS

Unless otherwise agreed, funding of development projects shall be by way of loan secured from investment banks or similar commercial institutions, guaranteed by TASGOV. For the avoidance of doubt, such development project would require the unanimous approval of the Joint Venture.

9. INFORMATION

TASGOV shall provide GSLM with all information that may come into its possession which GSLM may require in order to carry out the exploration activities in the Joint Venture Licence Area(s) in an efficient and expedient manner.

10. CONFIDENTIALITY

10.1 Each Party agrees with the other Party that all data and information (Confidential Information) supplied by one party to another pursuant to this Heads of Agreement is confidential to the disclosing Party and that its disclosure in breach of this Clause could cause significant harm to the disclosing Party.

In consideration of the disclosure of Confidential Information hereunder, the receiving Party agrees that the Confidential Information shall be kept strictly confidential and shall not be sold, traded, published or otherwise disclosed to anyone in any manner whatsoever.

10.2 The receiving Party may disclose the Confidential Information without the prior written consent of the disclosing Party only to the extent that the information:

(a) is already known to the receiving Party on the date of disclosure

(b) is already in possession of the public or becomes available to the public other than through the act or omission of the receiving Party

(c) is required to be disclosed under applicable law or by a governmental order, decree, regulation or rule or by the listing rules of a stock exchange on which the disclosing Party's securities are or will be listed

(d) is acquired independently from a third party who represents that it has the right to disseminate that information at the time it is acquired by the receiving Party

10.3 The receiving Party may disclose the Confidential Information to any of the following persons who have a clear need to know in order to evaluate or negotiate this Agreement, namely employees, officers, directors and consultants of the receiving Party.

10.4 The receiving Party may disclose the Confidential Information to any other third party for the bona fide purpose of fund raising, subject to the prior written agreement of the disclosing Party, which agreement shall not be unreasonably with held.

SIGNED for and on behalf of)
GREAT SOUTH LAND MINERAL LIMITED)
In the presence of)

621016

.....

SIGNED for and on behalf of)
THE STATE GOVERNMENT OF TASMANIA)
In the presence of)

.....

621017

ATTACHMENT 2

Exploration Time line and Budget

TASMANIAN GOVERNMENT - GREAT SOUTH LAND MINERALS LIMITED - JOINT VENTURE

BUDGET & CASH FLOW PROPOSAL - October 1998

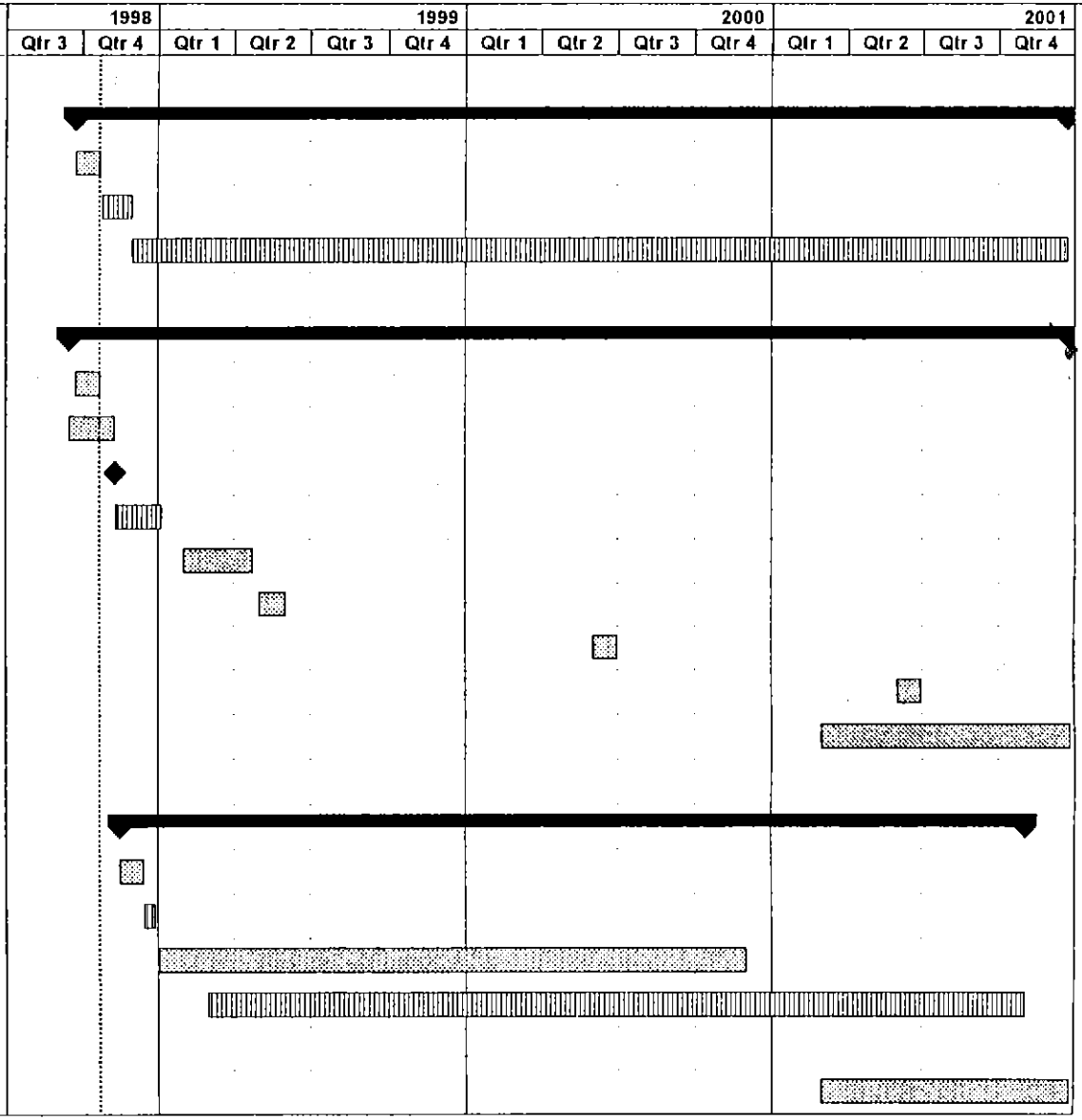
REVISION 2 22.10.98

ITEM	1999 1st Qtr	1999 2nd Qtr	1999 3rd Qtr	1999 4th Qtr	2000 1st Qtr	2000 2nd Qtr	2000 3rd Qtr	2000 4th Qtr	2001 1st Qtr	2001 2nd Qtr	2001 3rd Qtr	2001 4th Qtr	TOTAL		ITEM
CORPORATE OVERHEADS															**CORPORATE OVERHEADS**
General Manager	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	360000		General Manager
Administration Officer	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	144000		Administration Officer
Accountant (P/T)	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	60000		Accountant (P/T)
Office Staff (2)	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	120000		Office Staff (2)
Directors Fees	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	180000		Directors Fees
Other Expenses	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	36000		Other Expenses
Sub Total	**75000**	**75000**	**75000**	**75000**	**75000**	**75000**	**75000**	**75000**	**75000**	**75000**	**75000**	**75000**	**900000**		**Sub Total**
OFFICE EXPENSES															**OFFICE EXPENSES**
Rent & Leases	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	144000		Rent & Leases
Communications	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	60000		Communications
Utilities	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	18000		Utilities
Computing & other equipment	20000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	42000		Computing & other equipment
Stationery, postage, etc	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000		Stationery, postage, etc
Photocopying & printing	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	18000		Photocopying & printing
Insurance	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	36000		Insurance
Sub Total	**44000**	**26000**	**26000**	**26000**	**26000**	**26000**	**26000**	**26000**	**26000**	**26000**	**26000**	**26000**	**330000**		**Sub Total**
EXPLORATION COSTS															**EXPLORATION COSTS**
Exploration Manager	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	360000		Exploration Manager
Geologist	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	240000		Geologist
Geophysicist	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	20000	240000		Geophysicist
Research Students	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	120000		Research Students
Seismic Data Acquisition	2000000	1000000		500000	1000000	1000000		500000	1000000	500000			7500000		Seismic Data Acquisition
Processing & Interpretation		100000	200000			100000	200000			100000	100000	100000	900000		Processing & Interpretation
Total Seismic	**2000000**	**1100000**	**200000**	**500000**	**1000000**	**1100000**	**200000**	**500000**	**1000000**	**600000**	**100000**	**100000**	**8400000**		**Total Seismic**
Strat. Drilling & Mudlogging	250000		40000	250000	350000		300000	350000	350000				1890000		Strat. Drilling & Mudlogging
Prospect Drilling (3 wells)										350000	350000	400000	1100000		Prospect Drilling (3 wells)
Geochemistry	10000			10000	10000		5000	10000	10000	10000	10000	10000	85000		Geochemistry
Wireline Logging		60000			60000				60000				180000		Wireline Logging
Drillstem Tests			50000			50000				50000			150000		Drillstem Tests
Total Drilling	**260000**	**60000**	**90000**	**260000**	**420000**	**50000**	**305000**	**360000**	**420000**	**410000**	**360000**	**410000**	**3405000**		**Total Drilling**
EXPLORATION Sub Total	**2340000**	**1240000**	**370000**	**840000**	**1500000**	**1230000**	**585000**	**940000**	**1500000**	**1090000**	**540000**	**590000**	**12765000**		**EXPLORATION Sub Total**
OTHER COSTS															**OTHER COSTS**
Licence Fees to MRT	50000				50000				50000				150000		Licence Fees to MRT
Air Fares	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	72000		Air Fares
Accomodation	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	36000		Accomodation
Others	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	24000		Others
Sub Total	**61000**	**11000**	**11000**	**11000**	**61000**	**11000**	**11000**	**11000**	**61000**	**11000**	**11000**	**11000**	**282000**		**Sub Total**
TOTAL BUDGET															**TOTAL BUDGET**
Period	2520000	1352000	482000	952000	1662000	1342000	697000	1052000	1662000	1202000	652000	702000	14277000		Period
Cumulative	2520000	3872000	4354000	5306000	6968000	8310000	9007000	10059000	11721000	12923000	13575000	14277000			Cumulative
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	TOTAL		
INCOME															**INCOME**
Government Equity	1700000				1300000				1300000				4300000	30%	Government Equity
Loan Funds	2100000				1800000				1800000				5700000	40%	Loan Funds
GSLM Capital Raising		1700000				1300000				1300000			4300000	30%	GSLM Capital Raising
TOTAL INCOME	**3800000**	**1700000**	**0**	**0**	**3100000**	**1300000**	**0**	**0**	**3100000**	**1300000**	**0**	**0**	**14300000**		**TOTAL INCOME**
OPENING BALANCE	3800000	1280000	1628000	1146000	194000	1632000	1590000	893000	-159000	1279000	1377000	725000			**OPENING BALANCE**
CLOSING BALANCE	1280000	1628000	1146000	194000	1632000	1590000	893000	-159000	1279000	1377000	725000	23000			**CLOSING BALANCE**

62101

GREAT SOUTH LAND MINERALS - EXPLORATION PROGRAM 1998-2001

ID	Name	Duration	Start	Finish
1				
2	PRE-COMMERCIAL	848d	24/9/98	24/12/01
3	Proposal to State Gov by NCPGG	22d	24/9/98	23/10/98
4	Agree Project Scope & Funding Details	26d	26/10/98	30/11/98
5	Basin Study	800d	1/12/98	24/12/01
6				
7	COMMERCIAL	858d	16/9/98	28/12/01
8	Proposal to Government by GSLM	22d	24/9/98	23/10/98
9	Legal review of TOET structure	40d	16/9/98	10/11/98
10	Underwriting Commitment	0d	10/11/98	10/11/98
11	Seed Capital Funding	40d	11/11/98	5/1/99
12	Prospectus Preparation & Printing	60d	1/2/99	23/4/99
13	Float GSLM Limited	22d	1/5/99	1/6/99
14	Capital Raising $2M	22d	1/6/00	30/6/00
15	Capital Raising $3M	21d	1/6/01	29/6/01
16	Development Finance	217d	1/3/01	28/12/01
17				
18	EXPLORATION	775d	16/11/98	2/11/01
19	Resume Drilling Lonnavale	21d	16/11/98	14/12/98
20	Mobilise Drillrig to Hunterston	10d	15/12/98	28/12/98
21	Prospect Definition Seismic	500d	2/1/99	1/12/00
22	Ongoing Drilling Program	700d	1/3/99	2/11/01
23				
24	PRODUCTION	217d	1/3/01	28/12/01



Project: EXPLORATION PROGRAM
Date: 21/10/98

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

621019

621020

ATTACHMENT 3

Special Exploration Licence Application

621021

Mineral Resources Tasmania

Form No. E1
Tasmania
Mineral Resources Development Act 1995
Section 11, 22, 38

APPLICATION FOR EXPLORATION LICENCE

CLIENT ID.:
TENEMENT ID.:
EL No.:
(Office Use Only)

DETAILS OF APPLICANT(S)

1. Full name(s) or Company Name(s) of applicant(s) and percentage interest:

Surname or company name	A.C.N.	Given Name/s	%
GREAT SOUTH LAND MINERALS		LIMITED	100
		ACN 068 650 386	
Note: This application replaces SEL A 13/98			
(If insufficient space please attach list)			100

2. Postal address for Service of Notices: Level 3, 65 Murray Street
HOBART
TASMANIA Postcode: 7000

Email Address

Phone No: 6231 9339 Fax No: 6231 9338 Mobile No.: D. Tennie 0417 354 412

3. Name and address of Tasmanian contact: As Above.

Postcode:

Email Address

Phone No: Fax No: Mobile No.:

OFFICE USE ONLY

REGISTRY		CASHIER		DATA MANAGEMENT	
RECEIVED TIME	Hobart .....am/pm	Total Amount Paid	$.....	AREA AVAILABLE	☐ Yes ☐ No
DATE	/ /	Receipt No.:	.....		
		Cost Allocations:	905.900.487		
		- Application Fee	$.....		
			900.900.320		
ENTERED IN REGISTER Initial & Date	/ /	- Suspense A/c	$.....	CHECKED Initial & Date	/ /
		CASHIER Initial & Date	/ /		

RECOMMENDATIONS

(Date Stamp Records Only)

MANAGING GEOLOGIST	..... / /
DIRECTOR OF MINES	..... / /
Remarks:	

621022

4. LEASES AND LICENCES HELD, PENDING OR IN JOINT VENTURE (List all tenements)

Licence / Lease No(s) | Licences to be surrendered by Great South Land Minerals Ltd of issue of this new licence : EL 1/88
EL 9/95
EL 21/95

NOTE: If no tenements are held in Tasmania, provide a brief statement of experience and mining or exploration activities, details of financial resources available, and attach the last annual report (if a company)

5. PROFESSIONAL STAFF: Names, qualifications and experience of geoscientists responsible for and to be employed or engaged in the exploration program.

Dr Henry Askin BSc(Hons) PhD 25 years international experience with Shell as a Geophysicist and an Exploration Manager
Dr Clive F Burrett BSc(Hons) PhD 27 years experience in Tasmania as a Geologist
Mr Ian S R Reid BSc(Hons) 15 years international experience with Shell, now an independent consultant: Petroleum Geoscientist
Mr Gregory Kunda BSc(Hons) 2 years experience as a Project Geophysicist
Dr David Leaman BSc(Hons) PhD 20+ years working as a Consultant Geophysicist & Geologist
Mr Jonathon Knight BSc(Hons) 20+ years working as a geophysicist with Schlumberger and others

6. ESTIMATED EXPENDITURE COMMITMENT (For first TWO years)

Details	$	*Office Use Only*

621023

APPLICATION DETAILS

7. Project name (if any)

8. Specify the Category of Minerals and/or purpose for which this Exploration Licence is sought. (Do not use symbols)

Note: Category 1 *(ie. metallic and industrial minerals)* —

Category 2 *(ie. coal and peat and oil shale)* —

Category 3 *(ie. construction minerals- stone, clay & sand)* —

Category 4 *(ie. petroleum products except oil shale)* ✓

Specify Principal Commodities Sought / Purpose

☐	Cu, Pb, Zn, Ag	☐	Gold	☐	Sn, W, Mo	☐	Ni, Cr, Pt/Os/Ir
☐	Coal	☐	Oil shale	☑	Oil / Gas		
☐	Gemstones	☐	Industrial	☐	Construction materials		
☑	Other (specify) ..... Helium						

9. What is the area and general locality of this application? e.g. 50 skm, 15km SE of Mt Zeehan.

THE TASMANIA BASIN - Onshore

10. Is this an application for a special exploration licence under Section 38? YES

11. Is this an application for a small area under Section 22? NO

12. Does this application arise from an area advertised under the Exploration Tender Area (ETA) system? Yes ☐ No ☑

If yes state ETA number. ETA NO. .....

13. AIMS, EXPLORATION PHILOSOPHY, EXPLORATION PROGRAM: Applicants are requested to use these headings to outline their exploration philosophy and to detail the proposed exploration program.

Office Use Only

NOTE: If the space provided is insufficient, further sheets of the same size as this page (i.e. A4) should be attached and numbered.

621024

SIGNATURE

14. Applications may be personally lodged or delivered to the office of the Registrar of Mines by the applicant(s).

Full Name of Holders	Signatures of Holders	Date

Note: If an agent is signing this application on behalf of another, then it is necessary for the agent to produce written evidence of the authority so to act.

Address for Correspondence and Lodgement of Forms

Registrar of Mines
Mineral Resources Tasmania

Postal Address:
P O Box 56
ROSNY PARK TAS 7018

Street Address:
Cnr. Gordons Hill Road
& Bligh Street
ROSNY PARK TAS 7018

Telephone: (03) 6233 8341 or (03) 6233 8407
Facsimile: (03) 6233 8338

Further advice may be obtained by contacting:

Managing Geologists	Dr Geoff Green - Metallic Minerals	Carol Bacon - Non-metallics & Hydrocarbons
	(03) 6233 8335	(03) 6233 8326

621025

CHECKLIST

The following must accompany the application:	Please tick

(a) a plan showing the application area ☐

(b) a statement, acceptable to the Minister specifying:- ☐

(i) details of exploration data, searches, geological concept/models and other criteria used in the selection of the area

(ii) proposed exploration programme and budget for <u>each of the first two years</u> of the term providing
details of investigation, methods to be used and estimated duration of each investigation

(iii) numbers and qualifications of professional and other staff responsible for planning, conducting and reporting the investigations

(iv) a brief description of machinery, equipment, etc. to be used and proposed measures to minimise damage to the environment and rehabilitate areas disturbed

<u>NOTE: This information may be provided on this form or separately.</u>

(c) a separate statement, acceptable to the Minister specifying : - ☐
- the financial status, technical resources and mining interests held by the applicant and
- details of annual budget for exploration and mining interests held in Tasmania

(d) copy of current annual report if not previously provided to Registrar ☐

(e) The following must accompany this application: ☐
Proof of . identity of applicant
. minimum age of 18 years if applicant is not a company.
eg.
- *Individual* Photocopy of Driver's Licence, Passport
- *Company* Photocopy of Certificate of Incorporation or Australian Companies Number (A.C.N.)

(f) a separate summary of the proposed exploration program for public distribution ☐

(g) Environmental Impact Information (see Page 6) ☐

(h) Prescribed fees: ☐

(i) Application Fee		
- Oil	$1,200	
- Minerals (other than Oil)	$600	
(ii) Annual Rent		☐
- Oil	$1	per skm
- Minerals (other than Oil)	$15	per skm

621026

MINERAL RESOURCES TASMANIA

MINIMUM ENVIRONMENTAL IMPACT INFORMATION TO ACCOMPANY EXPLORATION LICENCE APPLICATIONS

The purpose of this form is to **outline** works which are, or may be, proposed during the term of the exploration.

EL No.: ..... **Applicant:** .....

1. Land Status:

Uncommitted Crown	☐	State Forest	☐	HEC Vested Lands	☐
Conservation Area	☐	Protected Area	☐	Private Property	☐
Other (Please Specify)					

2. Present Land Use:

Natural or Undisturbed	☐	Disturbed	☐	Timber Harvesting	☐
Recreation	☐	HEC Land	☐	Grazing	☐
Other (Please Specify)					

3. Outline of Proposed Work Program: (Work which may be undertaken during the next 12 months)

Literature Review	Yes ☐	No ☐	Field Work	Yes ☐	No ☐

4. If field work is planned please complete the following:

Walking Tracks / Grid Lines:			**Tracked Vehicles:**		
use existing tracks	Yes ☐	No ☐	use existing tracks	Yes ☐	No ☐
cut new grid lines, tracks*	Yes ☐	No ☐	renovate old tracks*	Yes ☐	No ☐
			construct new tracks*	Yes ☐	No ☐
Wheeled Vehicles:					
use existing tracks	Yes ☐	No ☐	**Aircraft:**		
renovate old tracks*	Yes ☐	No ☐	renovate old helipad*	Yes ☐	No ☐
construct new tracks*	Yes ☐	No ☐	form new helipad*	Yes ☐	No ☐

5. Prospecting methods: (Which may be used during the next 12 months)

Geological Survey	Yes ☐	No ☐	Manual Digging	Yes ☐	No ☐
Geochemical Survey	Yes ☐	No ☐	Mechanical Digging	Yes ☐	No ☐
			Hand Auger Drilling	Yes ☐	No ☐
Geophysical Survey	Yes ☐	No ☐	Mechanical Drilling	Yes ☐	No ☐
· by foot/vehicle access	Yes ☐	No ☐	Blasting	Yes ☐	No ☐
by air	Yes ☐	No ☐	Bulk Sampling	Yes ☐	No ☐

6. Earthworks and Land Disturbance planned during the next 12 months:
(To be undertaken only with prior written permission)

Costeans *	Yes ☐	No ☐	Drill-holes *	Yes ☐	No ☐
Pits *	Yes ☐	No ☐	Vegetation clearing *	Yes ☐	No ☐

Enquiries:

Environmental Management Section:
Managing Geologist: (03) 6233 8326
Field Officer: (03) 6233 8367

Registry Section:
Registrar of Mines: (03) 6233 8341

* If *Yes* answered to any of these questions, details of the work program should be submitted to Mineral Resources Tasmania, on the appropriate form (pink), together with a legible map, preferably at 1:100 000 or 1:25 000 scale clearly showing the location of any proposed grids, tracks costeans, drill pads and so on.

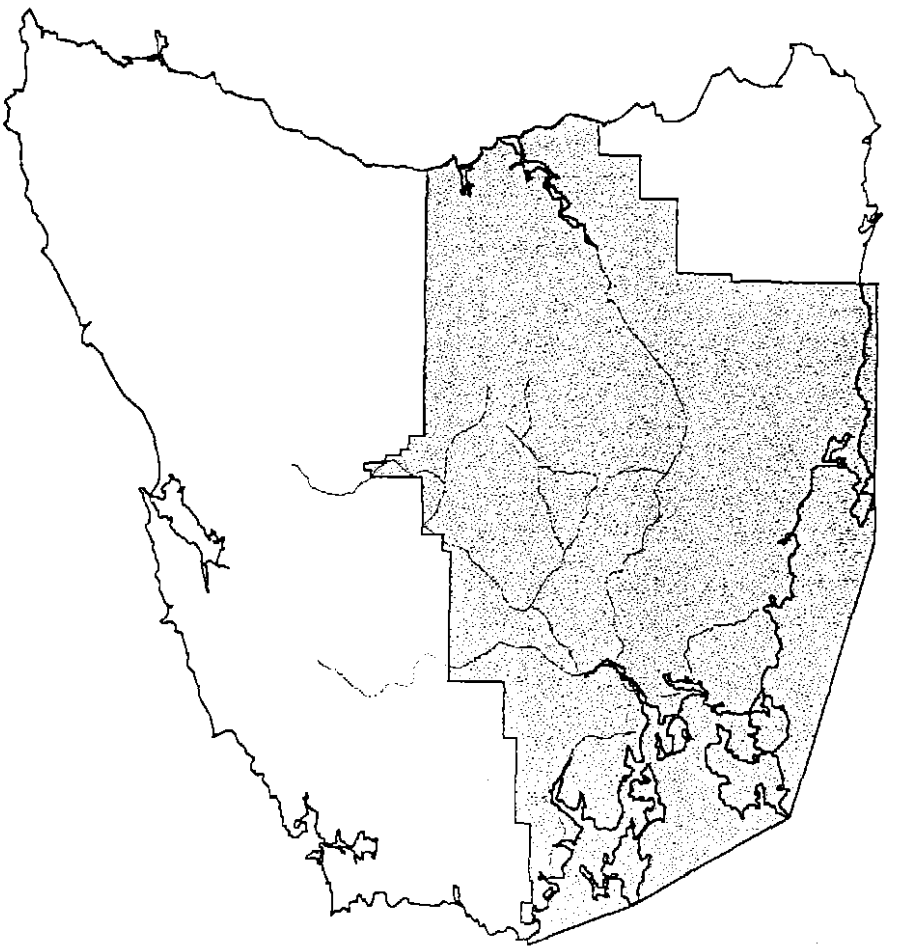
For further explanation of any of the above please attach a separate sheet.

621027

Great South Land Minerals Limited

Application for Special Exploration Licence

October 1998



621028

ATTACHMENT 4

Gordon Below Franklin Dam

Compensation Overview

621029

DAM COMPENSATION FUND OVERVIEW

The Gordon-below-Franklin Dam Compensation Fund was established by the Hawke labour government after 1st July 1983, when a High Court ruling led to cessation of construction by the HEC of the Lower Gordon Power Development Scheme. The Memorandum of Understanding was signed on 26th June 1984.

- It was based on the principle of compensating Tasmania for costs incurred in forgoing 180MW of low cost power generation from the Lower Gordon Scheme.
- The amount of compensation agreed was based on the $500 million originally offered by the Fraser coalition government.
- $52 million of these funds were spent on non-energy related capital works to maintain employment in the period immediately following cessation of work on the Lower Gordon Scheme.
- Energy subsidies were based on an estimate of the cost of replacing the 180MWLTA generating capacity with a similar amount of higher cost energy, either from smaller hydro schemes or from thermal energy sources.
- The King and Anthony-Henty Schemes were completed by the HEC in the early 1990's, and received capital subsidies for their total LTA capacity of 112MW. The amount agreed was $20 million per annum for 10 years, adjusted for inflation. Payments to HEC finally totalled $276 million, plus $24 million for work carried out on the abandoned Lower Gordon Scheme.
- This leaves 68 MW capacity yet to be replaced, and the notional value of the outstanding subsidy would therefore have been at least $121million in 1983 dollars, or over $200 million in 1998.
- The actual subsidy payable on 68 MW for each cent per unit rise in energy cost amounts to $6 million per annum. This amount can be capitalised for hydro plant, but is more difficult to deal with in relation to thermal generation.
- If natural gas is selected as the next likely energy source for Tasmania, there is a very good case to argue for spending a proportion of these compensation funds in helping to develop the potential for lower cost onshore gas resources, in preference to being reliant on more expensive imported gas.
- A gas fired generator producing an average of 68MW would require about 6PJ of gas per year. If the price advantage of onshore gas was $1.60/GJ over imported gas, then the annual cost saving would be $9.6million. On that basis, a $19million investment would be covered in 2 years.

621030

ATTACHMENT 5

Tasmania Basin Resource Estimates

ATTACHMENT 5

RESOURCE ESTIMATES - COMPARISONS WITH SIMILAR BASINS

It has been noted that the Tasmania Basin is geologically similar to parts of the Southern Oman Basin and the Cooper Basin.

Some statistics and production data for these basins are provided in Table 2:

BASIN:	SOUTH OMAN	COOPER/ EROMANGA
Area – square km	55,000	130,000
Exploration started	1937	1954
First commercial discovery	1956	1963
Wells drilled	200+	800
Oil fields	50+	55
Gas fields		119
Seismic - km		85,267
Oil production – daily [1]	300,000 bbl/day	
Crude oil [2]		441 MMbbl
Natural Gas [2]		2637 Bcf
LPG + Condensate [2]		1122 MMbbl
Total Gas resource [3]		4520 PJ

[1] Southern Palaezoic Basin only – total Oman production 800,000 bbl/day
[2] Santos estimate of total remaining reserves as at 1/1/94, Cooper & Eromanga Basins
[3] BMR estimate 31/12/89

Table 2 – Comparison with South Oman & Cooper Basins

While the above figures provide some indication of the upside potential of the Tasmania Basin, it is worth noting that an annual production of only 10 Bcf of gas plus 1 MMbbl of oil would be valued at about A$42 million. A State Government royalty of 12% would generate $5 million per annum on this minimal production.

The Tasmanites oil shale has the capacity to produce approximately 2 barrels of oil and 2,700 cubic feet of gas per cubic metre.

Assuming a source rock generation potential of 1 bbl per cubic metre with a source rock thickness averaging 10 metres over a 30,000 km^2 area of the Basin, and conservatively assuming 1% of the hydrocarbons generated have been retained, the Tasmania Basin has retained 3 billion barrels of oil and 4 Tcf of gas.

As a comparison, the Cooper/Eromanga Basin is estimated to contain a gas resource of 4.5 Tcf (BMR, 1989), from a productive area similar in size to the Tasmania Basin.

621032

ATTACHMENT 6

Extract from the

MINERAL RESOURCES DEVELOPMENT ACT 1995;

Division 4–Special exploration licences

 621033

An extract from the,

MINERAL RESOURCES DEVELOPMENT ACT 1995

No. 116 of 1995

TABLE OF PROVISIONS

Division 4 —*Special exploration licences*

Division 4 —Special exploration licences

Application for special exploration licence

38–(1) A person may apply to the Minister for a special exploration licence for minerals in a specified region.

(2) An application is to-
(a) be in an approved form; and
(b) specify the category of minerals in respect of which it is made; and
(c) be accompanied by a statement specifying a description of the area of land in respect of which the licence is sought; and
(d) be accompanied by a fee determined by the Minister; and
(e) be accompanied by a statement specifying the likely impact on the environment; and
(f) contain any other details the Director requires; and
(g) be lodged with the Registrar.

(3) The Registrar or the Director or both may require an applicant to provide further information.

Recommendation of application for special exploration licence

39–(1) The Director is to consider an application for a special exploration licence.

(2) If the Director intends to recommend to the Minister that the application be granted, the Director is to–
(a) notify that intention by notice in writing–
(i) to the applicant; and
(ii) as required by section 29 of the *Native Title Act 1993* of the Commonwealth; and
(b) publish a notice of that intention in a newspaper circulating in the relevant area.

(3) A notice under subsection (2) (b) is to specify–
(a) the name of the applicant;
(b) the area of land in respect of which the application is made; and
(c) any other prescribed matter.

(4) The Director may only recommend that the Minister grant an application for a special exploration licence if satisfied that the applicant–
(a) intends to do work in the specified region; and
(b) intends to comply with this Act; and
(c) has an appropriate program of work; and
(d) is likely to have sufficient financial and technical resources to carry out the proposed work; and

(e) has provided sufficient information relating to the likely impact on the environment; and
(J) has provided a security deposit.

Objection to special exploration licence

40–(1) Any person with an interest or estate in land within the area specified in a notice published under section 39 may object to the granting of the application for a special exploration licence in respect of that land.

(2) An objection is to-
(a) be in writing; and
(b) specify the grounds; and
(c) be accompanied by the prescribed fee; and
(d) be lodged with the Registrar within 28 days after the date of the publication of the notice under section 39.

(3) An objection is to be heard and determined by the Mining Tribunal.

Granting application for special exploration licence

41–(1) After considering an application for a special exploration licence and any recommendation of the Director and subject to any decision of the Mining Tribunal, the Minister may–
(a) the grant of the application; or
(b) refuse to grant the application.

(2) If the Minister intends to grant an application for a licence contrary to the recommendation of the Director–
(a) the Director is to notify that intention in accordance with section 39 (2) and (3); and
(b) a person with an interest or estate in the land is entitled to object in accordance with section 40.

(3) The Minister, by notice in writing, must notify the applicant of–
(a) the grant of the application; or
(b) the refusal to grant the application and the reasons for the refusal.

Conditions of special exploration licence

42-(1) The Minister may grant an application for a special exploration licence subject to any conditions the Minister considers appropriate.

(2) If a licence is held by 2 or more persons, those persons are jointly and severally liable for complying with the conditions of the licence.

(3) The Minister may vary or rescind any condition of the licence.

Authority of special exploration licence

43–A special exploration licence authorizes the holder to explore for a specified category of minerals in a specified area of land.

Term of special exploration licence

44–(1) A special exploration licence is in force for a period of 5 years from the date on which it is granted.

(2) The Minister may extend the term of the licence for any period so long as the total term of the licence does not exceed 10 years.

Area of land comprised in special exploration licence

45–(1) The area of land comprised in a special licence may–

(a) exceed the area specified in section 20 (1) in respect of the relevant category of minerals; and

(b) include all or part of an area of land comprised in any exploration licence, retention licence or lease so long as any category of mineral specified in the special exploration licence is not the same as any category of mineral specified in those licenses or that lease.

(2) Any area of land previously comprised in a special exploration licence and included in an exploration licence ceases to be comprised in the special exploration licence.

Revocation of special exploration licence

46–(1) The Minister may revoke a special exploration licence or part of a special exploration licence if–

(a) the licensee fails to comply with, or contravenes–

(i) any provision of this Act; or

(ii) any condition of the licence; or

(b) satisfied that any area of land comprised in the licence is required for any public purpose.

(2) Before revoking a special a special exploration licence or part of a special exploration licence under subsection (1) *(a)*, the Minister–

(a) by notice in writing served on the licensee, is to notify the licensee of the intention to revoke the licence or part of the licence; and

(b) is to give the licensee an opportunity to make submissions in relation to the matter.

(3) If the Minister revokes a licence or part of a licence, the Minister, by notice in writing, is to notify the licensee.

(4) If the Minister revokes a licence or part of a licence under subsection (1) *(b)*, the licensee is entitled to compensation under Part 8.

(5) The Minister, by notice published in the *Gazette*, may notify the revocation of a licence or part of a licence.

(6) A licensee may appeal to the Mining Tribunal against the Minister's decision to revoke the licence within 28 days after the date of the decision.

(7) The revocation of a licence or part of a licence takes effect-

(a) if an appeal is not made under subsection (6), 28 days after publication of a notice under subsection (5);

or

(b) if an appeal is made under subsection (6) and the Mining Tribunal makes an order alarming the decision, 10 days after the date of the order.

ATTACHMENT 7

Tasmanian Energy Market Overview

Tasmania

MAJOR PROJECTS TASMANIA

621039

Mr David Tanner
Director
Great South Land Minerals Pty Ltd
3rd Floor, MLC Building
65 Murray Street
HOBART TAS 7000

Dear David,

Enclosed herein is the Tasmanian energy demand information you requested, along with some additional material concerning energy supply which may be of interest.

I hope the information meets your needs and wish you well in your proposed on-shore seismic program.

Yours sincerely,

Gary Swain
PROJECT ANALYST

10th Floor, 22 Elizabeth Street, Hobart 7000 GPO Box 646, Hobart Tasmania Australia 7001
Telephone: (03) 6233 5869 *Facsimile:* (03) 6233 5711 *E-mail:* mpt@tdr.tas.gov.au

Tasmanian Energy Market Overview

Energy Demand

Total existing Tasmanian demand: 91.5 bcf (100 Pj)

Main components of demand:

- manufacturing sector 38 bcf
- transport sector 23 bcf
- commercial and domestic 17 bcf

The manufacturing sector consumes 20 bcf of electricity; 60 per cent of the total amount of electricity consumed in Tasmania.

Potential Sources of Natural Gas Demand

There are three main potential sources of natural gas demand.

Power Generation

- Up to 500 MW average of project-related additional electricity demand could emerge in Tasmania over the next five years. This additional demand is associated with a combination of new projects and existing operation expansions.
- Major potential electricity users are Crest Resources Pty Ltd (magnesium) and Australian Bulk Minerals (pig iron, DRI or steel).
- Over four bcf of cogeneration conversion potential is believed to exist among existing industrial users (mainly in wood and wood processing operations).

Industrial

- Tasmania's largest 20 industrial users consume about 9 bcf of non-electrical energy per annum (wood, coal, fuel-oil, diesel, LPG)
- Of the 9 bcf total, coal accounts for about 5 bcf of demand while fuel-oil accounts for approximately 2.75 bcf.
- Over the next five years, an additional 5 to 8 bcf of annual natural gas demand is expected to be created by new projects and expansions that will require natural gas as a feedstock and for heating.

Commercial and Domestic

- This segment of the potential market is estimated to be about four bcf.

Supply

Total existing Tasmanian supply:	91.5 bcf (100 Pj)

Main components of supply:

• petroleum products	33.9 bcf
• hydro electricity	32.9 bcf
• black coal	10.5 bcf
• wood waste	10.0 bcf

Other Supply Related Key Facts

- All petroleum products are imported.
- Boral Energy, through its subsidiary the Gas Corporation of Tasmania, dominates the LPG market and is believed to have an 86 per cent market share.
- Other LPG suppliers are Mobil, Norvac and BOC.
- There are two Tasmanian producers of coal: Merrywood Coal Company and Cornwall Coal Company.
- Tasmanian coal is high in ash content but low in sulphur.
- There is no town gas in Tasmania.
- Wood waste is generally only used in bulk by companies operating in the wood and paper industry.
- Electricity is produced and supplied by the recently disaggregated Hydro Electric Corporation through its 27 power stations.
- Bell Bay thermal station runs on fuel-oil and is only used for emergency back-up.
- There is no potential to construct additional large-scale hydro schemes at an economic cost.
- Sustainable hydro supply capacity is approximately 1,112 MW average.
- Installed hydro capacity is around 2,500 MW ~~average~~.
- Existing Tasmanian electricity demand fully utilises sustainable hydro electricity supply.

ENERGY CONVERSIONS AND COMPARISONS

621042

Notes collected from various sources by D Tanner, September 1998

The total energy demand in Tasmania from all sources is currently about 100PJ.

1. ELECTRICAL ENERGY

The standard unit of electrical energy is a kilowatt-hour, while thermal energy is generally measured in kilojoules (which is a little less than one British Thermal Unit – BTU)

Based on	1 Watt-sec = 1 Joule
Then	1 kW-hr = 3600 kJ (1 Kilojoule = 10^3 Joules) = 3412 BTU
or	1 MW-hr = 3.6 GJ (1 Gigajoule = 10^9 Joules)
or	31.7 MW-year = 1.0 PJ (1 Petajoule = 10^{15} Joules)

i.e. Generation of 31.7 Megawatts of electrical power for one year is equivalent to one petajoule of thermal energy. Note that, because of conversion efficiency (see section 4), it would require about 3 PJ of gas to generate this amount of electrical energy from a gas turbine plant.

The present average electrical power demand in Tasmania is about 1100 MW, which is therefore equivalent to about 35 Petajoules of thermal energy per annum, or 35% of the present total energy demand in Tasmania.

2. NATURAL GAS

1,000 cubic metres (or 35,315 cubic feet) of natural gas produces 38.2 Gigajoules of thermal energy.

i.e. 1000 cubic feet of natural gas produces 1.08 GJ

or 1.08 PJ = 1 BCF (billion cubic feet)

When liquified, 1 tonne of LNG occupies 2385 litres and produces 1400 cubic metres of gas.

2.1 Costs

- Approximate wellhead value in Australia is approximately $2.15/GJ or $2.30/Thousand cubic feet. In electrical energy terms, this is equivalent to 0.77 cents/kW-Hr.
- Gas transmission costs are typically in the order of 70 cents/GJ giving a City Gate price of $2.85/GJ (NSW). Victorian City Gate prices have historically been lower ($2.40/GJ) due to surplus production from the Gippsland Basin.
- Industrial supply costs are generally over $4/GJ (say 1.5 cents/kW-Hr) depending on distribution arrangements.
- Commercial and Residential costs can be as much as $10/GJ (3.6 cents/kW-Hr) where reticulation costs are high.

3 OTHER ENERGY SOURCES

3.1 Oil

1.0BOE (Barrel of Oil Equivalent) = 6119 MJ = 6.119 GJ
This is the amount of energy produced by 158.7 cubic metres (5604 cubic feet) of Natural Gas. Or to put it another way, in energy equivalent terms:

1 litre of oil = 1 cubic metre of natural gas

Costs:

- At current oil prices of around $AUS25/bbl, 1 litre of oil is worth about 16 cents,

- At a wellhead value of $2.30/Thousand cubic feet of gas, 1 cubic metre of natural gas is worth 8 cents.

- That is, natural gas is about half the cost of oil for a given amount of energy. Note that this ratio still holds true at a pump price for oil of 75 cents/litre and domestic gas at $10/GJ.

3.1 LPG – Propane and Butane

The sale of butane is mostly restricted to small canisters used for portable appliances. Density is 1720 litres/tonne.
Most commercial LPG is propane, which is less dense than butane at 1960 litres/tonne. This compares with LNG (predominantly methane) at 2385 litres/tonne.
All liquified petroleum gases convert to thermal energy at 50 MJ / kg or 50 GJ /tonne.

Costs:

- In Tasmania, bulk LPG sells at around 25-30 cents / litre, or $10-12 / GJ compared to natural gas at $4-5 / GJ.

- The pump price for motor vehicle use is around 38 cents / litre, compared with mainland prices as low as 18 cents / litre. These prices are supposedly linked to Saudi Arabia pricing, where most of the world supply of propane is sourced.

- Domestic supply of LPG in large cylinders is around $1/kg or 50 cents/litre, which translates to $20/GJ or 7.5 cents/kW-Hr.

4. ELECTRICITY GENERATION FROM GAS

4.1 Gas Turbines

- Low capital cost - $400/kW
- Low efficiency – 31% for 200 MW plant

Gas turbines are often used as peaking plant, where efficiency is not important and capital cost needs to be minimised.

A 200 MW Industrial Gas Turbine Plant operating at 50% capacity factor would require 10 PJ of gas per annum. At a gas price of $4/GJ, cost of electricity would be 6.5c/kW-Hr.

However, if the plant was located at wellhead, a gas price of $2/GJ would deliver electricity at around 4c/kW-Hr.

4.2 Steam Cycle

- high capital cost - $1000/kW
- moderate efficiency – 37% for a 600 MW plant.

This is the type of plant which would result from the conversion of the existing Bell Bay Oil-fired thermal plant to natural gas.

4.3 Combined Cycle Plant

This is where waste heat from a gas turbine is used to power a steam turbine.

- moderate capital cost - $800/kW
- higher efficiency – 45% and up to 48%

This is the type of plant that would be selected for base load duty, and at a gas cost of $2/GJ could deliver electricity at less than 4c/kW-Hr.

A 600MW plant (capital cost $480 million) operating at 70% capacity would require 30PJ of gas per annum.

Cost of 30PJ gas @ $2/GJ = $ 60 million
Value of electricity produced @ 4 c/unit = $147 million

Simplistically, annual costs would be approximately as follows:

	$ million
Return on capital @ 10%	48
Straight line depreciation over 25 yrs	19
Operation and Maintenance	20
Gas supply	60
TOTAL	**$147 million**

Doubling the price of gas to $4/GJ would increase the cost of electricity to 5.6 c/unit, which is the average cost of HEC energy at present.

621045

ATTACHMENT 8

Hard Copy of Presentation Overheads

PROPOSAL HEADINGS

1 INTRODUCTION

2 THE CASE FOR ONSHORE PETROLEUM EXPLORATION

3 IMPEDIMENTS TO EXPLORATION ONSHORE

4 EXPLORATION SCHEDULE

5 EXPLORATION LICENCES

6 G.S.L.M. FUNDING

7 JOINT VENTURE PROPOSAL

8 FUNDING BY GOVERNMENT

SYNOPSIS

- Early efforts unsuccessful - too shallow
- No development production
- Mainland Basins perceived more attractive
- No government initiatives or encouragement
- Industry investment follows success

INTRODUCTION

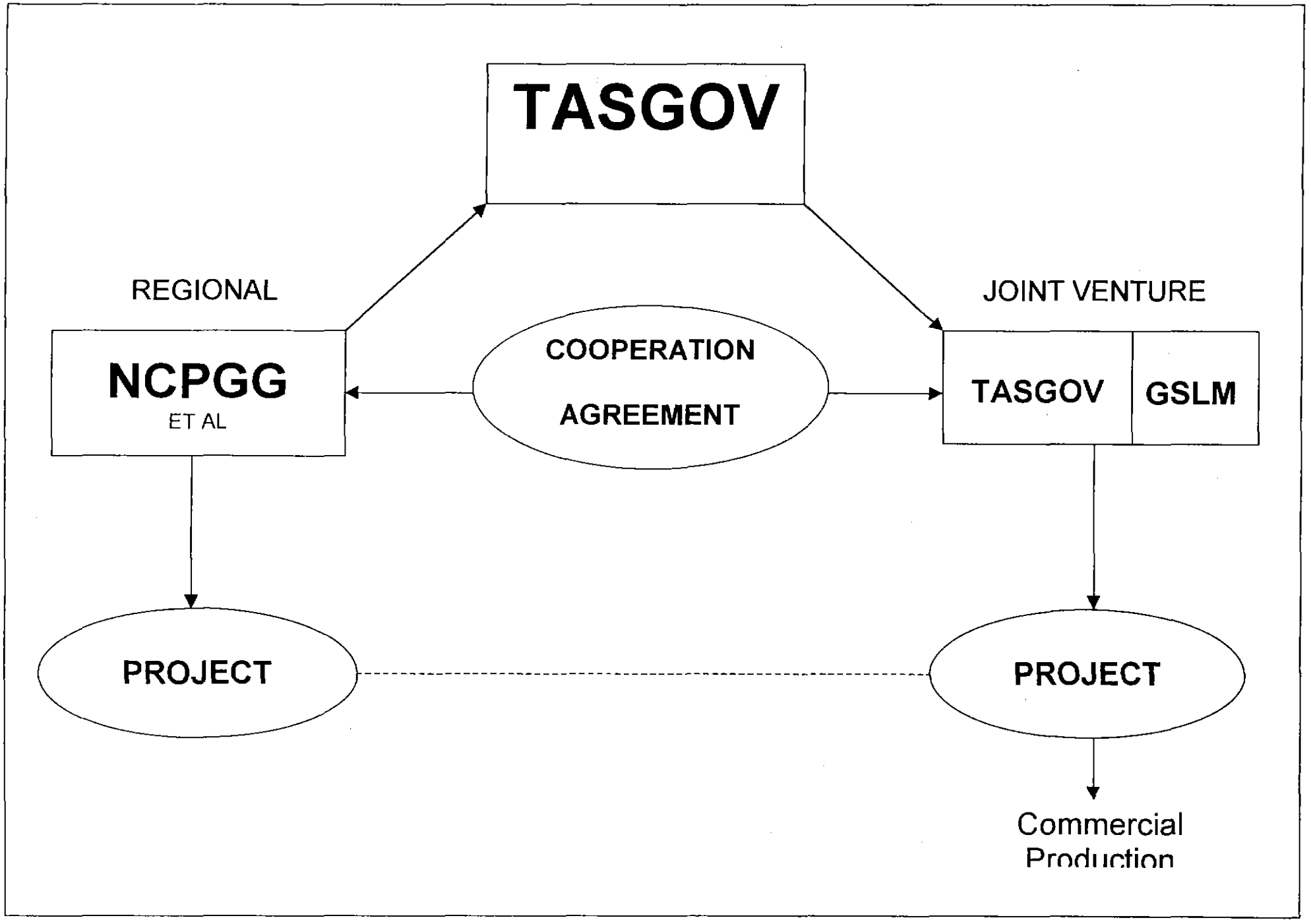
- Tasmania Basin is prospective
- First flow by 2001
- Market demand indicates urgency for action
- Now is the time to act

621048

WHY NCPGG ?

- Need for pre-commercial Basin Study
- NCPGG are nationally recognised experts in their field
- Provides a strong argument for Federal funding

621049


TASGOV
REGIONAL
JOINT VENTURE
NCPGG
ET AL
COOPERATION
AGREEMENT
TASGOV
GSLM
PROJECT
PROJECT
Commercial
Production

621050

WHY A JOINT VENTURE ?

- Accelerates Exploration Program to ensure possible commercial outcome
- Provides for substantial public ownership
- Large revenue generation for the State
- High percentage of profits retained in Tasmania
- Assists in raising venture capital
- Builds on existing knowledge & expertise

CONCLUDING ACTIONS

- Execute Heads of Agreement
- Commitment by Minister on issue of SEL for 5 years
- Agreement to promote Federal funding of NCPGG proposal
- Conclude Joint Operating Agreement by 31.12.98

621052

621053

8th March, 1935.

Dear Sir,

A copy of your communication, dated 6th December, 1934, to the Governor General of the Commonwealth, has been forwarded to this office for reply direct.

In response thereto I desire to state that the Government of this State is not interested in the question of seeking a supply of oil and gas for domestic purposes for the reason that the geological structure of the island is not considered favourable for locating same.

Yours faithfully,

SECRETARY FOR MINES.

G.R. Courter Esq.,
Courter Oil Co.,
811 First National Bldgs.,
OKLAHOMA CITY,
OKLAHOMA.

621054

(COPY)

COURTER OIL CO.

811 First National Building,

OKLAHOMA CITY, OKLAHOMA.

December 6, 1934.

Rt. Hon. Sir Isaac Alfred Isaacs,
Governor-General of Australia,
Government House,
CANBERRA. F.C.T. AUSTRALIA.

Your Excellency:

I noticed an article in the Kansas City Star newspaper wherein the Australian Government was seeking a domestic source of oil and gas.

A couple of experienced and thoroughly competent, independent oil operators would be interested in developing the natural oil and gas resources of the British Empire in Australia.

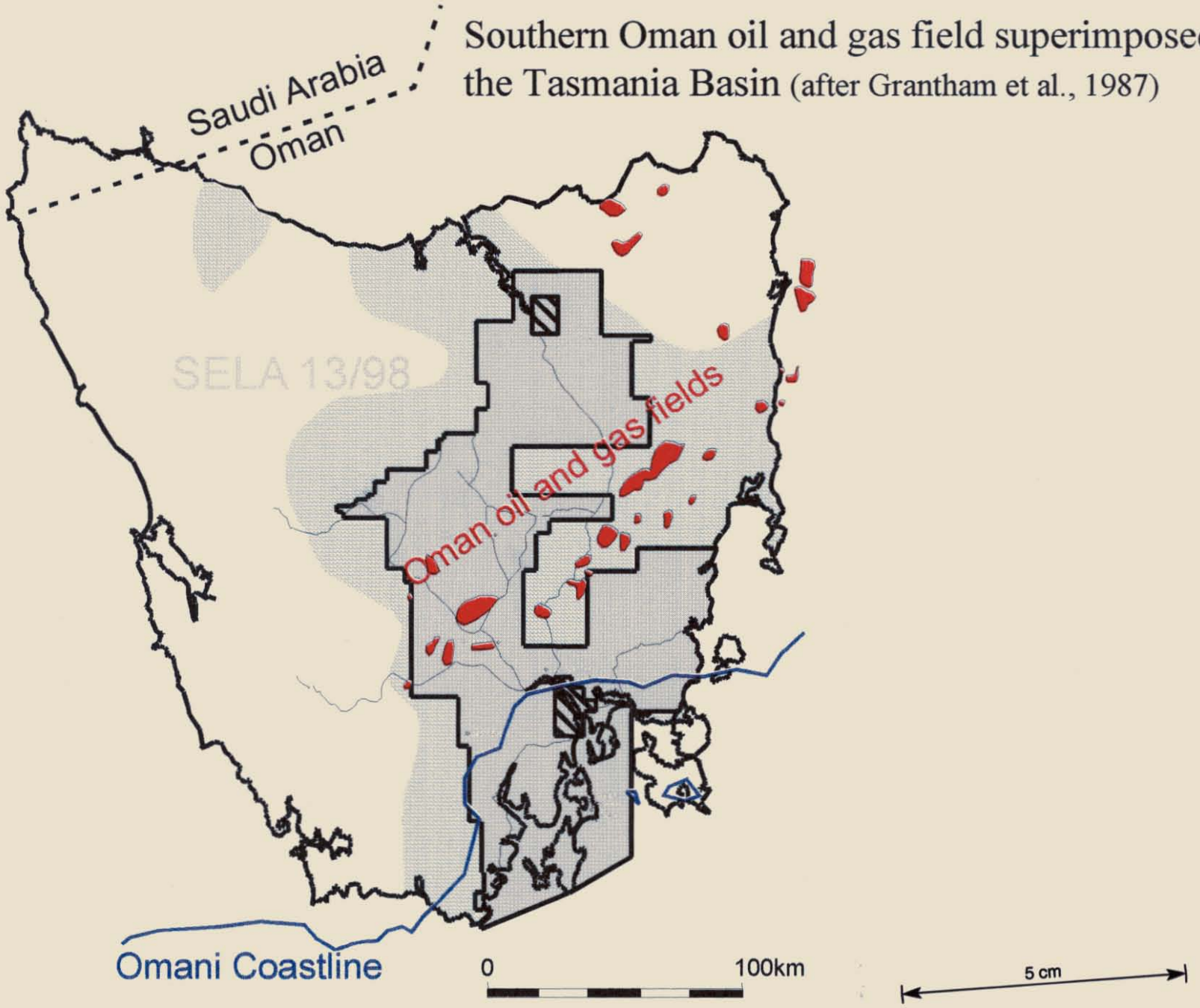
If this inquiry and suggestion creates favourable interest, would appreciate opening a proposition to the complete satisfaction of all parties concerned.

Yours very truly,

(Sgd.) G. R. COURTER.

[illegible] Commonwealth 6? Dec 1934
[illegible] Board, of the Commonwealth has
[illegible] the office for supply direct.
[illegible] hereto [illegible] to States that
[illegible] State is not interested in the question
[illegible] supply [illegible] oil and gas for domestic
[illegible] for the reason that the [illegible]
[illegible] the Island is not concerned [illegible]
[illegible] [illegible]
[illegible]

Southern Oman oil and gas field superimposed on the Tasmania Basin (after Grantham et al., 1987)



621055