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IODINE IN TASMANIAN SURFACE WATERS - PETROLEUM EXPLORATION SIGNIFICANCE

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Natural iodine concentrations are generally low in rocks, soil and surface water but are high in subsurface brines associated with petroleum-bearing basins. About 26% of annual USA production of iodine is from sodium iodide in deep subsurface brines pumped from the Paleozoic rocks of the Anadarko Basin, Oklahoma (Johnson & Gerber 1999). Surface and subsurface analyses of iodine in water, sediments and soil have been used as geochemical indicators of subsurface petroleum accumulations in Ukraine , Russia , USA and Japan (e.g. Leaver & Thomasson 2003; Gallagher 1983; Gordon, 1992; Kudelskiy 1976: Moody & Ervin 2001; Kunisue, et al., 2002 & Tedesco 1993, 1997,1998).

Unpolluted freshwater has values of 1.5 -2.5 ug L. (Whitehead 1984).

In 2005, Dr Paul Richards organized, through the state government of Tasmania , an analytical program for measuring iodine in surface waters in eastern Tasmania. These data were published as part of a larger project on iodine deficiency in Tasmania (Richards & Stewart, 2007).

We have contoured the data using the program SURFER and presented these as three maps (Figs 1-3). Some differences between samples collected at different times of year are apparent and may be due to a variety of factors which need to be explored. Contouring may be skewed by a lack of data from central and western Tasmania.

The results show near normal values over most of eastern Tasmania with highs at the Coal River, Tunbridge, Macquarie River and Carlton River sites. Several of the iodine anomalies lay above or near major faults and could be interpreted as leaking basinal brine. Interestingly, these anomalies are close to the NNW-SSE Tamar Fracture System which was first identified by Parkinson et al. (1988) on the basis of induced electromagnetism. A very pronounced conductivity maximum point to a highly conductive fluid at depth which Parkinson suggested is brine.

These anomalies are unlikely to be the result of iodine in rainfall or in soil, as modeling by Butler et al. (2007,Fig. 8) shows that most of the anomalously high values fall within their predicted iodine deficient area.

Clearly more analyses are needed but the high iodine values which are up to ten times what might be expected are encouraging for petroleum exploration. For soil surveys, Tedesco (1997) recommends a general geochemical survey using existing road networks followed by a detailed survey at a grid distance of 350m in order to define areas of leakage. He shows that combining seismic and iodine surveys substantially increases the chances of exploration success.

References

Butler, E.C.V., Grose, M., Burrett, C., Pook, M. & Doyle, R., 2007 Iodine Cycling in the ecosphere and its relevance to Tasmania *In* Richards, P. & Stewart, J. (eds.) *Goitre Monitor- The History of Iodine Deficiency in Tasmania*, Myola, Launceston, p. 10-60.

Gallagher, A., 1983 Iodine; a pathfinder for petroleum deposits, *American Association of Petroleum Geologists Bulletin* 67 p466.

Gordon, T., 1989 The use of iodine and selected trace elements in petroleum and gas exploration. Unpublished Master's Thesis , Eastern Washington University , 130pp.

Johnson, K. & Gerber, W., 1999 Iodine geology and extraction in northwestern Oklahoma, *Circular Oklahoma Geological Survey* 102 73-79.

Krylova, L., 1977 Exploration significance of iodine distribution in the bedrock and weathering crust of Maykain deposit, *International Geology Review* 20, 357-361.

Kudelskiy A., 1977 Forecasting petroleum prospects on the basis of amount of iodine in subsurface waters, *International Geology Review*, 20 362-366.

Kunisue, S., Mito, I., & Waki, F., 2002 Relationship between subsurface geology and productivity of natural gas and iodine in the Mobara gas field, central Japan, *Journal Japanese Association of Petroleum American Association of Petroleum Geologists Annual Meeting* Leaver, J. & Thomasson, M., 2003 Case studies relating soil geochemistry to subsequent drilling , *American Association of Petroleum Geologists Annual Meeting* 10 305.

Parkinson, W. D. & Hermanto, R., 1986 The Tamar Conductivity Anomaly, Exploration *Geophysics* 17 34-35.

Richards, P. & Stewart, J., 2007 *Goitre Monitor- The History of Iodine Deficiency in Tasmania*, Myola, Launceston, 383pp.

Tedesco, S., 1993 Exploring for dolomite chimney reservoirs using iodine surface geochemistry, *Annual Conference Ontario Petroleum Institute, London Ontario*, 32 1-19

Tedesco, S., 1997 Integration of seismic and iodine surface geochemistry to finding Mississippian reservoirs, Williston Basin, *American Association of Petroleum Geologists Annual Meeting* 6 115.

Tedesco, S., 1998 Iodine data help focus Williston Red River search, *Oil and Gas Journal*, 96 83-86.

Whitehead, D., 1984 The distribution and transformation of iodine in the environment, *Environment International* 10 321-339.

The Directors
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23rd August, 2007

Gentlemen,

Independent Evaluation of Special Exploration License SEL 13/98

Great South Land Minerals Limited (GSLM), a wholly owned subsidiary of Empire Energy Corporation, requested that RPS Energy (RPS) provide an independent evaluation of Special Exploration License SEL 13/98 as a part of their application for admission to trade on the Alternative Investment Market of the London Stock Exchange Plc (AIM).

GSLM holds 100% interest in the Special Exploration License SEL 13/98 which covers the potential prospective portion of the Tasmania Basin. The permit area is approximately 30,000 square kilometres and covers approximately half the island of Tasmania. The permit expires on 1 October, 2009. No petroleum wells have been drilled in the permit area to date.

The oldest basement consists of Proterozoic rocks which are exposed on the western half of Tasmania. Later basement rocks of Cambrian to Early Devonian age are known as the Wurawina Supergroup. All of these rocks were deformed by the mid Devonian tectonic event called the Tabberabberan Orogeny, a major pan Australian event.

Seismic coverage is approximately 950 kilometres of 2D (TB01-2001; 775 km and TB02-2006; 175 km). To date, only stratigraphic tests and mineral holes have been drilled in the Tasmania Basin. Drilling between 1997 and 2001 was conducted by GSLM using diamond coring mineral exploration rigs to establish stratigraphy. No borehole has been drilled on a structure as yet.

A seismic exploration progress report provided by GSLM in June, 2007, states that the 2001, 2006 and 2007 seismic programs have helped to identify several major and many minor structures. Further seismic work is planned for November, 2007, to February, 2008. To date, interpretation of the acquired seismic data has identified several fault block traps and small anticlines with shallow targets in the Gondwana Petroleum System. Deeper targets have been identified by GSLM in the Larapintine Petroleum System, mainly Ordovician in the Central Highlands. An extensive drilling program is planned by GSLM for late 2007.

To date, there have been no oil or gas fields discovered in the Tasmania Basin although several oil seeps have been reported in Tasmania. Oil seeps can be valuable in signifying the occurrence of mature source rocks in frontier exploration. In order for a seep to be authentic and considered part of a petroleum system, it is required to be correlated to a source rock. Currently, the seeps reported in the Tasmania Basin have had limited correlations made to petroleum systems, however, there is a seep in a recently used quarry at Lonnavale, to the southwest of Hobart, that has been correlated with the Permian Tasmanite Oil Shale and is the best indication yet that an active and significant petroleum system may exist in the Tasmania Basin. Two potential petroleum systems could be present in the Tasmania Basin, these are the Pre-Carboniferous system (Larapintine) and the Permian System (Gondwana).

The first petroleum system is referred to in this document as the Pre-Carboniferous System and is based on an Ordovician source. Structures formed in the Tabberabberan Orogeny have the potential to form large traps. Seismic coverage is not yet dense enough to fully define such traps. The Ordovician Limestone and Silurian siliciclastic formations are

suggested reservoirs. The reservoir quality of these formations is not known. Gas and/or oil are possible but, given the expected low permeability, gas is more likely to be economic.

The second possible petroleum system is the Permian system, the source of which is expected to be the Early Permian Woody Island Formation and its member the Tasmanites Oil Shale. The potential reservoir for the system is a relatively well understood fluvial formation called the Liffey/Faulkner Group. This formation has modest permeability in most locations (<10 mD). It is hoped that the intra formational seals in the Liffey Group can either provide seal for structural traps or set up stratigraphic traps. The play has good source rock presence as evidenced by the Tasmanite Oil Shale, which has been typed to the Lonnavale seep. The maturity level and, therefore, the timing of expulsion, is not well understood. The source rocks are the most encouraging aspect of this play but a high confidence trap has yet to be defined so that their effectiveness can be tested.

Stratigraphic plays and traps are a theoretical possibility at any level but pursuit of them is currently impractical, given the limited 2D seismic coverage and variable seismic image quality. Typically, good 3D seismic data is required to successfully pursue such play types.

The Prospective Resources for SEL 13/98 are summarised in Table 1 and Table 2. "Risk Factor" for Prospective Resources means the chance or probability of discovering hydrocarbons in a sufficient quantity for them to be tested to the surface.

	Prospective Oil Resources			
Feature	**Low (MMstb)**	**Best (MMstb)**	**High (MMstb)**	**Risk Factor (%)**
Interlaken	1	4	12	1.26
Bellevue – Level 1	9	35	95	0.40
Bellevue – Level 2 (Fault Independent Closure)	5	20	54	0.40
Bellevue – Level 2 (Fault Dependent Closure)	10	70	396	0.40
Bellevue – Level 3 (Fault Independent Closure)	2	8	21	0.40
Bellevue – Level 3 (Fault Dependent Closure)	4	36	271	0.40

Table 1 – SEL 13/98 Prospective Oil Resources

	Prospective Gas Resources			
Feature	**Low (Bcf)**	**Best (Bcf)**	**High (Bcf)**	**Risk Factor (%)**
Interlaken	8	21	48	1.26
Bellevue – Level 1	65	164	339	0.40
Bellevue – Level 2 (Fault Independent Closure)	40	110	215	0.40
Bellevue – Level 2 (Fault Dependent Closure)	68	374	1815	0.40
Bellevue – Level 3 (Fault Independent Closure)	19	52	107	0.40
Bellevue – Level 3 (Fault Dependent Closure)	33	240	1598	0.40

Table 2 – SEL 13/98 Prospective Gas Resources

Because of the nature of prospect analysis and evaluation, it is not appropriate to add the prospective gas and oil resources. The hydrocarbon discovery would be gas or oil at any particular reservoir level. The risk factor in this case remains the same for oil or gas because of the large uncertainty on source rock distribution, quality, maturation and timing.

The Tasmania Basin is a challenging frontier basin due to the presence of dolerite. Rocks with good source potential do exist in the Permian section but their efficacy is unclear. The Pre-Carboniferous is poorly explored in the sub-surface with a potential for large structures. Both plays offer potential oil and gas in reservoirs which will probably be of modest production in the case of oil. To increase knowledge of the Pre-Carboniferous, GSLM propose to drill a deep (1,965 m) stratigraphic well in the Bellevue area in 2007, using a conventional petroleum drilling rig. Other proposed stratigraphic wells are to be drilled to the north of SEL 13/98 at the Bracknell Feature location and to the west of SEL 13/98 at the Thunderbolt Feature location (Figure 18).

Qualifications

RPS Energy is an independent consultancy specialising in petroleum reservoir evaluation and petroleum geology. Except for the provision of professional services on a fee basis, RPS Energy does not have a commercial arrangement with any other person or company involved in the interests that are the subject of this report. David R. Guise, Director - Consulting at RPS Energy, has supervised the evaluation.

David is a registered Professional Engineer with over 30 years of domestic and international experience in both onshore and offshore operating environments. He has substantial experience and knowledge of field development planning, optimization and reserve estimating as well as new venture identification and evaluation. David has also acquired significant commercial and team management skills in an operating production environment. Operating companies that he has worked for as an employee include Nexen Australia, Gulf Indonesia, Energy Equity, Asamera Oil, Delhi Petroleum and Texaco Canada. He also worked in a consulting role as an independent consultant for several companies in Australia and Indonesia prior to joining RPS Energy as Petroleum Engineering Manager in January, 2006. He was appointed to the position of Director – Consulting, Australia and South East Asia in November, 2006.

Basis of Opinion

The evaluation presented in this report reflects our informed judgement based on accepted standards of professional investigation but is subject to generally recognised uncertainties associated with the interpretation of geological, geophysical and engineering data. The evaluation has been conducted within our understanding of petroleum legislation, taxation and other regulations that currently apply to these interests. However, RPS Energy is not in a position to attest to the property title, financial interest relationships or encumbrances related to the property.

It should be understood that any evaluation, particularly one involving exploration and future petroleum developments, may be subject to significant variations over short periods of time as new information becomes available.

Yours faithfully,

David R. Guise
(Director - Consulting, Australia and South East Asia)

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1. PERMIT DESCRIPTION

The Tasmania Basin is a frontier basin which covers around half of the island of Tasmania, a state of the Commonwealth of Australia. GSLM holds 100% interest in the Special Exploration License SEL 13/98 which covers the potential prospective portion of the basin. The permit expires on 1 October, 2009. The permit area is approximately 30,000 square kilometres and covers most of the basin as illustrated in Figure 1.

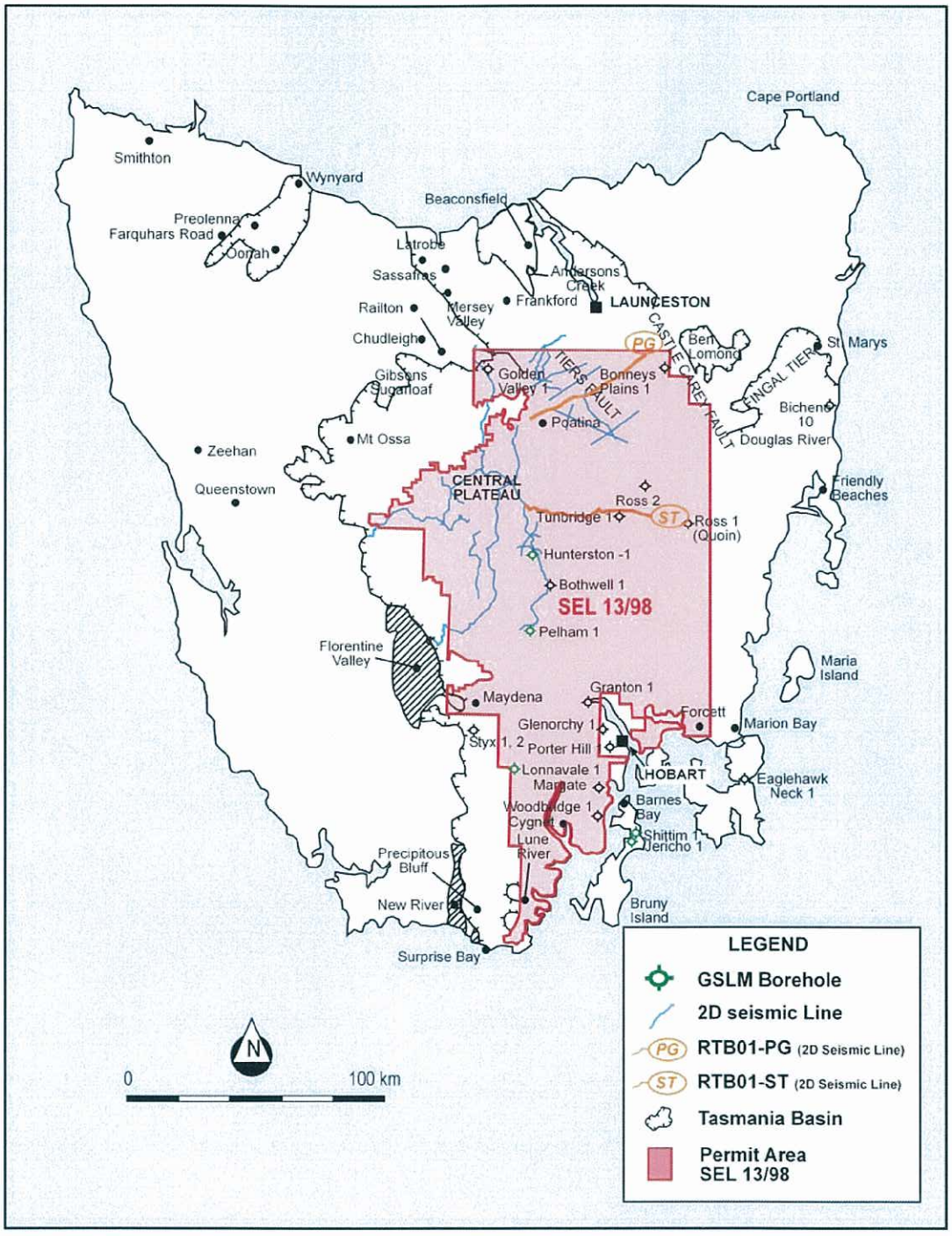

Figure 1 – Permit location, major boreholes and 2D seismic lines

Onshore petroleum permits are administered by the relevant state government. In general, Australian petroleum permits of any jurisdiction are governed by an agreed work programme system with terms of five "permit" years. The anniversary of the permit year is usually the formal award date. The Tasmanian State Government has chosen to define the agreed work programme for Special Exploration Licence SEL 13/98 in terms of mandatory expenditure targets. The proposed and mandatory expenditure per year is shown in Table 3 and the respective activities in Table 4.

Permit Year Ending	Expenditure Proposed by GSLM	Cumulative Expenditure Proposed by GSLM	Mandatory Expenditure (80%)* (AUD)
1/10/2005	$5,341,000	$5,341,000	$4,272,800
1/10/2006	$3,020,000	$8,361,000	$2,416,000
1/10/2007	$4,799,000	$13,160,000	$3,839,200
1/10/2008	$6,530,000	$19,630,000	$5,224,000
1/10/2009	$1,810,000	$21,500,000	$1,448,000

*The mandatory spend is 80% of the value of the programme proposed by the operator

Table 3 – SEL 13/98 expenditure-based programme agreed with regulator

Year Ending	Activity	Status
1/10/2005	2D seismic survey TB02, seismic interpretation, drilling	TB02 suspended (175 km acquired and processed)
1/10/2006	152 km 2D seismic	Completed
1/10/2007	270.5 km 2D seismic. Interpretation and integration of seismic. Extensive gravity survey	Completed
1/10/2008	6 – 10 targeted wells	Planned
1/10/2009	To be determined	To be determined

Table 4 – SEL 13/98 planned activities