1999 PIRSA Petroleum Industry Survey

REPORT BOOK 2000/00009

by

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Petroleum Group

APRIL 2000

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1999 PIRSA PETROLEUM INDUSTRY SURVEY

J G G Morton

A consultant to PIRSA interviewed 31 petroleum industry personnel throughout Australia from June to July, 1999. The aims of the survey were to measure the Petroleum Group's performance in promoting and regulating the petroleum exploration and production industry in South Australia, and to gather market information that could be used to formulate new initiatives. In general, the Group appeared to rate very well, being perceived as among the best in Australia for regulation, data and service quality, although the survey methodology may have caused a bias in favour of South Australia. Industry appear to require less interpreted data or new data acquisition from government and this has already been reflected in the a shift in focus by PIRSA Petroleum to data management as the key strategy to attract investment. Industry appeared to rely significantly on PIRSA data and advice in preparing licence applications and/or bids. Most of the data products had a high awareness and value with industry, and some marketing opportunities were identified. Perceptions of the prospectivity of South Australian basins had declined significantly since the 1996 survey. In these basins the negative economics of exploration and source rock are seen as the major impediments. The Cooper Basin elicited the most strongly worded comments, with access to infrastructure continuing to be the major concern of industry. The relatively small number of people surveyed (due to the limited number of companies in Australia) makes comparison of results from earlier surveys more qualitative than ideal.

SURVEY METHODOLOGY

The survey was carried out between June and July, 1999, by an independent Melbourne based petroleum industry consultant, Mr Jack Mulready. The aim of the survey was to interview at least 30 Australian industry personnel to gain some indication of the perception of the performance of the Petroleum Group of PIRSA, and to acquire information on perceptions on the prospectivity of the sedimentary basins in South Australia that may influence the industry to explore. All interview results were kept anonymous, (ie PIRSA did not know who were interviewed, or what responses were made by which company representative), as it was felt that this would elicit the most honest and candid responses. Particular note was made of any qualitative comments. However, it is probable that, as the interviewee was aware of the origin of the survey, there was significant positive bias towards SA. This will be tested when the results of the independently run ANZMEC industry survey are made available. It was not possible to interview overseas industry representatives who may have had contact with PIRSA, and thus the results may not represent the views of this sector.

The methodology and questions were similar to the industry survey carried out by Mr Gerry Carne in 1996, and this provides a basis for comparison and change in the last 3 years (Morton, 1996). A survey was also conducted by Mr Peter Austin in 1994, but the questions in that survey are not easily compared to the later surveys.

In addition to the structured part of the questionnaire, interviewees were also asked if they had any comments they wished to make, either on specific questions or general comments. Some of these comments have been edited from this report where they may cause offence to parties outside of the Department.

The purpose of this report is to present the survey results, to qualify the significance of the results and to offer some interpretation - it does not attempt to recommend strategies or changes to the various strategic plans. It is expected that the various Branches and the Marketing, Regulation and Data Groups will review these results and formulate an appropriate response.

CHARACTERISTICS OF RESPONDENTS (QUESTIONS1, 2 AND 3)

In total 31 interviews were conducted. The respondents were asked to characterise their company position into one of the following categories:

NOTE: Throughout this report the corresponding 1996 results are shown in brackets after the 1999 results.

Responsibilities	**%**
Senior Management (a reporting point for Middle Management or above: *at executive decision level)*	55% (27%)
Middle Management (eg Regional Manager; Engineering and Production; *a technical management reporting point; but non-executive)*	6% (15%)
Technical Management (eg Exploration Manager; Engineering Manager; *the first multidiscipline reporting level)*	32% (38%)
Senior Technical (eg Chief Geophysicist; Chief Petroleum Engineer; *a discipline leader, reporting to Technical Management)*	3% (3%)
Technical (eg Senior Geologist; Geophysicist; *reporting to a discipline leader)*	0% (3%)
Consultant	3% (13%)

Location

The geographical location of the industry representatives were as follows:

Perth	10	Sydney	5
Adelaide	5	Brisbane	8
Melbourne	3		

PREVIOUS SOUTH AUSTRALIAN EXPERIENCE

The proportion of respondents currently participating in South Australian petroleum activities was 48% (50%).

Of those 38% (73%) (ie 18% (37%) of total respondents) are currently operators in South Australia, the remainder are currently partners only.

Of the remaining 52% (50%), only 7% (27%) (ie only 4% (14%) of total respondents) had had previous involvement in SA licences, and none of those had experience less than 3 years old.

In total, 48% (64%) had had some previous experience with South Australia in the last 3 years.

APPROXIMATE ANNUAL EXPENDITURE ON PETROLEUM EXPLORATION IN AUSTRALIA BY RESPONDENTS

The average estimated annual expenditure on petroleum exploration in Australia for all respondents was $7.7 ($15) million. The average of current South Australian participants was significantly higher, at $13.1 ($20) million per year. In total, the respondents spend $230 ($334) million per year on Australian petroleum exploration.

OVERALL PERFORMANCE (QUESTIONS 4 AND 5)

The interviewees were asked how they rated the overall performance of PIRSA in relating to the petroleum industry, and then how PIRSA compares to other similar state and government organisations.

For PIRSA a score of 1 = excellent performance, 5 = average performance, 10 = very poor performance.

For the other organisations, a score of 1 = much better performance, 5 = same performance, 10 = much worse performance.

	PIRSA	AGSO	DISR	TAS	VIC	NSW	QLD	NT	WA
Score	**% of respondents**								
1	3% (0%)								
2	26% (18%)								0% (7%)
3	52% (59%)	3% (0%)			5% (0%)		0% (6%)	5% (0%)	
4	10% (12%)	3% (18%)	8% (14%)	13% (0%)	9% (0%)		9% (6%)	5% (0%)	0% (7%)
5	3% (12%)	28% (12%)	36% (14%)		14% (6%)	7% (11%)	18% (19%)	25% (0%)	42% (27%)
6	6% (0%)	17% (41%)	20% (32%)	13% (29%)	27% (25%)	27% (44%)	18% (38%)	20% (67%)	31% (20%)
7		31% (12%)	24% (23%)	25% (57%)	18% (44%)	20% (22%)	27% (13%)	30% (11%)	19% (20%)
8		17% (18%)	8% (18%)	25% (0%)	18% (13%)	20% (22%)	18% (23%)	5% (22%)	8% (20%)
9			4% (0%)	25% (0%)	5% (13%)	20% (0%)	5% (0%)	5% (0%)	
10				0% (14%)	5% (0%)	7% (0%)	5% (0%)	5% (0%)	
Total number of respondents	31 (17)	29 (17)	25 (22)	8 (7)	22 (16)	15 (9)	22 (16)	20 (9)	26 (15)
% < 5	90% (92%)	7% (17%)	8% (12%)	13% (0%)	14% (0%)	0% (0%)	9% (12%)	10% (0%)	0% (13%)
Average score	3.0 (3.0)	6.2 (6.1)	6.0 (6.3)	7.3 (7.1)	6.4 (7.0)	7.4 (6.6)	6.6 (6.0)	6.3 (6.6)	5.9 (5.9)
Rank	1 (1)	4 (4)	3 (5)	8 (9)	6 (8)	9 (6)	7 (3)	5 (6)	2 (2)

Conclusion

PIRSA's overall performance relating to the petroleum industry appears to have remained first in Australia overall (based on no average scores less than 5.5) with the Commonwealth organisations (AGSO, DISR), and Western Australia rated similar or slightly worse than South Australia. Since the 1996 survey, the performance of Queensland Department appears to be perceived by the industry as significantly worse (due mainly to a much worse perceived promotional service performance), and the Victorian Department is perceived as considerably improved (due mainly to improvements in their general approach to promotion). As in 1996, nearly all respondents (90 %) believe that PIRSA's performance is above average, however 39% (50%) of respondents rated at least one other department better than South Australia.

REGULATORY ROLE (QUESTIONS 6 TO 11 AND PART 23)

APPROACH TO PETROLEUM REGULATION

The interviewees were asked how they rated the general approach of PIRSA in regulating petroleum exploration and development activities and how PIRSA compared to the performance of similar State and Commonwealth organisations with whom they had experience

For PIRSA a score of 1 = excellent performance, 5 = average performance, 10 = very poor performance.

For the other organisations, a score of 1 = much better performance, 5 = same performance, 10 = much worse performance.

	Other State and Commonwealth Organisations							
	PIRSA	DISR	TAS	VIC	NSW	QLD	NT	WA
Score	**Score Frequency**							
1	3% (0%)							
2	19% (17%)							
3	23% (22%)	0% (25%)		0% (8%)		0% (18%)		4% (0%)
4	19% (39%)	5% (0%)		0% (8%)	0% (25%)	5% (0%)		9% (0%)
5	26% (22%)	40% (25%)	0% (25%)	18% (15%)	27% (25%)	35% (45%)	53% (25%)	52% (50%)
6	3% (0%)	15% (0%)	17% (0%)	24% (38%)	18% (50%)	25% (27%)	18% (25%)	22% (30%)
7	6% (0%)	10% (50%)	33% (50%)	35% (8%)	36% (0%)	25% (0%)	24% (50%)	13% (10%)
8		25% (0%)	17% (25%)	12% (15%)	18% (0%)	5% (9%)	6% (0%)	0% (10%)
9			33% (0%)	6% (8%)		5% (0%)		
10		5% (0%)		6% (0%)				
Total No. of respondents	31 (18)	20 (4)	6 (4)	17 (13)	11 (4)	20 (11)	17 (4)	23 (10)
% < 5	65% (76%)	5% (20%)	0% (0%)	0% (14%)	0% (20%)	5% (17%)	0% (0%)	13% (0%)
Average score	3.8 (3.8)	6.3 (5.6)	7.7 (6.8)	6.8 (6.2)	6.5 (5.8)	6.1 (5.3)	5.8 (6.2)	5.3 (5.7)
Average of SA Licensees	4.0 (3.8)							
Rank	2 (1)	5 (3)	8 (8)	7 (6)	6 (5)	4 (2)	3 (7)	1 (4)

Conclusion

PIRSA's overall performance in regulating the petroleum industry has dropped marginally from first to second place behind WA which appears to be a significant improvement of WA over SA since 1996. A majority of respondents 65% (76%) believe that our performance is above average, however a reduced majority (67% in 1999 versus 76% in 1996) of respondents rated at least one other department better than

South Australia. Concerns expressed re the grant of PPLs in the Nappmerri Trough were raised by a number of respondents and may be part of the reason for the poorer rating than in 1996.

EFFECTIVENESS OF "ONE WINDOW ACCESS TO GOVERNMENT"

The interviewees were asked how they rated the effectiveness and reliability of the "one window access to government" policy of PIRSA compared to other state organisations.

For the other organisations, a score of 1 = much better performance, 5 = same performance, 10 = much worse performance.

Effectiveness of "one window access"

	Other State Organisations					
Score	TAS	VIC	NSW	QLD	NT	WA
1						
2						
3						
4		6%				14%
5	33%	13%	17%	21%	6%	29%
6		25%	33%	26%	56%	29%
7	33%	38%		32%	25%	19%
8		13%	33%	16%	13%	10%
9	33%	6%	17%	5%		
10						
Total No. of respondents	3	16	6	19	16	21
% < 5	0%	6%	0%	0%	0%	14%
Average score	7.0	6.6	7.0	6.6	6.4	5.8
Rank	6	4	6	4	3	2

Reliability of "one window access"

	Other State Organisations					
Score	TAS	VIC	NSW	QLD	NT	WA
1						
2						
3						
4		6%				19%
5	33%	25%	33%	21%	13%	24%
6	33%	19%	33%	26%	44%	33%
7		19%	17%	32%	31%	19%
8	33%	25%		16%	6%	10%
9		6%	17%	5%	6%	
10						
Total No. of respondents	3	16	6	19	16	21
% < 5	0%	6%	0%	0%	0%	18%
Average score	6.3	6.5	6.3	6.6	6.5	5.8
Rank	3	5	3	7	5	2

Conclusion

The perception of the effectiveness and reliability of PIRSA's "one window access" to government approach is regarded better than most other state departments, with the exception of WA. This result is somewhat surprising as anecdotal evidence from industry operating in WA would suggest that WA do not have an effective or reliable "one window access" to government, particularly for environmental approvals of activities. This question may not have been well understood by the respondents. This question was not asked in the 1996 survey.

PERFORMANCE OF PIRSA REGULATORY ACTIVITIES

The interviewees were asked to rate the performance of PIRSA in conducting regulatory activities (ie policy of decisions, activity approvals etc) in terms of consistency, flexibility, practicality, transparency, timeliness, and compliance cost effectiveness.

A score of 1 = excellent performance, 5 = average performance, 10 = very poor performance.

	Performance Criteria					
Score	Consistency	Flexibility	Practicality	Transparency	Timeliness	Compliance cost
1	3%		3%		10%	3%
2	13%	23%	29%	16%	13%	10%
3	35%	26%	19%	16%	29%	26%
4	16%	13%	29%	35%	19%	16%
5	29%	32%	19%	26%	26%	45%
6		6%			3%	
7	3%			3%		
8				3%		
9						
10						
% < 5	68%	61%	81%	68%	71%	55%
Average score	3.7	3.7	3.3	4.0	3.5	3.9
Rank	3	5	1	6	2	4

Comments

(Comments by three respondents were made and have not been quoted due to their potential to cause offence to parties outside the Department).

For the 6 scores greater than 5, the regulatory activities the respondents had in mind were:

- For poor consistency - operations approval and compliance reporting
- For poor flexibility - PPL grant
- For poor transparency - PPL grant
- For poor timeliness - PPL grant.

Conclusion

The perception of the performance of PIRSA's approach to regulation is regarded highly in most categories, with practicality and timeliness seen as the strongest points. The weakest point appears to be transparency, but the comments associated with this suggest that the main reason was the grant of PPLs over the Nappamerri Trough in 1997. This question was not asked in the 1996 survey.

PERFORMANCE OF PIRSA REGULATORY STAFF

The respondents were asked how they rated PIRSA's petroleum group staff for helpfulness, professionalism and accessibility in regard to regulatory advice and approvals.

A score of 1 = excellent performance, 5 = average performance, 10 = very poor performance.

	Performance criteria		
	Helpfulness	Professionalism	Accessibility
Score			
1	19%	13%	13%
2	23%	23%	19%
3	19%	29%	32%
4	29%	26%	23%
5	10%	10%	13%
6			
7			
8			
9			
10			
% < 5	90%	90%	87%
Average score	2.9	3.0	3.0

Conclusion

The perception of the performance of PIRSA's regulatory staff is regarded very highly in all categories, with 90% of respondents giving an above average to excellent rating. This question was not asked in the 1996 survey.

DATA REPORTING REQUIREMENTS

Interviewees were asked what data and information relating to licensee activities they considered appropriate to release to the industry at large.

	% answering "Yes"
Well completion reports	97%
Open hole well log data	97%
Raw seismic data	97%
Raw well test data	97%
Cased well log data (PLTs etc)	94%
Core/cuttings analysis reports	90%
Reservoir fluids analysis reports	90%
Downhole equipment and perforation diagrams	90%
Production data	84%
Interpretative geologic reports	77%
Interpreted well test data	71%
Workstation seismic data	68%
Field reserves	68%
Interpreted seismic data	65%

Other data types mentioned by respondents included: Regional studies on a commercial basis, Synthetic seismograms (twice), drilling data, aeromagnetic and gravity surveys (six times), SEG Y migrated seismic data, "as comprehensive as possible", fluid inclusion studies, MWD data, source rock studies (twice), geochemical surveys, shot point location data, palaeontology, "any data useful for exploration", well based production data, and all other geophysical raw data and interpretative reports.

Conclusion

The general tone of the response was that any data useful for future exploration should be released to open file at some stage. The information considered most sensitive (<70% agreement) was workstation/interpreted seismic and reserves data, although a majority of respondents still believed this should be made available. This question was not asked in the 1996 survey.

REGULATORY POLICY

The final question in the regulatory section asked respondents how often they considered that regulatory determinations exercised under the Petroleum Act reflected the interests of particular stakeholders. It was considered that good regulation should reflect the interests of a broad range of stakeholders.

A score of 1 = commonly reflects this groups interests, 5 = occasionally reflects this groups interests, 10 = never reflects this groups interests.

Regulatory policy decisions reflect the interests of:

Score	Particular companies	Industry at large	Environmental groups	Industry groups	Federal government initiatives	Other State government agencies
1	30%	3%				
2	17%	7%	10%	3%	7%	
3	13%	10%	17%	7%	7%	10%
4	10%	23%	20%	23%	17%	20%
5	7%	27%	30%	40%	30%	37%
6	3%	3%	13%	10%	17%	13%
7		10%		10%	7%	10%
8	10%	10%	7%	3%	10%	3%
9	7%	3%			3%	3%
10						
% < 5	72%	45%	48%	34%	31%	31%
Average score	3.5	4.9	4.5	4.9	5.2	5.2
Rank	1	3	2	4	5	6

Conclusion

There appears to be a view from the industry that regulatory policy decisions are more often than not made in favour of particular companies.

PROMOTIONAL ROLE (QUESTIONS 12 TO 16)

APPROACH TO ATTRACTING PETROLEUM EXPLORATION

The interviewees were asked how they rated the approach of PIRSA in promoting, facilitating and attracting petroleum exploration investment.

For PIRSA a score of 1 = excellent performance, 5 = average performance, 10 = very poor performance.

For the other organisations, a score of 1 = much better performance, 5 = same performance, 10 = much worse performance.

	Other State and Commonwealth organisations								
	PIRSA	AGSO	DISR	TAS	VIC	NSW	QLD	NT	WA
Score	**Score Frequency**								
1	10% (8%)								
2	37% (4%)								
3	37% (46%)	10% (11%)	0% (14%)				0% (14%)	0% (10%)	
4	7% (8%)	7% (11%)	10% (14%)	13% (0%)	15% (13%)		5% (14%)	6% (0%)	9% (31%)
5	7% (4%)	47% (33%)	24% (25%)	0% (17%)	20% (7%)	15% (11%)	10% (0%)	17% (40%)	22% (38%)
6	0% (4%)	17% (22%)	33% (32%)		25% (27%)	31% (33%)	19% (36%)	22% (10%)	48% (8%)
7	0% (8%)	10% (11%)	5% (10%)	25% (33%)	25% (33%)	38% (33%)	33% (29%)	39% (30%)	9% (8%)
8		10% (11%)	24% (6%)	13% (33%)	10% (20%)	8% (11%)	33% (0%)	17% (10%)	13% (15%)
9			5% (0%)	38% (17%)		8% (11%)	0% (7%)		
10				13% (0%)	5% (0%)				
Total No. of respondents	30 (26)	30 (14)	21 (11)	8 (6)	20 (15)	13 (9)	21 (14)	18 (10)	23 (13)
% < 5	93% (85%)	17% (50%)	10% (28%)	13% (0%)	15% (13%)	0% (0%)	5% (29%)	6% (10%)	9% (31%)
Average score	2.7 (3.4)	5.4 (4.7)	6.2 (5.3)	7.9 (7.3)	6.2 (6.4)	6.6 (6.8)	6.8 (5.8)	6.4 (5.8)	6.0 (5.4)
Average of SA Licensees	2.4 (3.5)								
Rank	2 (4)	1 (1)	5 (2)	9 (9)	4 (7)	7 (8)	8 (5)	6 (6)	3 (3)

Conclusion

PIRSA's performance in promoting exploration opportunities to the petroleum industry has improved from 4th ranking to second with AGSO rated marginally better. Western Australia and Victoria also rated well, the latter considerably improving their perceived performance since 1996. An increased majority of respondents 93% (85%) believe that our performance is above average, however 74% (84%) of respondents still rated at least one other organisation or department better than South Australia.

APPROPRIATENESS OF PIRSA ACTIVITIES

Respondents were also asked if they approved of the following activities being carried out by PIRSA Petroleum Group. If they responded no, they were asked to indicate who they think would be more appropriate to perform that service.

% responding Yes

(a) Archiving all industry exploration and production data (including samples) **61% (100%)**

Alternative

Consultant/contractor (x4)

Comments

"providing funding adequate"

(b) Consolidating basic data into user friendly and accessible digital databases (Including verifying and digitising well logs) **61% (89%)**

Alternative

Consultant/contractor (x3)

(c) Evaluating exploration and production economics in areas outside existing licences **45% (78%)**

Alternative

Industry/companies (x5)
Consultant/contractor (x2)

(d) Acquiring new data in SA basins that currently attract little or no industry exploration interest (eg Seismic, Aeromag, Source rock analyses) **42% (93%)**

Alternative

Consultant/contractor (x4)
Companies (x3)
"prefer incentives"

Comments

"more promotion of exploration acreage on existing information"

(e) Compiling regional interpretations (eg. seismic, stratigraphy, source rock, geological summaries) from industry and PIRSA derived data **58% (93%)**

Alternative

Consultant/contractor
Companies

(f) Independently estimating reserves for discovered fields **48% (56%)**

Alternatives

Consultant/contractor (x5)
Operator (x2)
"Review of reserves by operator to Govt - Govt must have people competent to assess presentation of data"

General comments

"[these activities should] not [be] exclusive to PIRSA"
"PIRSA properly funded but subcontracting is OK"
"use of contractors OK if more efficient - use as required"

Conclusion

There is much less support for most of the promotional activities carried out by the Petroleum Group since the 1996 survey, which may be due to an acceptance by the industry of the recent trend for government to out source most of these functions. The functions that have lost most support since the 1996 survey are acquiring new data in frontier basins and archiving company exploration data. While it is reassuring that there is support for the PIRSA initiative that promotion is underpinned by access to existing company exploration data rather than acquiring new data, it is noteworthy that the industry may no longer see the government as the primary source of previously acquired exploration data.

PERFORMANCE OF PIRSA PROMOTIONAL STAFF

The respondents were asked how they rated PIRSA's petroleum group staff for helpfulness, professionalism and accessibility in regard to prospectivity advice, and how they compared with other organisations in general.

A score of 1 = excellent performance, 5 = average performance, 10 = very poor performance.

	Performance criteria		
	Helpfulness	Professionalism	Accessibility
Score			
1	10%	10%	7%
2	20%	17%	13%
3	47%	40%	47%
4	13%	23%	20%
5	10%	10%	13%
6			
7			
8			
9			
10			
% < 5	90%	90%	87%
Average score	2.9	3.1	3.2

Comparison of service quality

A score of 1 = much better performance, 5 = same performance, 10 = much worse performance.

Other State Organisations

Score	AGSO	DISR	TAS	VIC	NSW	QLD	NT	WA
1								
2								
3				0% (10%)			0% (14%)	
4	4% (23%)	25% (14%)	14% (25%)	10% (0%)		0% (8%)	6% (0%)	13% (9%)
5	33% (31%)	19% (26%)		20% (0%)	27% (20%)	25% (31%)	22% (14%)	33% (36%)
6	19% (31%)	25% (27%)	14% (50%)	35% (60%)	18% (60%)	20% (38%)	28% (29%)	21% (27%)
7	30% (0%)	19% (21%)	43% (0%)	20% (30%)	18% (20%)	15% (23%)	39% (29%)	21% (18%)
8	11% (8%)	13% (7%)	29% (0%)	5% (0%)	9% (0%)	25% (0%)	6% (14%)	13% (0%)
9	0% (8%)	0% (7%)	0% (25%)	10% (0%)	9% (0%)	5% (0%)		0% (9%)
10	4% (0%)				9% (9%)	10% (0%)		
Total No. of respondents	27 (13)	16 (8)	7 (4)	20 (10)	11 (5)	20 (13)	18 (7)	24 (11)
% < 5	4% (23%)	25% (14%)	14% (25%)	10% (10%)	9% (0%)	0% (8%)	6% (14%)	13% (9%)
Average score	6.3 (5.6)	5.8 (6.1)	6.7 (6.3)	6.2 (6.0)	6.5 (6.0)	7.0 (5.8)	6.2 (6.1)	5.9 (5.9)
Rank	6 (2)	2 (8)	8 (9)	4 (5)	7 (6)	9 (3)	5 (7)	3 (4)

Conclusion

The perception of the performance of PIRSA's promotional staff is regarded very highly in all categories, with 90% of respondents giving an above average to excellent rating. This question was asked in the 1996 survey as single question on "service quality". The 1999 results are comparable with the 1996 results, in that 90% of respondents an above average to excellent rating, and the average score was 2.8. South Australia appears again to rank first in Australia in regard to service quality, with the Commonwealth and WA as the nearest competitors. Queensland has slipped dramatically in ranking since 1996, from 3rd to 9th (last) place.

QUALITY OF PIRSA PROMOTIONAL DATA

The respondents were asked how they rated PIRSA's promotional data for appropriateness, scientific rigour, timeliness and value for money.

A score of 1 = excellent, 5 = average , 10 = very poor.

Data Quality Criteria

Score	Appropriateness	Scientific rigour	Timeliness	Value for money
1	6%	6%		13%
2	19%	10%	23%	27%
3	42%	19%	33%	20%
4	10%	26%	20%	13%
5	23%	32%	17%	23%
6		3%	3%	
7		3%		3%
8				
9				
10				
% < 5	77%	61%	77%	73%
Average score	3.2	3.9	3.5	3.2

Comparison of data quality

A score of 1 = much better performance, 5 = same performance, 10 = much worse performance.

Other State Organisations

Score	AGSO	DISR	TAS	VIC	NSW	QLD	NT	WA
1								
2								4% (0%)
3				5% (0%			6% (0%)	
4	0% (8%)	19% (0%)	25% (0%)	5% (0%)		5% (9%)	6% (0%)	8% (18%)
5	48% (50%)	25% (54%)	0% (33%)	20% (11%)	18% (33%)	20% (27%)	17% (17%)	29% (45%)
6	8% (25%)	13% (40%)		30% (33%)	18% (17%)	25% (36%)	22% (0%)	17% (9%)
7	24% (8%)	25% (0%)	50% (0%)	15% (56%)	27% (17%)	15% (18%)	28% (50%)	25% (9%)
8	12% (8%)	19% (0%)	13% (33%)	15% (0%)	9% (33%)	25% (9%)	22% (17%)	13% (9%)
9	4% (0%)		13% (33%)	10% (0%)	18% (0%)	5% (0%)	0% (17%)	0% (9%)
10	4% (0%)	0% (7%)			9% (0%)	5% (0%)		4% (0%)
Total No. of respondents	25 (12)	16 (6)	8 (3)	20 (9)	11 (6)	20 (11)	18 (6)	24 (11)
% < 5	0% (8%)	19% (0%)	25% (0%)	10% (0%)	0% (0%)	5% (9%)	11% (0%)	13% (18%)
Average score	6.3 (5.6)	6.0 (5.8)	6.6 (7.3)	6.3 (6.4)	7.2 (6.5)	6.7 (5.9)	6.3 (7.2)	6.0 (5.7)
Rank	6 (2)	2 (4)	7 (9)	5 (6)	9 (7)	8 (5)	4 (8)	3 (3)

Conclusion

The perception of the quality of PIRSA's prospectivity data is high in all categories, with appropriateness and timeliness of the data being the most highly valued. Scientific rigour is perhaps an area where improvements could be made, although this may be an expression of the perception in the industry - "if it's from the government it can't be any good". A corollary of this is that interpretative data may not be as important as providing packaged basic data and allowing the industry to form its own view of prospectivity. This question was asked in the 1996 survey as single question on "data quality". The 1999 results appear to be worse than the 1996 results - in 1996 90% of respondents gave an above average to excellent rating, with an average score of 2.9, however this is not supported by the ranking data which indicate that South Australia is still ranked first in Australia for data quality, with DISR and WA ranked 2nd and 3rd respectively.

USE OF PIRSA DATA AND ADVICE FOR LICENCE APPLICATIONS

Respondents who had applied for an exploration licence in South Australia were asked how much they believed that their application relied on data and advice supplied by PIRSA.

		1999 (1996)
Substantial	7 (5) respondents	50% (38%)
Substantial and Supporting	0 (1) respondent	0% (8%)
Supporting	7 (4) respondents	50% (31%)
Supporting and Not at all	0 (1) respondent	0% (8%)
"Not much"	0 (1) respondent	0% (8%)
Not at all	0 (1) respondent	0% (8%)

Conclusions

In 1999 100% of the respondents who had previously applied for a licence in South Australia believed that they had relied on data and advice provided by PIRSA to a substantial or supporting degree, which appears to be a significant increase from the 1996 level of 85%.

PIRSA DATA PRODUCTS (QUESTIONS 17 TO 21)

A range of current products was presented to interviewees to gauge the awareness, satisfaction, and potential areas where marketing could be targeted. Products are listed below and ranked under each category.

Demand was calculated as the proportion of respondents who have the product or those who would consider getting it.

Marketing Success was calculated as the demand minus awareness. If positive, further marketing of the product is justified. If zero or negative, the product is sufficiently well marketed.

Customer Satisfaction was calculated as the proportion of those who had the product and thought it was useful.

DEMAND

	1999	**1996**	**Change**
Petroleum Exploration and Development in SA	97%	(100%)	-3%
Cooper Basin Gas Field Economics Study	87%	(96%)	-9%
Cooper 1999 Acreage release	80%		
MESA Journal (previously MIQ)	77%	(100%)	-23%
Holders of Petroleum Tenements Quarterly	77%	(96%)	-19%

Cooper 1999 CD-ROM	73%		
Codes of Environmental Practice	73%	(88%)	-15%
Pet. Geol. of SA Vol 2 Eromanga Basin	70%		
Pet. Geol. of SA Vol 4 Cooper Basin	70%		
Petroleum Services Directory	67%	(96%)	-29%
Cooper 1998 Acreage release	67%		
Well Completion Reports (digital PDF)	67%		
Pet. Geol. of SA Vol 1 Otway Basin	63%	(58%)	+5%
Well Completion Reports (Hardcopy)	63%		
Digital well logs - customer selected	57%	(36%)	+21%
Regional Eromanga/Cooper C and Z Horizon datasets	50%	(48%)	+2%
Digital well logs - 100 Cooper wells	50%		
PEPS-SA	47%	(54%)	-7%
Cooper Basin Map Folios 1 and 2 digital (PDF)	43%		
Seismic Shot point database	43%	(32%)	+11%
Regional Otway Basin Seismic datasets	37%	(54%)	-17%
Pet. Geol. of SA Vol 3 Officer Basin	33%		
Cooper Basin stacked seismic (SEG-Y)	27%		
Cooper Basin Map Folios 1 and 2 (hardcopy)	27%		
Adelaide Plains Gas Storage CD-ROM Data package	3%	(16%)	-13%

Conclusions

Products with demands greater than 50% comprise general Cooper related publications, general information on the industry in South Australia, and basic digital well logs and well completion reports. Surprisingly, seismic related products appeared to have particularly low demand. It is assumed that such data, including the PEPS database are more likely to be acquired after a licence has been granted. As concluded for the 1996 survey, this has implications for identifying the target customers for these products. The marketing strategy for these products should perhaps focus on new licensees, data providers consultants and investment institutions, rather than the petroleum industry in general. Demand trends since 1996 show that demand has decreased most for the Petroleum Services Directory and the MESA Journal, while demand has grown most for well logs and the shot point database.

MARKETING SUCCESS

	1999	**1996**	**Change**
Petroleum Exploration and Development in SA	30%	50%	-20%
Cooper Basin Gas Field Economics Study	30%	81%	-51%
Cooper 1999 Acreage release	3%		
Holders of Petroleum Tenements Quarterly	13%	35%	-22%
Cooper 1999 CD-ROM	13%		
Petroleum Services Directory	7%	81%	-74%
MESA Journal (previously MIQ)	0%	65%	-65%
Well Completion Reports (digital PDF)	0%		
Digital well logs –100 Cooper wells	-3%		
Regional Otway Basin Seismic datasets	-3%	15%	-18%
Pet. Geol. of SA Vol 4 Cooper Basin	-7%		
Adelaide Plains Gas Storage CD-ROM Data package	-7%	-7%	
Codes of Environmental Practice	-10%	42%	-52%
Pet. Geol. of SA Vol 2 Eromanga Basin	-10%		
Regional Eromanga/Cooper C and Z Horizon datasets	-10%	13%	-23%
Cooper Basin Map Folios 1 and 2 digital (PDF)	-10%		
Cooper 1998 Acreage release	-17%		
Pet. Geol. of SA Vol 1 Otway Basin	-20%	16%	-36%

Well Completion Reports (Hardcopy)	-20%		
Digital well logs –customer selected	-20%	-37%	-17%
PEPS-SA	-20%	-19%	+1%
Seismic Shot point database	-30%	-30%	
Cooper Basin Map Folios 1 and 2 (hardcopy)	-33%		
Pet. Geol. of SA Vol 3 Officer Basin	-40%		
Cooper Basin stacked seismic (SEG-Y)	-47%		

Conclusions

Most of the PIRSA publications and data products appear to be very well marketed, and all products show dramatic improvements in marketing success since 1996. Opportunities to further market (ie broad target advertising) may still exist for the Cooper Basin Gas Economics Report, Petroleum Exploration and Development in SA, and acreage release packages. Web based access to petroleum tenements data as an alternative to the information sheets is now available and future surveys may need to address the acceptance of the new product compared to the old.

CUSTOMER SATISFACTION

	1999	**1996**	**Change**
Cooper Basin Gas Field Economics Study	100%	100%	
Cooper 1999 Acreage release	100%		
Holders of Petroleum Tenements Quarterly	100%	83%	+17%
Cooper 1999 CD-ROM	100%		
Codes of Environmental Practice	100%	100%	
Pet. Geol. of SA Vol 2 Eromanga Basin	100%		
Pet. Geol. of SA Vol 4 Cooper Basin	100%		
Petroleum Services Directory	100%	100%	
Cooper 1998 Acreage release	100%		
Well Completion Reports (digital PDF)	100%		
Pet. Geol. of SA Vol 1 Otway Basin	100%	100%	
Digital well logs –customer selected	100%	100%	
Regional Eromanga/Cooper C and Z Horizon datasets	100%		
Cooper Basin Map Folios 1 and 2 digital (PDF)	100%		
Seismic Shot point database	100%	100%	
Pet. Geol. of SA Vol 3 Officer Basin	100%		
Cooper Basin stacked seismic (SEG-Y)	100%		
Cooper Basin Map Folios 1 and 2 (hardcopy)	100%		
MESA Journal (previously MIQ)	94%	100%	-6%
Petroleum Exploration and Development in SA	93%	100%	-7%
Well Completion Reports (Hardcopy)	91%		
Digital well logs –100 Cooper wells	86%		
PEPS-SA	80%	100%	-20%
Regional Otway Basin Seismic datasets	50%	100%	-50%
Adelaide Plains Gas Storage CD-ROM Data package (No respondent had product)			

Conclusions

Satisfaction was again very high for all the products. Since 1996 there is apparently an increased satisfaction level with petroleum tenements information sheet and decreased satisfaction levels with the Otway Basin regional seismic datasets, PEPS, and to lesser extent, MESA Journal and Petroleum Exploration and Development in SA. The changes since 1996 may not be significant, as very few respondents had those products.

PREFERENCE FOR HARDCOPY OR DIGITAL PUBLICATIONS

The interviewees were asked a series of questions designed to determine whether users of products were price or format sensitive.

	% Preference for digital
If publications were priced essentially the same	74%
If digital publication cheaper	90%
If hardcopy publication cheaper	35%
Proportion of respondents who indicated a preference for digital in all circumstances	35%
Proportion of respondents who indicated a preference for hardcopy in all circumstances	10%

Conclusion

Digital media is clearly preferred, providing it is priced cheaper or the same as hardcopy. Eliminating the option of purchasing hardcopy altogether would frustrate less than 10% of our customers, but a service option to print from the digital copy could still be provided at cost

FUTURE TECHNICAL PROJECTS

Interviewees were asked how useful to them they felt were a number of technical projects to be undertaken over the next few years by PIRSA.

A score of 1 = extremely useful, 5 = reasonably worthwhile, 10 = waste of effort.

Future technical projects

Score	Update of regional seismic datasets, Otway Basin	Petroleum Geology of SA series Vol. 5 Bight and Duntroon Basins	Warburton Basin reservoirs, seals and traps	Cooper Basin seal evaluation	Cooper-Eromanga Basins secondary migration study
1	3%	3%			3%
2	7%			17%	20%
3		3%	7%	13%	7%
4	13%	10%	7%		10%
5	20%	13%	10%	23%	20%
6	3%			3%	7%
7	17%	13%	17%	10%	10%
8	20%	23%	17%	13%	3%
9	3%	17%	23%	3%	7%
10	13%	17%	20%	17%	13%
% < 5	23%	17%	13%	30%	40%
Average score	6.3	7.2	7.6	5.8	5.3
Rank	**3**	**4**	**5**	**2**	**1**

Conclusion

In general, support for these projects was polarised with either strong support for or against the projects. The support was strongest for the Cooper projects, and least for the Warburton and Bight/Duntroon projects. Only one project (Cooper/Eromanga Basins secondary migration study) had an average score less than 5.5 (ie there were more respondents who thought this project was useful than those who thought it was a waste of effort).

PETROLEUM WEBSITE

Approximately 23% of the interviewees (7 respondents) had previously logged on the our website. These respondents were then asked to rate the site in terms of accessibility, usefulness and reliability.

A score of 1 = excellent, 5 = average , 10 = very poor.

	Website		
	Accessibility	Usefulness	Reliability
Score			
1			
2	14%	29%	14%
3	57%	29%	14%
4		14%	29%
5	14%	14%	29%
6			
7	14%		14%
8		14%	
9			
10			
% < 5	71%	71%	57%
Average score	3.7	3.9	4.3

Conclusion

The Petroleum website is well regarded by industry, with 86% of users rating the site above average (<5 average scores). Reliability appears be an area that could be improved. Initiatives to increase the awareness and use by industry of the site may also warrant consideration. Respondents were asked if they had any suggestions for additions or subtractions for the site - one comment was received that suggested "links to other relevant departments". It is assumed that this refers to other equivalent departments in other states. At the time of writing this report the "links" icon was not working and in any case links were provided to only a limited number of other relevant departments, however, the present website is substantially different from the website that was in existence immediately prior to the survey. The conclusions may thus be of limited value in assessing the present views of industry. It may be of value in future surveys that speed of access to the site is also investigated.

INFORMATION FOR COOPER BASIN BIDDING ROUNDS

Interviewees (30 respondents) were asked what information they would like to access if they were to bid on exploration blocks offered in the upcoming Cooper Basin bidding rounds. Similar questions were asked in the 1996 survey, prior to release of Round 1 (26 respondents).

A score of 1 = extremely useful, 5 = reasonably worth while, 10 = waste of effort.

Product
Eight depth horizon maps (base Tertiary to Basement)
Regional seismic cross sections
Digital summary well data (PEPS)
Production data from all fields
Database of PIRSA interpreted formation tops
Burial history of Cooper/Eromanga/Lake Eyre Basin
Cooper Basin Source rock/biomarker study
Cost of production, processing and transportation from Cooper oil and gas fields
Pet Geol of SA Vol 4 Cooper Basin
Digital seismic sections – SEG-Y format

Digital seismic sections - raw/processed tapes
Seismic shot point location maps (digital or hard copy)
Regional reservoir characteristic maps
Regional source and maturity maps
Cooper Basin Lineament analysis
Estimates of undiscovered reserves
Hard copy data (well completion reports, seismic sections, well logs)
Warburton Basin Study
Diagenesis of Merrimelia Formation
AGSO Cooper Basin Aeromagnetic data

Note: a negative score change indicates a lower perceived usefulness of the product since 1996, a positive score increased perceived usefulness.

	Regional Studies						
	6 Burial history	7 Source rock	19 Merrimelia Fm diagenesis	13 Reservoir maps	14 Source and maturity maps	1 Regional seismic	18 Warburton Basin study
Score	**Score Frequency**						
1	3% (4%)	7% (4%)		7% (4%)	13% (8%)	20% (4%)	3% (0%)
2	20% (35%)	10% (27%)	3% (4%)	27% (31%)	20% (23%)	33% (19%)	0% (4%)
3	13% (12%)	20% (19%)	13% (12%)	27% (27%)	33% (19%)	13% (0%)	3% (12%)
4	23% (12%)	20% (15%)	17% (19%)	20% (8%)	3% (4%)	13% (4%)	13% (19%)
5	20% (19%)	17% (12%)	20% (15%)	10% (15%)	13% (4%)	10% (8%)	17% (19%)
6	7% (0%)	10% (4%)	17% (12%)		3% (4%)		10% (19%)
7	3% (4%)	10% (4%)	13% (8%)	0% (4%)	0% (4%)	3% (4%)	13% (15%)
8	7% (8%)	7% (8%)	7% (8%)	7% (8%)	10% (8%)	3% (8%)	10% (8%)
9	3% (4%)	0% (4%)	7% (8%)	3% (0%)	3% (0%)	3% (0%)	20% (19%)
10			3% (8%)				10% (0%)
% < 5	60% (65%)	57% (69%)	33% (42%)	80% (73%)	70% (62%)	80% (77%)	20% (35%)
Average score	4.2 (3.9)	4.3 (3.9)	5.5 (5.6)	3.5 (3.6)	3.6 (4.0)	3.1 (3.1)	6.6 (5.5)
Rank	13 (13)	14 (12)	17 (18)	9 (10)	12 (14)	5 (2)	20 (17)
Av. Score change	-0.3	-0.3	+0.1	+0.1	+0.4	0	-1.1

	Other Studies					
	2 Regional seismic cross sections	20 AGSO aeromag	8 Costs of production	9 Cooper Basin publication	15 Lineament analysis	16 Undiscovered reserves
Score	**Score Frequency**					
1	13% (12%)	0%	27% (23%)	10% (8%)	3% (4%)	3% (4%)
2	37% (42%)	0%	33% (15%)	23% (27%)	3% (12%)	3% (15%)
3	23% (19%)	13%	17% (31%)	27% (31%)	10% (8%)	0% (8%)
4	3% (12%)	20%	10% (12%)	13% (0%)	30% (23%)	23% (15%)
5	7% (0%)	17%	10% (8%)	17% (23%)	13% (27%)	27% (15%)
6	7% (4%)	20%	0% (4%)	0% (4%)	7% (12%)	7% (12%)
7	3% (4%)	20%		3% (0%)	7% (8%)	13% (12%)
8	3% (4%)	7%	3% (4%)	3% (4%)	20% (8%)	10% (12%)
9	3% (0%)	3%		3% (0%)		3% (4%)
10		0%	0% (4%)		7% (0%)	10% (4%)
% < 5	77% (88%)	33%	87% (81%)	73% (69%)	47% (46%)	30% (42%)
Average score	3.2 (2.9)	5.5	2.6 (3.2)	3.5 (3.3)	5.4 (4.6)	5.8 (5.1)
Rank	6 (1)	17	3 (3)	10 (7)	16 (15)	19 (16)
Av. Score change	-0.3		+0.6	-0.2	-0.8	-0.7

Supporting Data Requirements							
	3 Digital summary well data (PEPS)	5 Formation Tops	4 Production data	10 SEG-Y seismic	11 Raw seismic	12 Shot point locations	17 Hardcopy data
Score	**Score Frequency**						
1	23%	7% (8%)	20% (23%)	50% (20%)	17% (8%)	63% (27%)	30% (27%)
2	37%	30% (46%)	17% (27%)	13% (36%)	13% (28%)	13% (31%)	17% (31%)
3	20%	27% (8%)	13% (15%)	10% (8%)	3% (16%)	10% (15%)	10% (15%)
4	7%	7% (4%)	23% (12%)	17% (12%)	20% (16%)	7% (4%)	17% (8%)
5	10%	17% (23%)	10% (8%)	7% (0%)	7% (4%)	3% (4%)	17% (4%)
6	0%	7% (0%)	10% (0%)		7% (4%)	0% (4%)	3% (0%)
7	0%		3% (0%)		17% (0%)		3% (0%)
8	3%	3% (4%)	3% (12%)	3% (8%)	13% (16%)	3% (12%)	0% (12%)
9	0%	3% (4%)		0% (4%)			3% (0%)
10	0%		0% (4%)		3% (0%)		0% (4%)
% < 5	87%	70% (73%)	73% (77%)	90% (80%)	53% (72%)	93% (77%)	73% (81%)
Average score	3.1	3.5 (3.3)	3.3 (3.4)	2.3 (3.4)	4.6 (3.9)	1.9 (3.2)	3.2 (3.2)
Rank	4	11 (6)	8 (9)	2 (8)	15 (11)	1 (5)	7 (3)
Av. Score change		-0.2	+0.1	+1.1	-0.7	+1.3	0

Conclusion

The most valued products for evaluation of Cooper Blocks are basic data on wells and seismic, with data on production economics. Regional maps summarising basic data also appear to be highly valued (eg the Cooper Folio), but more specialised studies such which may address new play types etc are not highly valued. This may relate to the conclusions drawn from the relatively lower score for scientific rigour of our data in general - ie the bidding companies prefer to make their own proprietary interpretations which they believe may give them a competitive edge.

PROSPECTIVE BASINS (QUESTION 22)

Respondents were asked about each South Australian basin. Firstly, if they thought it was prospective, (ie. they seriously consider applying for an exploration licence if vacant acreage were available), and secondly what they saw as the risk factors for economic discoveries.

COOPER BASIN

Prospectivity	number	%
Not sure	2 (5)	6% (19%)
Not prospective	11 (0)	38% (0%)
Prospective	18 (21)	62% (100%)
Reasons		
Lack of infrastructure or access	15 (11)	48% (37%)
Targets too small	8 (3)	26% (10%)
Land access	2 (6)	6% (20%)
Corporate policy	2 (0)	6% (0%)
Poor seal/structural integrity	2 (0)	6% (0%)
Poor source/reservoir communication	1 (2)	3% (7%)
Lack of knowledge of basin	1 (0)	3% (0%)
Too remote from markets	0 (2)	0% (7%)
Poor reservoir	0 (1)	0% (3%)
Immature source	0 (2)	0% (7%)
Poor timing of migration	0 (2)	0% (7%)

Conclusions

There is a rather disturbing change of view of the prospectivity from 1996 to 1999, with a significant number of industry respondents viewing the Cooper Basin as non-prospective, in spite of an increase in the awareness of the basin in SA. The recent high levels of bidding and interest for the CO98 and CO99 blocks might appear to be at odds with this conclusion, however another interpretation is that if the 1996 industry concerns had been allayed then the interest and competition for blocks may have been even higher. The major concerns of industry in 1996 were the access to infrastructure (pipelines, Moomba Plant, gathering system) and uncertainty over access to land (ie any post PEL 5and6 rights of the existing licensees). While the access to land concern appears have abated, the access to infrastructure issue is of even more concern to the industry in 1999 than in 1996. As in the 1996 survey, the targets are also still seen as too small to warrant significant interest by some industry respondents.

OTWAY BASIN (ONSHORE)

Prospectivity	**Number**	**%**
Not sure	2 (6)	6% (24%)
Not prospective	14 (3)	48% (16%)
Prospective	15 (16)	52% (84%)
Reasons		
Poor seal/structural integrity	10 (10)	36% (27%)
Targets too small	9 (4)	32% (11%)
Poor timing of migration	4 (4)	14% (11%)
Poor source quality	3 (2)	11% (5%)
Data density	1 (4)	4% (11%)
Lack of knowledge	1 (2)	4% (5%)
“poor success rate”	1	(4%)
“lack hi quality seismic”	1	(4%)
“corp focus NWS”	1	(4%)
Poor source/reservoir communication	0 (4)	0% (11%)
Land access	0 (3)	0% (8%)
Immature source	0 (1)	0% (3%)
Poor reservoir	0 (1)	0% (3%)
Gas prone	0 (1)	0% (3%)
Lack of infrastructure	0 (1)	0% (3%)

OTWAY BASIN (OFFSHORE)

Prospectivity	number	%
Not sure	5 (6)	16% (24%)
Not prospective	18 (3)	62% (16%)
Prospective	8 (16)	28% (84%)
Reasons		
Poor seal/structural integrity	9 (10)	30% (27%)
Targets too small	5 (4)	17% (11%)
Lack of knowledge	3 (2)	10% (5%)
"onshore focus only/too costly"	3	10%
Poor timing of migration	1 (4)	3% (11%)
Poor source/reservoir communication	0 (4)	0% (11%)
Data density	0 (4)	0% (11%)
Poor source quality	2 (2)	7% (5%)
Immature source	1 (1)	3% (3%)
Poor reservoir	1 (1)	3% (3%)
Gas prone	0 (1)	0% (3%)
Lack of infrastructure	0 (1)	0% (3%)
Water depth	1	3%
"corp focus NWS"	1	3%
"poor seismic quality"	1	3%
"environ. Issues for prodn."	1	3%
Too remote from markets	1 (0)	3% (0%)

Note: the 1996 survey asked about the "Otway Basin" without separating on and off shore, therefore the 1996 results have been included in both cases for comparison.

Conclusions

As for the Cooper Basin, the Otway Basin appears to be well known, but a only minority (28%) view the offshore basin as prospective, with interviewees citing poor structural/seal integrity and too small targets as the main reason. Onshore, the basin is viewed as more prospective (52% view as prospective), with similar concerns of targets being to small and poor structural/seal integrity as the main risk factors. These risk factors were similar to those perceived in 1996. Again there is also a disturbing decrease in the view by industry of prospectivity since 1996.

WESTERN EROMANGA BASIN

Prospectivity	Number	%
Not sure	0 (13)	0% (52%)
Not prospective	20 (7)	65% (58%)
Prospective	11 (5)	35% (42%)
Reasons		
Poor source quality	8 (5)	26% (8%)
Targets too small	6 (3)	19% (5%)
Immature source	4 (11)	13% (18%)
Lack of infrastructure	4 (6)	13% (10%)
Land access	3 (6)	10% (10%)
Poor source/reservoir communication	2 (1)	6% (2%)
Poor timing of migration	2 (7)	6% (12%)
Too remote from markets	1 (9)	3% (15%)
Lack of knowledge	1 (4)	3% (7%)
“not a priority at this stage”	1	3%
Poor seal/structural integrity	0 (3)	0% (5%)
Data density	0 (3)	0% (5%)
Poor reservoir	0 (1)	0% (2%)
Seismic resolution	0 (1)	0% (2%)

Conclusions

Their appears to have been a dramatic increase in the awareness of the Western Eromanga Basin in South Australia since 1996, from 48% to 100% awareness. However, the view of prospectivity has decreased slightly from 42% to 35%. Perceived risk factors appear to still be source related as in the 1996 survey, however, there is an increased perception that targets are too small.. The industry may be including the more prospective Cooper Sector of the Eromanga Basin when giving their views on prospectivity – this may need to be clarified in future surveys.

OFFICER BASIN

Prospectivity	Number	%
Not sure	2 (17)	6% (68%)
Not prospective	26 (5)	90% (63%)
Prospective	3 (3)	10% (38%)
Reasons		
Poor source quality	9 (6)	29% (10%)
Too remote from markets	7 (9)	23% (15%)
Poor reservoir	4 (6)	13% (10%)
Land access	3 (6)	10% (10%)
Poor timing of migration	3 (5)	10% (8%)
Lack of knowledge	2 (7)	6% (11%)
Lack of infrastructure	1 (6)	3% (10%)
Source maturity	1 (3)	3% (5%)
Poor seal/structural integrity	1 (1)	3% (2%)
Data density	0 (6)	0% (10%)
Poor source/reservoir Communication	0 (2)	0% (3%)
Gas prone	0 (1)	0% (2%)
Targets too small	0 (1)	0% (2%)

Conclusions

While there has been a significant increase in awareness of the Officer Basin since 1996, there has been a slight decrease in the perceived prospectivity of the basin, with source rock quality and remoteness from markets appearing to be the major perceived risks. These are similar to the 1996 results, with source rock quality being perceived as a much more important risk in 1999.

ARROWIE BASIN

Prospectivity	number	%
Not sure	2 (21)	6% (84%)
Not prospective	25 (3)	86% (75%)
Prospective	4 (1)	14% (25%)
Reasons		
Poor source quality	9 (5)	29% (25%)
Lack of knowledge	8 (4)	26% (20%)
Poor reservoir	5 (2)	16% (10%)
Immature source	3 (2)	10% (10%)
Poor timing of migration	3 (1)	10% (5%)
Land access	2 (0)	6%
Poor seal/structural integrity	1 (1)	3% (5%)
Data density	0 (1)	0% (5%)
Too remote from markets	0 (3)	0% (15%)
Lack of infrastructure	0 (1)	0% (5%)

Conclusions

Perceptions by industry appear to be little changed from 1996, with a very significant increase in awareness of the basin. The main risk factors remain as poor source quality and lack of knowledge (in common with the other Cambrian Basins).

STANSBURY BASIN

Prospectivity	Number	%
Not sure	1 (18)	3% (72%)
Not prospective	30 (5)	100% (71%)
Prospective	0 (2)	0% (29%)
Reasons		
Lack of knowledge	12 (3)	40% (17%)
Poor source quality	5 (4)	17% (22%)
Immature Source	4 (0)	13% (0%)
Poor reservoir	2 (4)	7% (22%)
Poor timing of migration and structuring	2 (0)	7% (0%)
Targets too small	2 (1)	7% (6%)
"offshore/too costly"	2 (1)	7% (6%)
"lack of basin/ section"	1 (1)	3% (6%)
Data density	0 (3)	0% (17%)
Too remote from markets	0 (1)	0% (6%)

Conclusions

The awareness of the basin has significantly improved, possibly due to the well publicised "Maersk Victory" accident in 1996 (which occurred after the 1996 survey was conducted). However, the main risk factor is perceived as "lack of knowledge of the basin" and immature source rocks. No respondents perceived the basin as prospective. The results of offshore drilling in 1998 are only just available, which would perhaps address the lack of knowledge problem, but is likely to result in very negative perceptions of lack of reservoir and source rocks. A promotional focus on a "re-badged" onshore portion of the basin might revive this basin as a prospective exploration target by the industry.

MURRAY BASIN

Prospectivity	**number**	**%**
Not sure	1 (14)	3% (56%)
Not prospective	31 (0)	100% (91%)
Prospective	0 (1)	0% (9%)
Reasons		
Lack of knowledge	11 (3)	35% (9%)
Immature source	8 (10)	26% (29%)
Poor source quality	5 (7)	16% (21%)
Poor timing of migration	3 (1)	10% (3%)
Poor reservoir	2 (1)	6% (3%)
Poor seal/structural integrity	1 (2)	3% (6%)
Land access	1 (1)	3% (3%)
Lack of infrastructure	0 (2)	0% (6%)
Targets too small	0 (1)	0% (3%)
Data density	0 (5)	0% (15%)

Conclusions

The industry view of this basin has remained unchanged; the basin is of low prospectivity with source a major problem.

BIGHT/DUNTROON BASIN

Prospectivity	Number	%
Not sure	8 (15)	26% (63%)
Not prospective	19 (1)	83% (11%)
Prospective	4 (8)	17% (89%)
Reasons		
Lack of knowledge	7 (2)	27% (7%)
Poor source quality	3 (4)	12% (14%)
“too costly operations”	3 (0)	12% (0%)
Immature source	3 (2)	12% (7%)
Data density	2 (3)	8% (11%)
Poor reservoir	2 (2)	8% (7%)
Poor seal/structural integrity	2 (1)	8% (4%)
Too remote from markets	1 (3)	4% (11%)
Water depth	1 (3)	4% (11%)
“onshore focus only”	1 (0)	4% (0%)
“unproven source”	1 (0)	4% (0%)
Lack of infrastructure	0 (2)	0% (7%)
Poor timing of migration	0 (1)	0% (4%)
Poor source/reservoir communication	0 (1)	0% (4%)
Gas prone	0 (1)	0% (4%)
Targets too small	0 (1)	0% (4%)

Conclusions

Industry in 1996 had a surprisingly positive view of the prospectivity of the Bight/Duntroon Basin, but in 1999 this is no longer the perception, in spite of a significant increase in awareness. Lack of knowledge, source rock risks and the high cost of offshore operations are seen as the major problems with the basin.

ARCKARINGA BASIN

Prospectivity	Number	%
Not sure	1	3%
Not prospective	29	97%
Prospective	1	3%
Reasons		
Lack of knowledge	10	32%
Poor source quality	6	19%
Too remote from markets	5	16%
Immature source	3	10%
Poor timing of migration	3	10%
Poor reservoir	2	6%
Lack of infrastructure	1	3%
Targets too small	1	3%

Conclusions

Industry have a poor perception of the prospectivity of this basin, with lack of knowledge, poor source potential and remoteness being the major perceived risk factors. This basin was not included in the 1996 survey.

SIMPSON BASIN

Prospectivity	Number	%
Not sure	1	3%
Not prospective	28	93%
Prospective	2	7%
Reasons		
Lack of knowledge	10	31%
Poor source quality	10	31%
Too remote from markets	8	25%
Immature source	1	3%
Land access	1	3%
Poor reservoir	1	3%
Targets too small	1	3%

Conclusions

Industry have a poor perception of the prospectivity of this basin, with lack of knowledge, poor source potential and remoteness being the major perceived risk factors. This basin was not included in the 1996 survey.

PEDIRKA BASIN

Prospectivity	Number	%
Not sure	2	6%
Not prospective	28	97%
Prospective	1	3%
Reasons		
Poor source quality	9	28%
Immature source	7	22%
Too remote from markets	5	16%
Lack of knowledge	4	13%
Land access	2	6%
Targets too small	2	6%
Poor timing of migration	1	3%
Poor reservoir	1	3%

Conclusions

Industry have a poor perception of the prospectivity of this basin, with lack of knowledge, poor source potential and remoteness being the major perceived risk factors. This basin was not included in the 1996 survey.

SUMMARY OF INDUSTRY VIEWS OF PROSPECTIVITY AND AWARENESS OF BASINS (HIGHEST RANK AT TOP)

Prospectivity rank is based on the % of respondents who believe the basin is prospective.

Awareness/knowledge rank is based on the % of respondents who could make some judgement (either positive or negative) on the prospectivity.

Basin (1996 rank)	**% Prospective**	**% Change since 1996**
Cooper (1)	62%	-38%
Otway (on) (3)	52%	-32%
Western Eromanga (4)	35%	-7%
Otway (off) (3)	24%	-56%
Bight/Duntroon (2)	17%	-67%
Arrowie (7)	14%	-11%
Officer (5)	10%	-28%
Warburton	10%	
Simpson	7%	
Arckaringa	3%	
Pedirka	3%	
Murray (8)	0%	-9%
Stansbury (6)	0%	-29%

Basin	**% awareness**	**% Change since 1996**
Western Eromanga	100%	+52%
Stansbury	97%	+69%
Arckaringa	97%	
Simpson	97%	
Murray	97%	+53%
Cooper	94%	+13%
Otway (on)	94%	+18%
Officer	94%	+62%
Arrowie	94%	+78%
Pedirka	94%	
Warburton	94%	
Otway (off)	84%	+8%
Bight/ Duntroon (off)	74%	+37%

GENERAL PROSPECTIVITY CONCLUSIONS

The average Australian oil price at the time of the survey in 1996 was $A25/bbl (May 1996), compared to $A26/bbl at the time of the 1999 survey (May 1999). However, in the months prior to the 1999 survey, the oil price had been at historically low levels ($US11/bbl) and it is likely that this perception of low oil prices may have influenced interviewees' lower perceptions of prospectivity and exploration economics in general since 1996. A significant number of respondents had the relevant published volume of the Petroleum Geology of South Australia Series (31% for the Otway, 29% for the Eromanga, 7% for the Officer Volume, 28% for the Cooper) and the high increase in awareness may be due to the availability of these publications. However the Cambrian Basins showed a highest increase in awareness (including the Arrowie and Stansbury Basins for which no publication has been produced as yet), and the lowest decrease in perceptions of prospectivity.

SUMMARY OF GENERAL COMMENTS

The following general comments were made by the respondents (comments by a further nine respondents were made and have not been quoted due to their potential to cause offence to parties outside the Department):

- "Would prefer cost of technical data to be less. Would like to see more free of charge presentations to industry and workshops. Make less productive basins more attractive legislatively for newcomers"

- "Survey over-detailed – could throw up spurious results"

- "Important that there be more access to core exploration areas in SA than has been the case in the past"

- "Native title a significant concern.
  title to what?
  compensation definition"

- "Pipeline owners should not be immune from fluctuations in crude/gas price. Royalty should have distance/rate component to encourage marginal production. Incentives for alternative uses for remote resources, eg local power generation, methanol conversion, eg in conjunction with solar"

- "Native title big problem and speed at which it may be resolved. Increase of royalty cause of concern. Overall good Group, have been helpful in all aspects"

- "Elected not to pursue Cooper, Eromanga related to likely cost of access to existing oil and gas pipeline infrastructure. Not related to prospectivity"

- "Consider data should be free – do not worry about cost recovery. Generally an impressive performance especially with relation to Cooper package"

- "Activities in pulling together digitised data for well logs and seismic is to be commended. Key role (apart from regulation) is to ensure data is collected intact and in good condition from companies and made available cheaply"

- "SA Mines Dept trying hard to lift their game"

- "Publications and organisation of data base better than most"

- "SA currently outside company's area of interest. No recent dealings with PIRSA. Amount of effort by PIRSA high"

- "Overall do good job with allocated resources, (part of comment edited out). Access to liquids pipelines initial issue in Cooper which remains to be resolved. PIRSA should be receiving substantial portion of royalties, rather than ad-hoc budget allocations"

- "Data – hard copy should <u>always</u> be available as well as digital. Header information on SEGY digital data is not comprehensive i.e. bulk shift and CDP shot point relationship <u>direction</u> should be included in header. PIRSA is well ahead of other government departments, they maintain an active technical team who relate well with industry"

- "Cheaper or free data at exploration stage increases chances of companies coming in to SA. Digital needs to be in mappable format. Interpretation data more a company than PIRSA issue, (part of comment edited out)"

- "Overall have had a good quality staff who have performed consistently over many years"

GENERAL CONCLUSIONS

The general comments above reflect conclusions that may be drawn from the responses to other parts of the survey. PIRSA Petroleum is perceived by the Australian petroleum industry as one of the best performers in the regulatory and promotional/data services it provides compared to other similar state and federal government agencies.

RECOMMENDATIONS FOR FUTURE SURVEYS

Future surveys should be held every 2 years to ensure continuity of data. Consideration should be given to including overseas companies with some contact with South Australia, this could be via a modified survey that is acquired as part of the AAPG/NAPE conference excursions. Consideration should also be given to surveying other stakeholder groups (eg public, environment groups) via other surveys. The community could be surveyed by including relevant questions on an ABS household survey.

REFERENCES

Austin, P.M., 1994. "MESA Petroleum Industry Survey, 1994"
Morton, J.G.G., 1996. "1996 MESA Industry Survey" *Report Book 96/34*

Appendix A

Interview Questionnaire

APPENDIX 1 INTERVIEW QUESTIONNAIRE

PRIMARY INDUSTRIES AND RESOURCES SOUTH AUSTRALIA

PETROLEUM GROUP 1999 INDUSTRY SURVEY

DATE:____________________ PARTICIPANT NUMBER ☐

(**1**) Which of the Code Numbers best describes your present responsibilities? (Attachment 1) ☐

(**2**) Is your Company currently participating in South Australian petroleum activities? **Y / N**

If YES, in what capacity? **Operator/Non-op**

If NO, has your company previously participated? **Y / N / Not sure**

If YES, please state what years ____

(**3**) What is your Company's approximate annual expenditure on petroleum exploration in Australia?

$_____________________

(**4**) How would you subjectively rate PIRSA's overall performance relating to the petroleum industry?

1 2 3 4 5 6 7 8 9 10

Excellent Average Very poor ☐

(**5**) How would you rate the same overall role performance of similar State and Commonwealth organisations with whom you have experience (no score if no experience)?

1 2 3 4 5 6 7 8 9 10

Much Better Same Much Worse

AGSO ☐

Industry, Science and Resources (former BRS/DPIE) ☐

Tasmania ☐

Victoria ☐

NSW ☐

Queensland ☐

NT ☐

WA ☐

Questions 6 to 11 relate to PIRSA's regulatory activities

(**6**) In general, how do you rate the approach of PIRSA Petroleum Group in regulating petroleum exploration and development activities?

1 2 3 4 5 6 7 8 9 10
Excellent Average Very poor ☐

(7) How would you compare the effectiveness and reliability of the one window access to Government policy of PIRSA for regulation of the industry in SA compared to the State organisations with whom you have experience? (no score no experience)

1 2 3 4 5 6 7 8 9 10
Much Better Same Much Worse

	Effectiveness	Reliability
Tasmania	☐	☐
Victoria	☐	☐
NSW	☐	☐
Queensland	☐	☐
NT	☐	☐
WA	☐	☐

(8) How would you rate PIRSA's regulatory activities in terms of:

1 2 3 4 5 6 7 8 9 10
Excellent Average Very poor

Consistency	☐
Flexibility	☐
Practicality	☐
Transparency	☐
Timeliness	☐
Compliance cost effectiveness	☐

If you gave score of more than 5 above, which particular regulatory activities did you have in mind? (please tick more than one box if necessary)

Environmental objectives	☐
Operation approvals	☐
Operation approval conditions	☐
Production licence grant	☐

Compliance reporting requirements ☐

(9) In respect of Regulatory advice and approvals , how do you rate PIRSA's Petroleum Group staff for :

1 2 3 4 5 6 7 8 9 10
Excellent Average Very poor

Helpfulness: ☐
Professionalism: ☐
Accessibility: ☐

(10) In relation to the technical data reporting requirements in South Australia, do you consider it appropriate that the following information is supplied for later release to the industry at large? (Y/N)

Well completion reports ☐
Open hole well log data ☐
Raw seismic data ☐
Workstation seismic data ☐
Interpreted seismic data ☐
Field reserves ☐
Raw well test data ☐
Interpreted well test data ☐
Production data ☐
Cased well log data (PLTs etc) ☐
Interpretative geologic reports ☐
Core/cuttings analysis reports ☐
Reservoir fluids analysis reports ☐
Downhole equipment and perforation diagrams ☐

Any other data that you consider should be supplied?_______________________________________

(11) In relation to regulatory policy, how often would do you consider that regulatory determinations exercised under the Petroleum Act reflect the interests of the following stakeholders:

1 2 3 4 5 6 7 8 9 10
Commonly Occasionally Never

Particular companies ☐
The industry at large ☐
Environmental groups ☐
Industry groups ☐
Federal government initiatives ☐
Other state government agencies ☐

QUESTIONS 12 TO 22 RELATE TO PIRSA'S PROMOTIONAL ACTIVITIES

(12) In general, how do you rate the approach of PIRSA in promoting prospectivity and attracting petroleum exploration investment?

1 2 3 4 5 6 7 8 9 10

Excellent Average Very poor ☐

In particular do you approve of the following services to industry being carried out by **PIRSA SA Petroleum Group**?:

If you respond No to any of these, please indicate who you think should carry out that service. (Eg operator, service company, consultant or other government department) (no response if Don't know)

(a) Archiving and providing access to all industry exploration and production data (including samples) **Y/ N**

Alternative___________________________________

(b) Consolidating basic data into user friendly and accessible digital databases **Y / N**
(Including verifying and digitising well logs)

Alternative___________________________________

(c) Evaluating exploration and production economics in areas outside existing licences **Y / N**

Alternative___________________________________

(d) Acquiring new data in SA basins that currently attract little or no industry exploration interest (eg Seismic, Aeromag, Source rock analyses) **Y / N**

Alternative___________________________________

(e) Compiling regional interpretations (eg. seismic, stratigraphy, source rock, geological summaries) from industry and MESA derived data **Y / N**

Alternative___________________________________

(f) Independently estimating reserves for discovered fields **Y / N**

Alternative___________________________________

(13) In respect of prospsectivity advice, how do you rate PIRSA's Petroleum Group staff for:

1 2 3 4 5 6 7 8 9 10

Excellent Average Very poor

Helpfulness: ☐

Professionalism: ☐

Accessibility: ☐

(**14**) How do you rate the quality of prospectivity (exploration) data provided by PIRSA's Petroleum Group to industry in terms of:

Appropriateness:

1	2	3	4	5	6	7	8	9	10	
Excellent				Average					Very poor	☐

Scientific Rigour:

1	2	3	4	5	6	7	8	9	10	
Excellent				Average					Very poor	☐

Timeliness:

1	2	3	4	5	6	7	8	9	10	
Excellent				Average					Very poor	☐

Value for Money:

1	2	3	4	5	6	7	8	9	10	
Excellent				Average					Very poor	☐

(**15**) If you have previously applied for a petroleum exploration licence in South Australia, how much would you say that your application relied on data and advice supplied by PIRSA?

Substantial / supporting / not at all / not sure / not previously applied for licence

(**16**) Overall how would you compare the service and data quality of similar State and Commonwealth organisations with whom you have experience (no score if no experience)?

1	2	3	4	5	6	7	8	9	10
Much Better				Same					Much Worse

	Service	*Data*
AGSO	☐	☐
Industry Science and Resources (Former BRS and DPIE)	☐	☐
Tasmania	☐	☐
Victoria	☐	☐
NSW	☐	☐
Queensland	☐	☐
NT	☐	☐
WA	☐	☐

(17) PIRSA has a range of products available for use by the petroleum industry. Please look at the following selection, and say whether or not you were previously aware of the product and whether you have a copy in your company or would consider acquiring a copy, and if you consider it useful to you.

Product	***Cost***	*Aware?* **Y** *or* **N**	**H***ave* **C***onsider* **N***ot consider*	**U***seful* **N***ot useful*
Holders of Petroleum Tenements Quarterly	Free	☐	☐	☐
MESA Journal	Free	☐	☐	☐
Petroleum Services Directory	Free	☐	☐	☐
Petroleum Exploration and Development in SA	Free	☐	☐	☐
Codes of Environmental Practice	Free	☐	☐	☐
Cooper Basin gas economics report	Free	☐	☐	☐
Cooper-Eromanga Basin Exploration				
opportunities Blocks CO98A-K	Free	☐	☐	☐
opportunities Blocks CO99A-H	Free	☐	☐	☐
Seismic Shot point database - Cooper Basin	$75-$100	☐	☐	☐
Digital well logs – Customer selected	$20/Well	☐	☐	☐
Digital well logs – 100 Cooper Basin wells	$100/CD	☐	☐	☐
PEPS-SA (includes map info spatial data)	$3000	☐	☐	☐
Cooper 99 Promotional CD-ROM	Free	☐	☐	☐
Petroleum Geology of SA Series:				
1. Otway	$175	☐	☐	☐
2. Eromanga	$50	☐	☐	☐
3. Officer	$75	☐	☐	☐
4. Cooper	$195	☐	☐	☐
Regional Otway Basin Seismic datasets	$200-$5000	☐	☐	☐
Regional Eromanga/Cooper C-Z Horizon datasets	$250-$4000	☐	☐	☐
Adelaide Plains Gas Storage CD-ROM data package	$100	☐	☐	☐
Cooper Basin map folios 1 and 2 digital (PDF)	$999	☐	☐	☐
Cooper Basin map folios 1 and 2 (hardcopy)	$5000	☐	☐	☐
Well Completion Reports (digital PDF)	$20	☐	☐	☐
Well Completion Reports (Hardcopy)	$75-$1000	☐	☐	☐
Cooper Basin (stacked seismic) SEG-Y	$22400	☐	☐	☐

(18) PIRSA Petroleum Group is proposing to further develop more publications with digital files (eg PDF's) on CD-Rom as an alternative to hard copy.

If the publications were priced essentially the **same**, what would your preference be?

Hard Copy ☐ **Digital** ☐

If the **digita**l publication was priced significantly less than the hardcopy, what would your preference be?

Hard Copy ☐ **Digital** ☐

If the **hardcopy** publications was priced significantly less than the digital, what would your preference be?

Hard Copy ☐ **Digital** ☐

(19) PIRSA Petroleum Group is undertaking the following technical projects over the next few years. How useful do you think these are TO YOUR COMPANY?

1	2	3	4	5	6	7	8	9	10
Extremely Useful				Reasonably Worthwhile					Waste of effort

Project	When available	Usefulness
Update of regional seismic datasets, Otway Basin	1999	☐
Pet Geol of SA Vol.5 Bight and Duntroon Basins	1999	☐
Warburton Basin reservoirs, seals and traps	1999	☐
Cooper Basin seal evaluation	2001	☐
Cooper-Eromanga Basin Secondary Migration study	2002	☐

(**20**) PIRSA Petroleum Group has a Website: www.mines.sa.gov.au/petrol

	Y	**N**
Have you ever logged onto this site?	☐	☐

If yes, how would you rate the site in terms of :

1	2	3	4	5	6	7	8	9	10
Excellent				Satisfactory					Very poor

Accessibility	☐
Usefulness	☐
Reliability	☐

Do you have any suggestions for additions/subtractions to assist PIRSA in a major upgrade of their Website in 1999?

(**21**) In February 1999, PELs 5 and 6 (Cooper Basin) expired and previous exploration acreage was opened for competitive exploration work program bids. The first round of outer blocks was available for bidding from 15 October 1998 to 11 March 1999. The second round was offered on 8 April 1999 with closing date of Thursday 25 November 1999. If you were to bid for these areas, what information would you like access to during 1999 to fully evaluate exploration opportunities in the Cooper Basin?

1	2	3	4	5	6	7	8	9	10
Extremely Useful				Reasonably Worthwhile				Waste of effort	

Product	*When available*	*Usefulness*
The 8 horizon regional depth maps from base Tertiary to basement	Now	☐
Regional seismic cross sections	Now	☐
Digital summary well data (PEPS)	Now	☐
Production data from all fields (PEPS)	Now	☐
Database of PIRSA interpreted Formation tops (PEPS)	Now	☐
Burial history of Cooper/Eromanga/Lake Eyre Basin	Now	☐
Cooper Basin Source rock/biomarker study	Now	☐
Cost of production, processing and transportation from Cooper oil and gas field	Now	☐
Pet Geol of SA Vol 4 Cooper Basin	Now	☐
Digital seismic sections - SEG-Y Format	Now	☐
Digital seismic sections - raw/processed tapes	Now	☐
Seismic shot point location maps (digital/hard copy)	Now	☐
Regional reservoir characteristic maps	Now	☐
Regional source and maturity maps	Now	☐
Cooper Basin lineament analysis	Now	☐
Estimates of undiscovered reserves	Now	☐
Hardcopy data (well completion reports, seismic sections, well logs)	Now	☐
Warburton Basin Study	1999	☐
Diagenesis of Merrimelia Formation	1999	☐
AGSO Cooper Basin aeromagnetic data	Now	☐

Other (please specify) ____

(**22**) Does your company consider the following South Australian basins to be prospective? (ie. would you seriously consider applying for an exploration licence if vacant acreage were available)

(a) ***Otway Basin*** (onshore part only) **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

- Poor source quality ☐
- Immature source ☐
- Poor reservoir ☐
- Poor seal/structural integrity ☐
- Poor timing of migration and structuring ☐
- Poor communication of source and reservoir ☐
- Targets too small ☐
- Data density (lack of previous drilling or seismic) ☐
- Lack of knowledge of basin in SA ☐
- Lack of, or access to infrastructure ☐
- Too remote from markets ☐
- Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ____

(b) ***Otway Basin*** (offshore part only) **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

- Poor source quality ☐
- Immature source ☐
- Poor reservoir ☐
- Poor seal/structural integrity ☐
- Poor timing of migration and structuring ☐
- Poor communication of source and reservoir ☐
- Targets too small ☐
- Data density (lack of previous drilling or seismic) ☐
- Lack of knowledge of basin in SA ☐
- Lack of, or access to infrastructure ☐
- Too remote from markets ☐
- Water depth ☐

Other specify ____

(c) ***Western Eromanga Basin*** **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

- Poor source quality ☐
- Immature source ☐
- Poor reservoir ☐
- Poor seal/structural integrity ☐
- Poor timing of migration and structuring ☐
- Poor communication of source and reservoir ☐
- Targets too small ☐
- Data density (lack of previous drilling or seismic) ☐
- Lack of knowledge of basin in SA ☐
- Lack of, or access to infrastructure ☐
- Too remote from markets ☐
- Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ____

(d) ***Pedirka Basin*** **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

- Poor source quality ☐
- Immature source ☐
- Poor reservoir ☐
- Poor seal/structural integrity ☐
- Poor timing of migration and structuring ☐
- Poor communication of source and reservoir ☐
- Targets too small ☐
- Data density (lack of previous drilling or seismic) ☐
- Lack of knowledge of basin in SA ☐
- Lack of, or access to infrastructure ☐
- Too remote from markets ☐
- Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ____

(e) ***Simpson Basin*** **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

Poor source quality ☐
Immature source ☐
Poor reservoir ☐
Poor seal/structural integrity ☐
Poor timing of migration and structuring ☐
Poor communication of source and reservoir ☐
Targets too small ☐
Data density (lack of previous drilling or seismic) ☐
Lack of knowledge of basin in SA ☐
Lack of, or access to infrastructure ☐
Too remote from markets ☐
Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ______________________________

(f) ***Arckaringa Basin*** **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

Poor source quality ☐
Immature source ☐
Poor reservoir ☐
Poor seal/structural integrity ☐
Poor timing of migration and structuring ☐
Poor communication of source and reservoir ☐
Targets too small ☐
Data density (lack of previous drilling or seismic) ☐
Lack of knowledge of basin in SA ☐
Lack of, or access to infrastructure ☐
Too remote from markets ☐
Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ______________________________

(g) ***Officer Basin*** **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

Poor source quality ☐
Immature source ☐
Poor reservoir ☐
Poor seal/structural integrity ☐
Poor timing of migration and structuring ☐
Poor communication of source and reservoir ☐
Targets too small ☐
Data density (lack of previous drilling or seismic) ☐
Lack of knowledge of basin in SA ☐
Lack of, or access to infrastructure ☐
Too remote from markets ☐
Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ____

(h) ***Arrowie Basin*** **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

Poor source quality ☐
Immature source ☐
Poor reservoir ☐
Poor seal/structural integrity ☐
Poor timing of migration and structuring ☐
Poor communication of source and reservoir ☐
Targets too small ☐
Data density (lack of previous drilling or seismic) ☐
Lack of knowledge of basin in SA ☐
Lack of, or access to infrastructure ☐
Too remote from markets ☐
Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ____

(i) ***Stansbury Basin*** (onshore and offshore- state legislation) **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

- Poor source quality ☐
- Immature source ☐
- Poor reservoir ☐
- Poor seal/structural integrity ☐
- Poor timing of migration and structuring ☐
- Poor communication of source and reservoir ☐
- Targets too small ☐
- Data density (lack of previous drilling or seismic) ☐
- Lack of knowledge of basin in SA ☐
- Lack of, or access to infrastructure ☐
- Too remote from markets ☐

Other specify ____

(j) ***Warburton Basin*** **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

- Poor source quality ☐
- Immature source ☐
- Poor reservoir ☐
- Poor seal/structural integrity ☐
- Poor timing of migration and structuring ☐
- Poor communication of source and reservoir ☐
- Targets too small ☐
- Data density (lack of previous drilling or seismic) ☐
- Lack of knowledge of basin in SA ☐
- Lack of, or access to infrastructure ☐
- Too remote from markets ☐
- Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ____

(k) ***Murray Basin***, including Permian Nadda Basin and Devonian Darling Basin **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

Poor source quality ☐
Immature source ☐
Poor reservoir ☐
Poor seal/structural integrity ☐
Poor timing of migration and structuring ☐
Poor communication of source and reservoir ☐
Targets too small ☐
Data density (lack of previous drilling or seismic) ☐
Lack of knowledge of basin in SA ☐
Lack of, or access to infrastructure ☐
Too remote from markets ☐
Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ______________________________

(l) ***Bight-Duntroon Basins*** (Offshore) **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you do not consider it worthwhile for your company to apply for vacant acreage, or if yes, what do you consider to be the greatest risk factor for economic discoveries?

Poor source quality ☐
Immature source ☐
Poor reservoir ☐
Poor seal/structural integrity ☐
Poor timing of migration and structuring ☐
Poor communication of source and reservoir ☐
Targets too small ☐
Data density (lack of previous drilling or seismic) ☐
Lack of knowledge of basin in SA ☐
Lack of, or access to infrastructure ☐
Too remote from markets ☐
Water depth ☐

Other specify ______________________________

(m) ***Cooper Basin*** ____ **Y/N/Not Sure**

If No, what would you say is the MAIN reason that you would not consider it worthwhile for your company to apply for vacant acreage, or if yes, what would you consider to be the greatest risk factor for economic discoveries?

Poor source quality ☐
Immature source ☐
Poor reservoir ☐
Poor seal/structural integrity ☐
Poor timing of migration and structuring ☐
Poor communication of source and reservoir ☐
Targets too small ☐
Data density (lack of previous drilling or seismic) ☐
Lack of knowledge of basin in SA ☐
Lack of, or access to infrastructure ☐
Too remote from markets ☐
Land access problems (eg Aboriginal lands, Native Title, National Parks) ☐

Other specify ____

(23) Overall how would you compare the performance of the regulatory and promotional functions of similar State and Commonwealth organisations with whom you have experience? (no score if no experience)

1 2 3 4 5 6 7 8 9 10
Much Better Same Much Worse

	Regulation	*Promotion*
AGSO	N/A	☐
Industry, Science and Resources (former BRS and DPIE)	☐	☐
Tasmania	☐	☐
Victoria	☐	☐
NSW	☐	☐
Queensland	☐	☐
NT	☐	☐
WA	☐	☐

(24) Do you have any other comments to make?

ATTACHMENT 1:

JOB CODES

Responsibilities	***Code Number***
Senior Management (a reporting point for Middle Management or above: *at executive decision level)*	**1**
Middle Management (eg Regional Manager; Engineering and Production; *a technical management reporting point; but non-executive)*	**2**
Technical Management (eg Exploration Manager; Engineering Manager; *the first multidiscipline reporting level)*	**3**
Senior Technical (eg Chief Geophysicist; Chief Petroleum Engineer; *a discipline leader, reporting to Technical Management)*	**4**
Technical (eg Senior Geologist; Geophysicist; *reporting to a discipline leader)*	**5**
Consultant	**6**