



Highlights

- Petroleum discoveries continued in the December quarter. *Offshore*, two oil discoveries were made at Altostratos in the Carnarvon Basin and at Katrandra in the Bonaparte Basin. Gas discoveries were made at Moby, Martha and Trefoil in the Gippsland, Otway and Bass Basins respectively. *Onshore*, three oil, one oil and gas and six gas discoveries were made all in the Cooper and Eromanga Basins of South Australia and Queensland.
- During 2004 there were a total of ten *offshore* discoveries, six in the Carnarvon Basin (4 oil, 1 oil and gas and 1 gas), one in the Gippsland Basin (gas), one in the Otway Basin (gas), one in the Bass Basin (gas) and one in the Bonaparte Basin (oil) – See Table 4. *Onshore* there were a total of 28 discoveries of which 21 were in the Cooper and Eromanga Basins (14 gas, 1 oil and gas, 6 oil), one in the Gippsland Basin (gas), one in the Surat Basin (oil), and five in the Perth Basin (1 oil, 4 gas)- See Table 4
- *Offshore* exploration drilling in 2004 accounted for 50 wells drilled which is below the average number drilled in the last ten years and five wells less than the 55 wells drilled in 2003. *Onshore* exploration drilling in 2004 accounted for 86 wells drilled which is a considerable improvement over the 36 wells drilled in 2003 which was a very low level of drilling.
- Overall seismic activity both 2D and 3D in 2004 is slightly below that acquired in 2003. Both the onshore and offshore seismic acquisitions failed to reach 2003 levels.

Drilling activity

Exploration drilling (Tables 1–3 & Figure 1) for the December quarter 2004, totalled 39 wells, 13 more than drilled during the same period in 2003 and eight more than the 31 wells drilled in the previous quarter.

Offshore exploration wells drilled during the December quarter 2004 totalled 15 which is six more than in the December quarter 2003 and four more than in the previous quarter. Four of these wells were drilled in the Carnarvon Basin, three each in the Otway and Gippsland basins, two in the Bonaparte Basin and one each in the Bass, Browse and Perth Basins.

Onshore exploration wells in the December quarter 2004 totalled 24 which is four more than the previous quarter and seven more than the December quarter 2003. Sixteen of these wells were drilled in the Cooper/Eromanga Basin, four in the Perth Basin, Three in the Surat Basin and one in the Gippsland Basin.

Development drilling (Tables 1–3 & Figure 1) activity for the December quarter 2004 of 24 wells is four less than the previous quarter (28) and is the same as the December quarter 2003.

Offshore, the number of development wells drilled during the December quarter 2004 (11) is three less than the previous quarter and two more than the same quarter last year. These wells were drilled in the Carnarvon (7), Bonaparte (3) and Gippsland (1) Basins.

Onshore, development wells drilled in the December quarter (13) is two less than the same quarter last year and one less than the previous quarter. These wells were drilled in the Cooper/Eromanga (7), Surat (3), Amadeus Basin (2), and Bowen (1) Basins.

Figure 1. Wells and metres drilled, 1993-2004

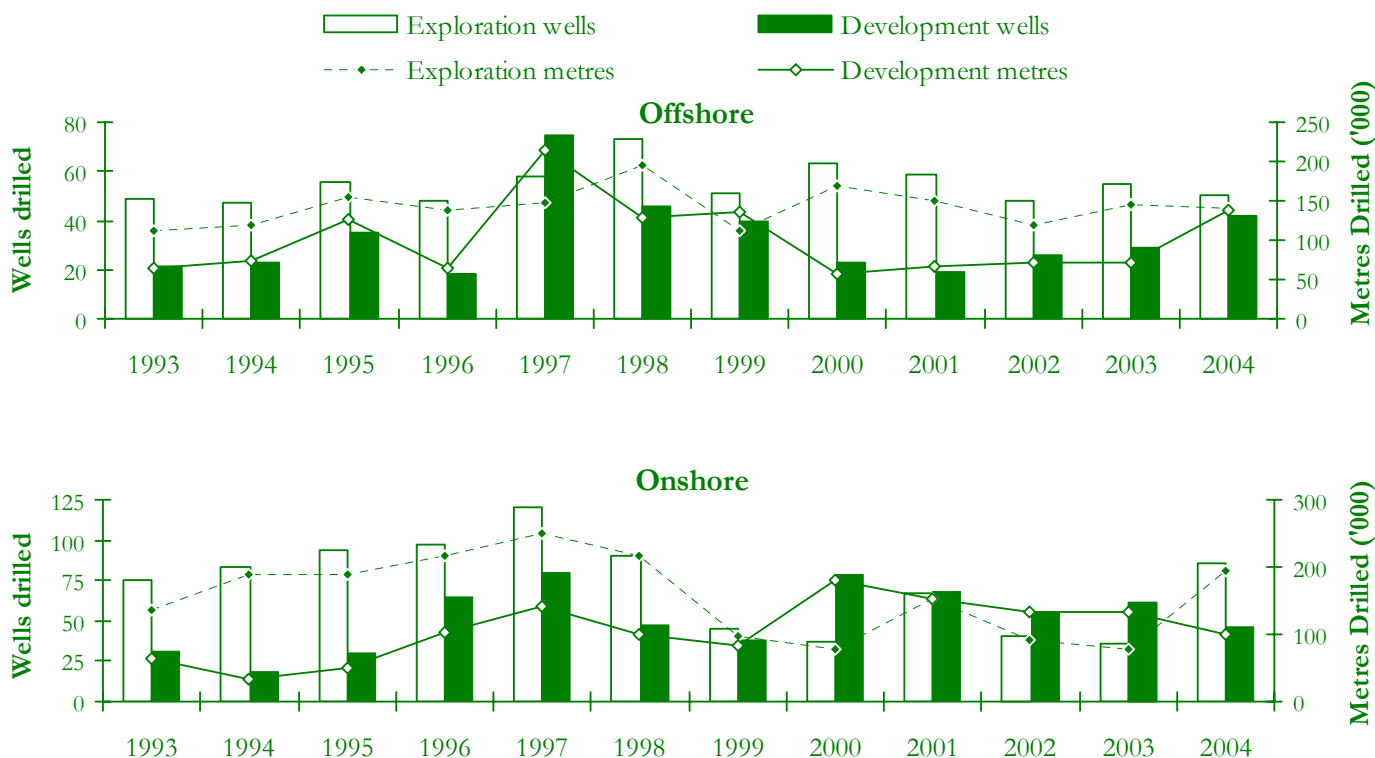


Table 1. Quarterly wells* and metres drilled 2001 to 2004

Quarter Ended	Exploration				Development				Exploration		Development		Total	
	Onshore		Offshore		Onshore		Offshore		Total		Total		Total	
	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres
Sep-01	15	34 358	10	25 184	16	36 543	8	21 175	25	59 542	24	57 718	49	117 260
Dec-01	21	49 280	18	44 465	12	20 291	4	9 932	39	93 745	16	30 283	55	124 028
Total 2001	68	158 009	59	149 805	68	152 959	20	67 207	127	307 814	88	220 226	215	528 040
Mar-02	11	23 164	16	38 668	18	45 639	5	15 771	27	61 832	23	61 410	50	123 242
Jun-02	7	17 099	8	17 921	21	47 860	10	27 989	15	35 020	31	75 849	46	110 869
Sep-02	10	22 673	9	25 023	6	15 539	7	19 198	19	47 696	13	34 737	32	82 433
Dec-02	12	29 102	15	38 655	11	23 448	5	13 188	27	67 757	16	36 636	43	104 393
Total 2002	40	92 038	48	120 267	56	132 486	27	76 146	88	212 305	83	208 632	171	420 937
Mar-03	9	18 600	21	46 773	9	23 160	8	20 462	30	65 373	17	43 622	47	108 995
Jun-03	3	8 475	14	39 797	15	37 653	6	18 916	17	48 272	21	56 569	38	104 841
Sep-03	7	13 552	11	31 885	22	44 381	6	12 953	18	45 437	28	57 334	46	102 771
Dec-03	17	36 970	9	26 249	15	27 221	9	19 978	26	63 219	24	47 199	50	110 418
Total 2003	36	77 597	55	144 704	61	132 415	29	72 309	91	222 301	90	204 724	181	427 025
Mar-04	20	49 106	7	14 483	8	22 276	7	21 985	27	63 589	15	44 261	42	107 850
Jun-04	22	47 951	17	36 541	11	24 579	10	27 278	39	84 492	21	51 857	60	136 349
Sep-04	20	46 391	11	21 227	14	29 549	14	52 696	31	67 618	28	82 245	59	149 863
Dec-04	24	50 396	15	31 866	13	22 840	11	36 449	39	82 262	24	59 289	63	141 551
Total 2004	86	193 844	50	104 117	46	99 244	42	138 408	136	297 961	88	237 652	224	535 613

*Wells that reached total depth during the quarter. †Revised.

Table 2. Onshore and offshore wells and metres drilled, December quarter 2004*

State	Exploration				Development				Onshore		Offshore		Total	
	Onshore		Offshore		Onshore		Offshore		Total		Total		Total	
	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres	Wells	Metres
Qld	8	17 997	0	0	11	20 255	0	0	19	38 252	0	0	19	38 252
Vic	1	2 178	6	12 565	0	0	1	3 283	1	2 178	7	15 848	8	18 026
Tas	0	0	1	3 545	0	0	0	0	0	0	1	3 545	1	3 545
SA	11	21 109	0	0	0	0	0	0	11	21 109	0	0	11	21 109
WA	4	9 112	6	13 439	0	0	7	19 402	4	9 112	13	32 841	17	41 953
NT		0	2	2 317	2	2 585	0	0	2	2 585	2	2 317	4	4 902
JPDA**	0	0	0	0	0	0	3	13 764	0	0	3	13 764	3	13 764
Total	24	50 396	15	31 866	13	22 840	11	36 449	37	73 236	26	54 851	63	141 551

*Wells that reached total depth during the quarter.

Table 3. Onshore and offshore drilling status at 31 December 2004

State	Exploration wells											Development wells											
	Completed or C&S						Abandoned or secured					Completed or C&S					Abandoned or secured						
	D ¹	DA	Sus ²	Oil	Gas	O&G	Dry	Oil	Gas	O&G	Un	D ¹	DA	Sus	Oil	Gas	O&G	Ser ³	Dry	Oil	Gas	O&G	Un
Qld	8	-	5	1	-	-	2	-	-	-	-	11	-	5	1	3	-	-	1	-	1	-	-
Vic	7	1	1	-	-	-	4	-	2	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Tas	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SA	11	1	3	2	-	-	5	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
WA	10	2	-	1	2	-	2	4	1	-	-	7	3	1	5	-	-	-	1	-	-	-	-
NT	2	1	1	-	-	-	1	-	-	-	-	2	-	-	2	-	-	-	-	-	-	-	-
JPDA	-	-	-	-	-	-	-	-	-	-	-	3	1	1	-	-	-	-	2	-	-	-	-
Total Qtr	39	5	11	4	2	-	14	4	4	-	-	24	5	7	7	5	-	-	4	-	1	-	-
2004	136	5	33	10	8	1	62	12	8	2	-	88	5	29	19	14	4	-	20	1	1	-	-
2003	94	4	11	6	9	-	62	6	10	-	-	90	4	48	16	4	1	-	19	2	-	-	-
Previous quarter	31	3	6	3	2	-	15	2	3	-	-	28	3	8	7	3	1	-	9	1	-	-	-

C&S, cased and suspended; D, drilled; DA, drilling ahead; Sus, suspended; O&G, oil and gas; Un, unspecified; Ser, service well; JPDA: Joint Petroleum Development Area.

¹ Excludes wells drilling ahead or suspended. ² Indicates drilling has temporarily stopped before reaching final depth. ³ Classification applicable only to development wells.

⁴ Includes Territory of Ashmore and Cartier Islands.

Discoveries

Table 4 lists details of the reported discoveries of oil and gas during the year ended 31 December 2004.

Table 4. Discoveries*, 1 January to 31 December 2004 (in order of discovery)

Operator	Field	Nature of discovery	Basin	State	Permit
Offshore					
Apache	Monet	Oil	Carnarvon	WA	TL 1
BHP Billiton	Eskdale	Oil & Gas	Carnarvon	WA	WA 255
BHP Billiton	Stickle	Oil	Carnarvon	WA	WA 12
BHP Billiton	Harrison	Oil	Carnarvon	WA	WA 12
ChevronTex	Wheatstone	Gas	Carnarvon	WA	WA-17
Bass Strait	Moby	Gas	Gippsland	Vic	Vic/P47
Santos	Martha	Gas	Otway	Vic	Vic/P44
Origin	Trefoil	Gas	Bass	Tas	T/18P
Strike Oil	Altostratus	Oil	Carnarvon	WA	TP/17
OMV Timor	Katrandra	Oil	Bonaparte	NT	AC/P24
Onshore					
Innamincka	Yarrow	Gas	Cooper/Eromanga	SA	PEL103
Lakes Oil	Wombat	Gas	Gippsland	Vic	PEP157
Santos	Hebe	Gas	Cooper/Eromanga	Qld	ATP259P
Innamincka	Flax	Oil	Cooper/Eromanga	SA	PEL103
Great Artes	Nutmeg	Gas	Cooper/Eromanga	SA	PEL106
Origin	Redback	Gas	Perth	WA	EP320R3
Great Artes	Paranta	Gas	Cooper Eromanga	SA	PEL106

Operator	Field	Nature of discovery	Basin	State	Permit
Onshore (continued)					
Arc Energy	Xyris	Gas	Perth	WA	L1
Stuart Pet	Galilee	Gas	Cooper/Eromanga	SA	PEL90
Santos	Millswood	Gas	Cooper/Eromanga	SA	PPL 143
Santos	Derrilyn	Oil	Cooper/Eromanga	SA	PPL 113
Stuart Pet.	Harpoons	Oil	Cooper/Eromanga	SA	PEL 113
Arc Energy	Apium	Gas	Perth	WA	L 1
Arc Energy	Agonis	Gas	Perth	WA	L 1
Great Art	Smegsy	Gas	Cooper/Eromanga	SA	PEL106
Arc Energy	Centella	Oil	Perth	WA	L1
Oilex	Rookwood South	Oil	Surat	Qld	ATP608P
Innamincka	Willowie	Gas	Cooper/Eromanga	SA	PEL 103
Vic Pet	Ventura	Oil	Eromanga	SA	PEL115
Innamincka	Juniper	Oil & Gas	Cooper	SA	PEL115
Stuart Pet	Arwon	Oil	Cooper	SA	PEL93
Santos	Galex	Gas	Cooper	Qld	PL61
Santos	Yangtse	Gas	Cooper	Qld	PL61
Santos	Cosmo West	Gas	Cooper	SA	PPL117
Santos	Stilton	Gas	Cooper	Qld	ATP259P
Stuart Pet	Beeville	Gas	Eromanga	SA	PEL105
Santos	Hector	Gas	Cooper	Qld	ATP259P
Vic Pet	Mirage	Oil	Eromanga	SA	PEL115

*Subject to revision. † Inferred from logs only

Seismic survey activity

Offshore, there was a total of 11540 km of 2D seismic for the December quarter 2004 (Table 5 & Figure 2). This was 4528 km more than September quarter 2004, and 4904 km more than in the December quarter 2003. The surveys were undertaken in the Carnarvon, Bonaparte, Bremer, Otway and Perth Basins. There was no 3D seismic surveys acquired during the December quarter 2004.

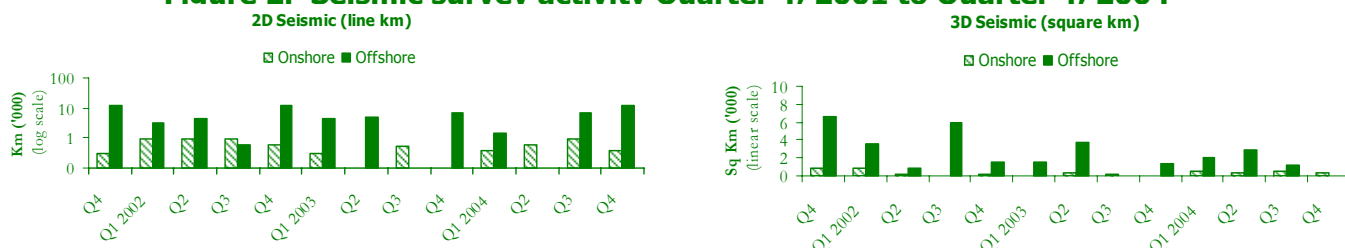
Onshore, a total of 400 km of 2D seismic were acquired during the December quarter 2004. This is 509 km less than in the previous quarter. These surveys were undertaken in the Cooper Basin of South Australia and Queensland. 3D seismic surveys were undertaken over 413 km² which is slightly less than the 428 km² in the previous quarter. These surveys were also carried out in the Cooper Basin.

Table 5. Seismic survey activity

State	2003				Nine months ending September 2004				December Quarter 2004			
	Onshore		Offshore		Onshore		Offshore		Onshore		Offshore	
	2D	3D km ²	2D	3D km ²	2D	3D km ²	2D	3D km ²	2D	3D km ²	2D	3D km ²
Qld	210	509	23	-	154	1140	-	-	152	413	-	-
NSW	175	-	-	-	543	110	1500	-	-	-	-	-
Vic	284	-	954	1709	-	-	-	-	-	-	3881	-
Tas	-	-	1 336	-	-	-	-	-	-	-	-	-
SA	702	-	507	-	1173	52	-	-	248	-	-	-
WA	-	-	18594	6204	-	-	3931	6030	-	-	6016	-
NT	-	-	-	-	-	-	-	-	-	-	1643	-
JPDA*	-	-	678	-	-	-	-	-	-	-	-	-
Sub-total	1 371	509	22092	7913	1870	1302	8512	6030	400	413	11540	-
Grand	<i>Line km 23463</i>				10382				11940			
Total	<i>Square km</i>		8422		7332		413					

*JPDA: Joint Petroleum Development Area. Line: approx. Line km for 3D surveys † Revised.

Figure 2. Seismic survey activity Quarter 4, 2001 to Quarter 4, 2004



Rig activity

The number of active rigs during December 2004 was eighteen, Four more than at the end of September 2004 (14) and one more than at the end of December 2003 (17). Rig activity during the quarter ranged from eighteen to twenty with eighteen rigs active at the end of the quarter.

Offshore, the number of available rigs during the December quarter 2004 is up on the previous quarter, with ten available for July and August and eleven in September. The September quarter 2004 had only Seven available in July and August and six in September. Active rigs were drilling in the Bonaparte, Carnarvon, Bass, Browse, Otway and Gippsland Basins.

Onshore, the number of active rigs during the quarter ended December 2004 varied between nine and twelve, which is the same as the same period last year. The total number of inactive rigs for the December quarter varied between six and eight.

Success rates

The success rates shown in Table 7 are based on the number of petroleum discoveries and new-field wildcat wells drilled in Australia onshore and offshore from 1992 to 2004. No assumptions have been made about whether a 'discovery' has proved or will prove to be commercial. Geoscience Australia defines a discovery as a well from which a measurable amount of oil or gas has been recovered and also includes those discoveries inferred from well logs.

Table 7. Success rates, 1992-2004

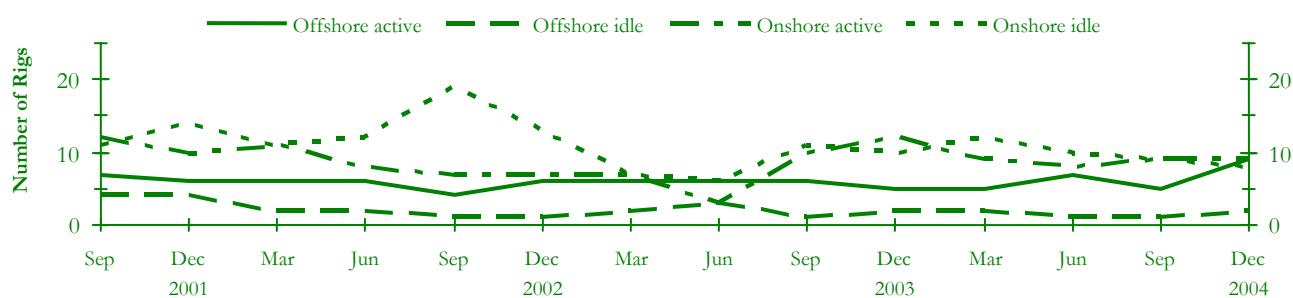
Year	Success Rate		
	Onshore	Offshore	Combined
1992	1:3.4	1:4.3	1:3.7
1993	1:3.4	1:3.5	1:3.4
1994	1:1.9	1:4.0	1:2.3
1995	1:2.8	1:4.7	1:3.4
1996	1:2.8	1:3.5	1:3.1
1997	1:2.1	1:4.6	1:2.6
1998	1:2.2	1:4.9	1:3.0
1999	1:4.0	1:4.0	1:4.0
2000	1:3.3	1:2.9	1:3.0
2001	1:1.9	1:4.0	1:2.6
2002	1:1.5	1:2.8	1:2.2
2003	1:3.5	1:7.1	1:5.2
2004	1:2.2	1:2.8	1:2.3

Table 6. Drilling rig activity, October 2003 to December 2004

	Active				Idle				Availability					
	Onshore		Offshore	Total	Onshore		Offshore	Total	Onshore		Offshore			
	S	M	D		(all deep)	S	M		D	(all deep)	Total	%Active	Total	%Active
Oct-03	0	2	7	5	14	3	2	6	3	14	20	45	8	63
Nov	0	2	9	5	16	3	2	4	2	11	20	55	7	71
Dec	0	2	10	5	17	3	4	3	2	12	22	55	7	71
Jan-04	0	1	10	5	16	3	5	2	3	13	21	52	8	63
Feb	0	1	7	5	13	3	5	5	3	16	21	38	8	63
Mar	0	1	8	5	14	3	5	5	1	14	22	41	6	83
Apr	0	1	8	6	15	3	3	4	2	12	19	47	8	75
May	0	1	9	7	17	3	3	3	1	10	19	53	8	88
Jun	0	1	7	7	15	3	3	4	1	11	18	44	8	88
Jul	0	1	6	6	13	2	3	4	1	10	16	44	7	86
Aug	0	3	7	6	16	3	3	3	1	10	19	53	7	86
Sep	0	2	7	5	14	2	4	3	1	10	18	50	6	83
Oct	0	2	9	7	18	2	2	3	3	10	18	61	10	70
Nov	0	3	9	8	20	1	2	3	2	8	18	67	10	80
Dec	0	2	7	9	18	1	3	4	2	10	17	53	11	82

S, shallow (<1525 m); M, medium (1525–2750 m); D, deep (>2750 m).

Figure 3. Drilling rig activity, September 2001 to December 2004



This publication includes preliminary statistics for wells and metres drilled, seismic survey line & square kilometres recorded and rig activity, to the end of December 2004. The data from which these statistics are derived have been compiled by Geoscience Australia from various sources, including the petroleum exploration industry and State and Northern Territory departments of mines.

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