



**ACTUAL AND EXPECTED  
PRIVATE MINERAL EXPLORATION AUSTRALIA**

EMBARGO: 11:30AM (CANBERRA TIME) TUES 22 DEC 1998

**C O N T E N T S**

*page*

Notes .....	2
Summary of findings .....	3

TABLE

<b>1</b> Private exploration, actual and expected expenditure .....	8
<b>2</b> Mineral exploration (other than for petroleum), expenditure and metres drilled .....	9
<b>3</b> Mineral exploration (other than for petroleum), expenditure by state and territory .....	10
<b>4</b> Mineral exploration (other than for petroleum), expenditure by mineral sought .....	11
<b>5</b> Petroleum exploration expenditure .....	12
<b>6</b> Petroleum exploration by region .....	13
<b>7</b> Overseas mineral exploration expenditure of Australian resident companies, 1997-98 .....	14
<b>8</b> Mineral exploration, drilling methods by state, 1997-98 .....	15

ADDITIONAL INFORMATION

Explanatory notes .....	16
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- For further information about these and related statistics, contact Maureen Geer on Darwin 08 8943 2171, or any ABS office shown on the back cover of this publication.

# NOTES

## FORTHCOMING ISSUES

<i>ISSUE (Quarter)</i>	<i>RELEASE DATE</i>
December 1998	25 March 1999
March 1999	21 June 1999



## CHANGES IN THIS ISSUE

This issue contains two annual supplementary surveys, Overseas Exploration, expenditure by Australian resident companies, 1997–98 and Mineral Exploration, drilling methods by state, 1997–98.

In table 7, petroleum exploration expenditure is not included from 1997–98.



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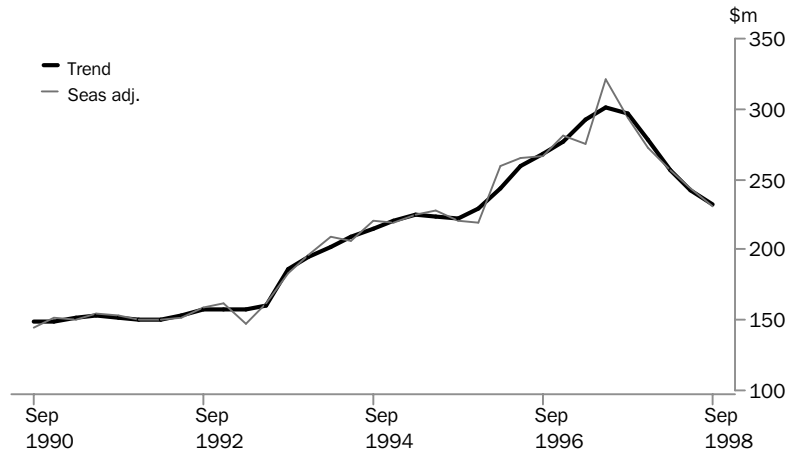
# SUMMARY OF FINDINGS

## MINERAL EXPLORATION EXPENDITURE (OTHER THAN FOR PETROLEUM)

### TREND ESTIMATES

The trend estimate for mineral exploration has declined for the fifth consecutive quarter in the September quarter 1998. Continued low commodity prices, together with reduced demand as a result of the Asian currency crisis, have led to this decline.

Between the June and September quarters of 1998 the trend estimate fell 4% (\$10m) to \$233m. This was 23% lower than the peak of \$302m reached in the June quarter 1997.



### STATES AND TERRITORIES

With the exception of South Australia, expenditure declined in all States and in the Northern Territory in the September quarter 1998.

The trend estimate for South Australia rose by 33%, and was 59% higher than the estimate for the September quarter 1997. The proportion of the total expenditure in South Australia has also risen substantially, doubling from 4% of the Australian total in the September quarter 1997 to over 8% in the September quarter 1998. This increase may be attributed to increased exploration activity in the Gawler Craton region in the State.

### METRES DRILLED

The trend estimate for total metres drilled in the September quarter 1998 was 7% lower than the June quarter 1998 and 32% lower than the September quarter 1997. This decline is consistent with the fall in total expenditure.

## SUMMARY OF FINDINGS *continued*

### SEPTEMBER QUARTER

In seasonally adjusted terms, total mineral exploration expenditure fell by 5% (\$13m) to \$230m in the September quarter 1998. Offsetting the general fall in all other States was a large percentage increase in South Australia, (145%) from the June quarter. Expenditure in Northern Territory also rose 15% to \$19m.

In original terms, mineral exploration expenditure reported for the September quarter 1998 was down 10% to \$236m. This was 22% lower than for the September quarter 1997.

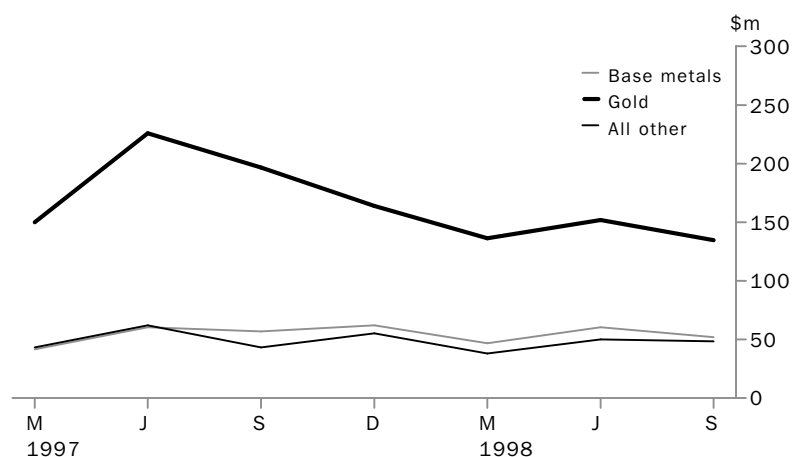
Exploration expenditure on both production leases and all other areas fell in the September quarter 1998.

Gold continued to be the predominant mineral sought, representing 57% (\$135m) of the total exploration expenditure reported for the September quarter 1998. However, the total expenditure on gold exploration was 31% lower than the corresponding September quarter 1997. Western Australia, the State in which most exploration for gold occurs, experienced a 23% fall in expenditure between the June and September quarters 1998, with expenditure 38% lower than in the September quarter 1997.

Exploration expenditure for coal has decreased by 19%, from \$12m in the June quarter 1998 to \$10m in the September quarter.

The only minerals showing an increase in exploration expenditure from the June quarter 1998 were diamonds, up 32% (\$3m) and uranium, up 23% (\$1m).

MINERAL EXPLORATION EXPENDITURE, *Original Series*



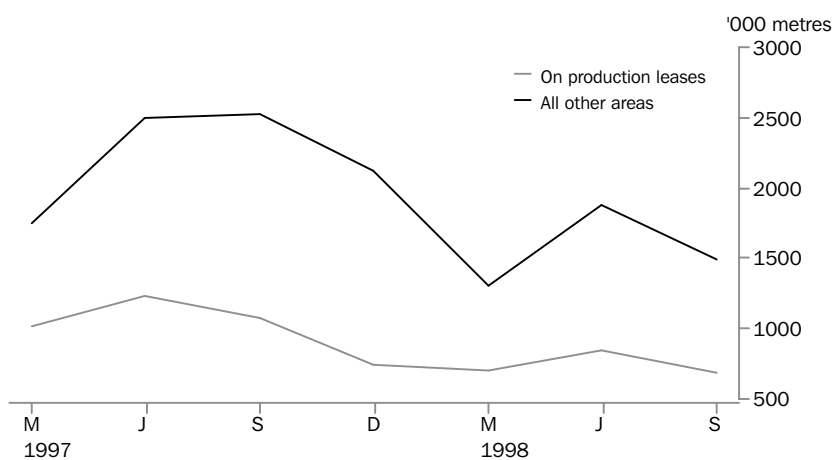
## SUMMARY OF FINDINGS *continued*

### METRES DRILLED

The seasonally adjusted estimate of 2.0 million metres drilled for the September quarter 1998 was 23% lower than the estimate for the June quarter 1998 and 39% less than for the September quarter 1997.

In original terms 2.2 million metres were drilled for the September quarter 1998. This was 20% lower than the June quarter and 39% lower than the September quarter 1997.

In line with lower exploration expenditure, the number of metres drilled has fallen significantly on both production leases and all other areas, down 36% and 41% respectively compared with the September quarter 1997.



## SUMMARY OF FINDINGS *continued*

### PETROLEUM EXPLORATION EXPENDITURE

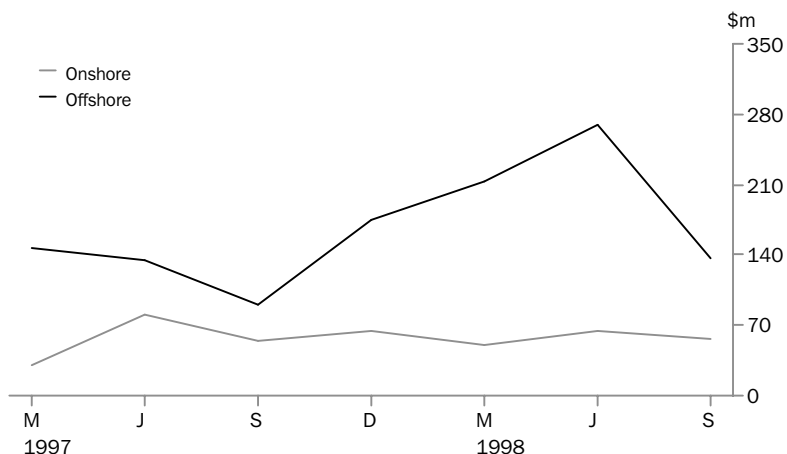
#### OVERVIEW

Expenditure on petroleum exploration was \$193m in the September quarter 1998, 42% lower than for the June quarter 1998.

Expenditure fell for exploration on both production leases (down 11%) and all other areas (down 45%) between the June and September quarters 1998.

Offshore exploration expenditure decreased by 49% (\$132m) between the June and September quarters 1998, to \$137m. However, this was 52% (\$47m) higher than the September quarter 1997.

A fall in expenditure on offshore drilling, down 61% on the June quarter 1998, was the major contributing factor to the overall decrease in the September quarter. However, September quarter 1998 offshore drilling expenditure was 27% higher than the low expenditure reported in the September quarter 1997.



#### REGIONAL DATA

Regional data for petroleum exploration are available only for Victoria, Queensland and Western Australia for the September quarter 1998. All these regions reported a decrease in expenditure for the quarter. The most significant decrease, in percentage terms, occurred in Victoria, a fall of 60% (\$6m) followed by Western Australia down 37% (\$54m) and Queensland down 13% (\$3m).

## SUMMARY OF FINDINGS *continued*

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OVERSEAS MINERAL EXPLORATION Australian resident companies spent \$379m exploring for minerals overseas in 1997-98.

For hard minerals, exploration for gold accounted for the highest expenditure with \$218m, or 57% of total overseas expenditure, followed by base metals, with \$103m (27%).

### DRILLING METHODS

The most common drilling method used in 1997-98 was reverse circulation, accounting for 38% (4.2 million metres) of the total. This method also accounted for the highest expenditure contributing 39% (\$149m) of total expenditure for the year.

The number of metres drilled by rotary air blast method was the second highest with 3.4 million metres (31% of total) but accounted for only 11% of total expenditure.

The new category included for the 1997-98 survey, aircore/vacuum, represented 9% of the expenditure and 15% of total metres drilled.

## PRIVATE EXPLORATION, Actual and Expected Expenditure

Period	MINERAL EXPLORATION ...			PETROLEUM ONSHORE ...			PETROLEUM OFFSHORE .....		
	<i>Actual</i>	<i>Expected(a)</i>	<i>Actual as a proportion of expected</i>	<i>Actual</i>	<i>Expected(a)</i>	<i>Actual as a proportion of expected</i>	<i>Actual</i>	<i>Expected(a)</i>	<i>Actual as a proportion of expected</i>
	\$m	\$m	%	\$m	\$m	%	\$m	\$m	%
<b>1995-96</b>	960.3	773.6	124.1	174.8	185.6	94.2	550.4	428.0	128.6
<b>1996-97</b>	1 148.6	808.9	142.0	251.9	206.2	122.2	601.0	446.6	134.6
<b>1997-98</b>	1 066.8	901.3	118.4	232.3	145.0	160.2	748.9	773.7	96.8
6 months ended June 1997	582.8	447.1	130.4	110.4	115.0	96.0	281.9	238.7	118.1
6 months ended December 1997	583.8	513.7	113.6	117.3	83.3	140.7	265.4	345.8	76.8
6 months ended June 1998	483.1	387.6	124.6	115.0	61.7	186.6	483.5	427.9	113.0
6 months ended December 1998	n.y.a.	299.5	n.y.a.	n.y.a.	71.6	n.y.a.	n.y.a.	246.5	n.y.a.

n.y.a. not yet available

(a) As reported in previous collections. Refer to Explanatory Notes paragraph 13.



## MINERAL EXPLORATION (Other than for Petroleum), Expenditure and Metres Drilled

Period	EXPENDITURE.....					METRES DRILLED.....				
	On production leases	On all other areas	Total	Seasonally adjusted	Trend estimate	On production leases	On all other areas	Total	Seasonally adjusted	Trend estimate
	\$m	\$m	\$m	\$m	\$m	'000 m	'000 m	'000 m	'000 m	'000 m
<b>1995-96</b>	208.8	751.5	960.3	..	..	3 520	6 995	10 514	..	..
<b>1996-97</b>	306.1	842.4	1 148.6	..	..	4 453	8 378	12 831	..	..
<b>1997-98</b>	253.2	813.6	1 066.8	..	..	3 365	7 843	11 209	..	..
<b>1996</b>										
December	68.1	223.5	291.6	280.5	276.8	1 062	2 025	3 086	2 931	3 097
<b>1997</b>										
March	57.6	178.0	235.6	275.7	292.4	1 021	1 746	2 768	3 370	3 340
June	107.4	239.7	347.2	321.4	301.8	1 232	2 497	3 729	3 592	3 456
September	83.3	218.5	301.8	294.6	296.4	1 072	2 524	3 596	3 302	3 237
December	64.6	217.4	282.0	272.1	277.7	751	2 127	2 878	2 739	2 867
<b>1998</b>										
March	52.0	168.4	220.4	256.8	256.7	699	1 308	2 007	2 445	2 574
June	53.3	209.3	262.6	243.4	242.9	843	1 885	2 728	2 619	2 368
September	51.5	184.3	235.9	230.1	232.6	690	1 494	2 183	2 006	2 202

## MINERAL EXPLORATION (other than for Petroleum), Expenditure by State and Territory

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australia
Period	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
ORIGINAL								
<b>1995-96</b>	80.4	42.6	181.0	24.1	519.5	18.8	93.8	<b>960.3</b>
<b>1996-97</b>	94.1	51.8	160.7	35.1	691.7	26.0	88.9	<b>1 148.6</b>
<b>1997-98</b>	88.2	43.1	133.2	45.0	660.4	20.7	75.9	<b>1 066.8</b>
<b>1996</b>								
December	20.6	14.1	45.1	8.0	173.1	5.7	25.0	<b>291.6</b>
<b>1997</b>								
March	22.0	9.6	31.6	7.2	144.2	6.0	14.8	<b>235.6</b>
June	30.4	13.2	45.7	14.5	211.6	10.1	21.6	<b>347.2</b>
September	23.3	9.5	41.9	12.5	182.7	9.7	22.1	<b>301.8</b>
December	26.1	13.4	41.7	11.4	162.3	3.8	23.4	<b>282.0</b>
<b>1998</b>								
March	20.8	10.6	21.5	9.2	142.0	3.7	12.6	<b>220.4</b>
June	18.0	9.6	28.2	12.0	173.4	3.5	17.8	<b>262.6</b>
September	14.2	9.0	22.0	23.9	143.1	2.4	21.2	<b>235.9</b>
SEASONALLY ADJUSTED								
<b>1996</b>								
December	21.4	12.8	39.5	7.5	170.1	5.8	23.4	<b>280.5</b>
<b>1997</b>								
March	23.7	10.1	41.4	8.8	164.5	5.9	21.3	<b>275.7</b>
June	26.6	13.2	42.6	12.4	197.9	9.0	19.6	<b>321.4</b>
September	23.9	10.1	41.0	13.2	176.0	11.0	19.5	<b>294.6</b>
December	27.3	12.0	36.5	10.6	159.9	3.8	21.9	<b>272.1</b>
<b>1998</b>								
March	22.4	11.3	28.3	11.2	161.6	3.8	18.2	<b>256.8</b>
June	15.7	9.6	26.2	10.3	162.2	3.1	16.2	<b>243.4</b>
September	14.6	9.6	21.5	25.2	137.8	2.7	18.7	<b>230.1</b>
TREND								
<b>1996</b>								
December	22.3	13.2	39.5	7.3	166.0	5.3	23.2	<b>276.8</b>
<b>1997</b>								
March	23.8	11.9	40.5	9.6	178.1	7.2	21.3	<b>292.4</b>
June	25.3	11.2	42.4	11.7	182.3	8.7	20.2	<b>301.8</b>
September	26.2	11.5	40.4	12.3	177.4	8.3	20.2	<b>296.4</b>
December	25.1	11.4	35.7	10.9	168.5	6.1	19.8	<b>277.7</b>
<b>1998</b>								
March	21.7	10.9	30.1	11.2	160.3	3.8	18.7	<b>256.7</b>
June	17.7	10.3	25.4	14.7	154.4	2.9	17.7	<b>242.9</b>
September	14.9	9.5	22.4	19.5	146.2	2.8	17.4	<b>232.6</b>

## MINERAL EXPLORATION (other than for Petroleum), Expenditure by Mineral Sought

	<i>Copper, silver-lead- zinc, nickel and cobalt</i>	<i>Gold</i>	<i>Iron Ore</i>	<i>Mineral sands</i>	<i>Tin, tungsten, scheelite and wolfram</i>	<i>Uranium</i>	<i>Coal</i>	<i>Construction materials</i>	<i>Diamonds</i>	<i>Other</i>	<i>Total</i>
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
SEPTEMBER QUARTER 1998											
New South Wales	4.1	4.6	—	n.p.	n.p.	—	4.3	—	—	0.4	14.2
Victoria	n.p.	5.9	n.p.	0.4	—	n.p.	n.p.	—	n.p.	n.p.	9.0
Queensland	6.1	9.4	—	n.p.	n.p.	n.p.	5.1	n.p.	n.p.	n.p.	22.0
South Australia	5.3	16.5	n.p.	n.p.	—	1.7	—	—	n.p.	0.2	23.9
Western Australia	30.3	86.1	11.1	2.5	—	1.5	n.p.	n.p.	10.4	1.1	143.1
Tasmania	1.5	0.8	—	—	n.p.	—	—	—	—	n.p.	2.4
Northern Territory	n.p.	11.9	—	—	—	4.0	—	—	n.p.	n.p.	21.2
Australia	52.0	135.3	11.6	3.6	n.p.	7.4	9.6	n.p.	13.1	3.0	235.9
AUSTRALIA											
<b>1995-96</b>	251.8	547.1	14.1	9.3	0.5	7.4	52.7	0.7	52.9	24.0	960.3
<b>1996-97</b>	206.8	728.3	25.8	13.9	0.6	13.0	70.5	0.9	59.3	29.4	1 148.6
<b>1997-98</b>	227.1	648.4	30.0	14.0	0.1	22.2	64.8	0.4	42.8	13.1	1 066.8
December 1996	52.1	186.8	3.8	3.7	—	1.9	16.9	0.1	16.4	9.9	291.6
March 1997	41.8	150.1	6.6	3.4	—	2.2	15.7	0.1	11.7	4.0	235.6
June 1997	59.7	225.9	9.3	3.5	0.4	5.1	22.5	0.2	15.6	5.0	347.2
September 1997	57.6	196.7	4.0	3.2	—	4.9	19.1	n.p.	12.4	n.p.	301.8
December 1997	62.7	163.9	6.3	2.9	0.1	6.2	21.3	0.3	13.1	5.3	282.0
March 1998	45.9	136.1	7.1	3.5	n.p.	5.1	12.5	n.p.	7.4	2.8	220.4
June 1998	60.9	151.7	12.6	4.5	n.p.	6.0	11.9	n.p.	9.9	5.1	262.6
September 1998	52.0	135.3	11.6	3.6	n.p.	7.4	9.6	n.p.	13.1	3.0	235.9

n.p. not published

## PETROLEUM EXPLORATION EXPENDITURE

Period	ONSHORE.....			OFFSHORE.....			TOTAL EXPENDITURE.....		
	<i>Drilling</i>	<i>Other</i>	<i>Total</i>	<i>Drilling</i>	<i>Other</i>	<i>Total</i>	<i>On production leases</i>	<i>On all other leases</i>	<i>Total</i>
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>1995-96</b>	95.5	79.4	174.8	367.1	183.2	550.3	78.8	646.5	725.1
<b>1996-97</b>	179.6	72.3	251.9	412.0	189.1	601.0	137.7	715.3	853.0
<b>1997-98</b>	174.1	58.2	232.3	501.2	247.6	748.9	68.8	912.4	981.2
<b>1996</b>									
December	63.9	16.4	80.3	121.1	52.3	173.3	54.6	199.0	253.6
<b>1997</b>									
March	22.3	8.4	30.7	96.3	50.2	146.5	17.2	160.1	177.3
June	54.5	25.2	79.7	74.2	61.2	135.4	31.1	184.0	215.1
September	38.4	15.2	53.6	64.3	26.2	90.6	10.8	133.4	144.2
December	48.0	15.6	63.6	90.1	84.8	174.9	8.2	230.3	238.5
<b>1998</b>									
March	38.4	11.9	50.3	139.4	74.6	214.0	22.5	241.8	264.3
June	49.2	15.5	64.8	207.5	62.0	269.5	27.3	306.9	334.2
September	34.3	21.7	56.0	81.6	55.7	137.3	24.3	169.0	193.3

## PETROLEUM EXPLORATION, By Region

<i>Period</i>	<i>New South Wales</i>	<i>Victoria</i>	<i>Queensland</i>	<i>South Australia</i>	<i>Western Australia(a)</i>	<i>Tasmania</i>	<i>Northern Territory/ Ashmore and Cartier Islands</i>	<i>Zone of Cooperation Area A(b)</i>	<i>Total</i>
<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>	<i>\$m</i>
<b>1995-96</b>	n.p.	n.p.	106.5	55.1	319.1	n.p.	96.2	89.3	<b>725.1</b>
<b>1996-97</b>	n.p.	45.8	134.5	n.p.	444.1	n.p.	41.5	n.p.	<b>853.0</b>
<b>1997-98</b>	n.p.	34.5	107.1	n.p.	464.0	n.p.	n.p.	n.p.	<b>981.2</b>
<b>1996</b>									
December	n.p.	n.p.	40.6	n.p.	132.6	n.p.	n.p.	n.p.	<b>253.6</b>
<b>1997</b>									
March	n.p.	n.p.	12.5	n.p.	78.5	—	n.p.	30.1	<b>177.3</b>
June	n.p.	6.7	45.0	n.p.	101.5	n.p.	15.8	35.0	<b>215.1</b>
September	n.p.	6.0	46.4	n.p.	46.8	n.p.	7.4	n.p.	<b>144.2</b>
December	n.p.	8.3	29.0	n.p.	106.9	n.p.	28.0	45.7	<b>238.5</b>
<b>1998</b>									
March	0.1	10.4	11.9	n.p.	165.0	n.p.	n.p.	n.p.	<b>264.3</b>
June	n.p.	9.9	19.8	n.p.	145.2	n.p.	n.p.	n.p.	<b>334.2</b>
September	n.p.	4.0	17.2	n.p.	90.9	n.p.	n.p.	n.p.	<b>193.3</b>

(a) Includes expenditure on Western Australian leases in the Zone of Cooperation Area B. (b) Refer to Explanatory Notes paragraph 14.

n.p. not available for publication

— nil or rounded to zero, including null cells

OVERSEAS MINERAL EXPLORATION EXPENDITURE, Australian Resident Companies,  
1997–98

Period	North America(a)	Latin America(b)	Papua New Guinea	Indonesia	China	Other Asia	Africa	Other	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>1995–96(c)</b>	222.0	90.8	44.5	67.0	2.4	66.0	93.9	82.4	669.0
<b>1996–97(c)</b>	254.1	120.3	10.7	109.0	8.7	65.6	118.2	72.9	759.6
<b>1997–98(d)</b>	60.4	84.5	4.0	46.3	12.1	55.4	76.3	39.9	379.0
<b>1997–98(d)</b>									
Copper, silver–lead–zinc, nickel and cobalt	13.3	25.6	n.p.	4.5	n.p.	19.8	28.9	9.1	103.2
Gold	28.2	58.5	n.p.	35.8	8.8	31.7	28.7	23.0	217.8
Iron ore	n.p.	n.p.	—	—	—	—	—	—	n.p.
Mineral sands	n.p.	—	—	—	—	n.p.	n.p.	n.p.	10.7
Tin, tungsten, scheelite and wolfram	—	—	—	—	—	—	—	—	—
Uranium	—	—	—	—	—	—	—	—	—
Coal	—	n.p.	—	n.p.	n.p.	—	—	—	n.p.
Construction materials	—	—	—	—	—	—	—	—	—
Diamonds	n.p.	—	—	n.p.	n.p.	—	7.1	n.p.	33.4
Bauxite	—	—	—	—	—	—	n.p.	—	n.p.
Other	n.p.	—	—	—	—	n.p.	n.p.	n.p.	n.p.
<b>Total</b>	<b>60.4</b>	<b>84.5</b>	<b>4.0</b>	<b>46.3</b>	<b>12.1</b>	<b>55.4</b>	<b>76.3</b>	<b>39.9</b>	<b>379.0</b>

(a) Includes Canada.

(b) Comprises Mexico, South America and the Caribbean.

(c) Includes expenditure on petroleum exploration.

(d) Excludes expenditure on petroleum exploration.

## MINERAL EXPLORATION, Drilling Methods By State: 1997-98

Drilling Method	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australia
EXPENDITURE (\$ million)								
Diamond	22.7	4.6	10.2	2.1	77.8	8.1	6.8	132.5
Reverse Circulation	5.1	3.9	7.8	4.3	121.6	0.3	5.7	148.6
Percussion	4.4	n.p.	n.p.	n.p.	2.6	n.p.	n.p.	9.1
Rotary Air Blast	n.p.	0.1	5.9	3.4	28.7	n.p.	3.4	42.2
Aircore/Vacuum(a)	2.0	0.4	1.2	1.0	23.6	n.p.	n.p.	35.4
Other	n.p.	n.p.	n.p.	n.p.	5.5	—	n.p.	11.0
Total	36.5	9.4	27.4	13.5	259.9	8.6	23.4	378.7
METRES DRILLED ('000 m)								
Diamond	247.3	52.0	93.8	33.7	903.2	71.0	67.5	1 468.4
Reverse Circulation	132.1	92.6	n.p.	92.1	3 506.6	n.p.	163.2	4 167.3
Percussion	88.5	n.p.	27.3	11.1	59.5	n.p.	n.p.	210.3
Rotary Air Blast	22.9	12.0	268.9	245.6	2 632.8	—	228.5	3 410.6
Aircore/Vacuum(a)	110.6	n.p.	n.p.	51.5	1 256.4	—	108.3	1 603.1
Other	20.1	—	9.3	18.7	117.0	n.p.	n.p.	199.4
Total	621.5	200.6	609.6	452.7	8 475.6	94.4	604.8	11 059.1

(a) Prior to 1997-98, Aircore/Vacuum was included in Other.

## EXPLANATORY NOTES

INTRODUCTION	<p><b>1</b> This publication contains annual and quarterly statistics of private sector exploration for minerals (other than oil shale) and petroleum in Australia.</p>
SOURCE	<p><b>2</b> Data are collected and compiled from exploration censuses conducted by the Australian Bureau of Statistics (ABS).</p>
SCOPE AND COVERAGE	<p><b>3</b> All exploration activity is included, regardless of the main activity of the explorer. Details of exploration are collected from all private enterprises known to be engaged in exploration, in Australia (including Australian waters) and incurring expenditure of more than \$20,000 per year.</p>
SEASONAL ADJUSTMENT	<p><b>4</b> Seasonal adjustment is a means of removing the estimated effects of normal seasonal variation from the series so that the effects of other influences can be more clearly recognised.</p> <p><b>5</b> Seasonal adjustment does not remove from the series the effect of irregular or non-seasonal influences. Particular care should be taken in interpreting quarterly movements in the adjusted figures in this publication.</p> <p><b>6</b> Irregular influences that are highly volatile can make it difficult to interpret the series even after adjustment for seasonal variation.</p> <p><b>7</b> Seasonal factors are reviewed and revised annually to take account of each additional year's original data. The nature of the seasonal adjustment process is such that the magnitude of some revisions resulting from the re-analysis may be quite significant, especially for data for more recent quarters. For this reason, additional care should be exercised when interpreting movements in seasonally adjusted data for recent quarters.</p>
TREND ESTIMATES	<p><b>8</b> The trend estimates are derived by applying a 7-term Henderson moving average to the seasonally adjusted series. The 7-term Henderson average (like all Henderson averages) is symmetric but, as the end of a time series is approached, asymmetric forms of the average are applied. Unlike the weights of the standard 7-term Henderson moving average, the weights employed here have been tailored to suit particular characteristics of the individual series. While the asymmetric weights enable trend estimates for recent quarters to be produced, it does result in revisions to the estimates for the most recent three quarters as additional observations become available. There may also be revisions because of changes in the original data and as a result of the re-estimation of the seasonal factors. For further information, see <i>Information Paper: A Guide to Interpreting Time Series — Monitoring Trends, an Overview</i> (Cat. no. 1348.0) or contact the Assistant Director, Time Series Analysis on Canberra (02) 6252 6345.</p>
CLASSIFICATIONS	<p><b>9</b> The following categories are used:</p> <ul style="list-style-type: none"><li>▪ Production lease/Other, where a production lease is an area on which production or development is actually taking place.</li><li>▪ Onshore/Offshore, where offshore includes all operations in a marine area under the <i>Petroleum (Submerged Lands) Act 1967</i> or under any Acts administered by State and Territory Governments.</li><li>▪ Drilling/Other, where <i>drilling expenditure</i> includes cost of access (roads, vessel hire, etc.) to the drilling site and site preparation etc., and <i>other expenditure</i> includes costs of surveys, report writing, map preparation and all other activities attributable to exploration.</li></ul>



# EXPLANATORY NOTES

## DEFINITIONS

- MINERALS 10** In the broad sense these comprise metallic minerals, construction materials, gemstones, other non-metallic minerals and petroleum (oil or gas).
- EXPLORATION 11** This includes the search for new ore occurrences or undiscovered oil or gas, and/or appraisal intended to delineate or greatly extend the limits of known deposits of minerals or oil or gas reservoirs by geological, geophysical, geochemical, drilling or other methods. This includes construction of shafts and adits primarily for exploration purposes but excludes activity of a developmental or production nature. Exploration for water is excluded.
- EXPLORATION EXPENDITURE 12** This covers all expenditure on exploration activity in Australia. It includes expenditure on aerial surveys (including Landsat photographs), general surveys, report writing, map preparation and other activities indirectly attributable to exploration. Cash bids for offshore petroleum exploration permits are also included.
- EXPECTED EXPENDITURE 13** This refers to expected expenditure on exploration as reported by private enterprise explorers who were included in the previous census. Events such as new discoveries, unexpected weather conditions, government policy changes and unforeseen changes in economic conditions may cause actual expenditures to differ from those previously expected. The differences between actual and expected expenditure can be seen in table 1.
- ZONE OF COOPERATION (ZOC) 14** Is an agreement between Australia and the Republic of Indonesia on an area between the Indonesian Province of East Timor and Northern Australia. The ZOC is divided into three areas: A, B and C. Area A is controlled by a joint authority and all petroleum operations in this area are carried out through production sharing contracts. Area B is controlled by Australian authorities but the Republic of Indonesia must be notified of any changes to tenements in the area and be paid 10% of gross Resource Rent Tax collected by Australia from corporations producing petroleum. Area C is controlled by the Republic of Indonesia but Australia must be notified of any changes to tenements in the area and be paid 10% of Contractors Income Tax collected by the Republic of Indonesia from corporations producing petroleum.
- ASHMORE AND CARTIER ISLANDS 15** Tenements in the Ashmore and Cartier Islands are administered by the Northern Territory Department of Mines and Energy. Therefore all petroleum exploration expenditure in this area has been included with Northern Territory data.
- OVERSEAS EXPLORATION 16** The ABS collected details of overseas exploration expenditure by Australian resident companies for 1997–98. The collection does not include those Australian owned companies which operate solely overseas. Therefore comparisons with other overseas exploration data series should be treated with some caution. Data from 1992–93 are available on request. Petroleum exploration expenditure is not included from 1997–98.
- DRILLING METHODS 17** A supplementary collection was also conducted during 1997–98 to collect information on exploration drilling for minerals in Australia, by drilling method. Unpublished data are also available, as a special data request, for expenditure and metres drilled by drilling methods used on production leases and other areas, as defined in paragraph 9 of these notes.

## EXPLANATORY NOTES

DRILLING METHODS *continued* **18** Data were collected for the following drilling methods:

Diamond drilling uses rotary action combined with a diamond impregnated drill bit to produce a solid cylindrical sample called drill core.

Reverse Circulation drilling uses a combination of separate percussive and rotational action. Reverse Circulation drilling differs from percussion drilling in that the drill cuttings are removed by compressed air up an inner tube in the drilling rods (instead of outside the rods) to improve sample quality.

Percussion drilling uses a combination of separate percussive and rotational actions. Compressed air is used to remove drill cuttings outside of the drill rods.

Rotary Air Blast (RAB) drilling generally uses rotational action with a blade bit to reach bedrock using compressed air to remove drill cuttings.

Aircore/Vacuum drilling is a rotary system whereby drill cuttings are drawn up through the centre of the drill rod or rods by vacuum or compressed air which is kept within the drill stem itself and does not exit at the face of the bit.

RELATED PUBLICATIONS **19** Users may also wish to refer to the following priced publications which are available on request:

- *Australian Business Expectations* (Cat. no. 5250.0)
- *Australian Mining Industry* (Cat. no. 8414.0)
- *Private New Capital Expenditure and Expected Expenditure, Australia* (Cat. no. 5625.0)

**20** Current publications produced by the ABS are listed in the *Catalogue of Publications and Products* (Cat. no. 1101.0). The ABS also issues, on Tuesdays and Fridays, a *Release Advice* (Cat. no. 1105.0) which lists publications to be released in the next few days. The Catalogue and Release Advice are available from any ABS office.

**21** Publications showing the details of wells and metres drilled in petroleum exploration are available from the Petroleum Resource Assessment Branch of the Bureau of Resource Sciences.

EFFECTS OF ROUNDING **22** Where figures have been rounded, discrepancies may occur between the sums of the component items and their totals.

SYMBOLS AND OTHER USAGES

- n.a. not available
- n.p. not available for publication but included in totals where applicable
- n.y.a. not yet available
- r figure or series revised since previous issue
- . . not applicable
- nil or rounded to zero



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