

Resource Centre
Policy Branch
Dept. of Minerals & Energy



ROYALTIES AND STATISTICS BRANCH

**STATISTICAL DIGEST OF
MINERAL PRODUCTION**

1984/85



**DEPARTMENT OF MINES
WESTERN AUSTRALIA**



STATISTICAL DIGEST OF
MINERAL PRODUCTION
1984/85

COMPILED BY:

ROYALTIES AND STATISTICS BRANCH

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ABBREVIATIONS

| | | | |
|--------|---------------|--------|---------------|
| cons. | concentrates | f.o.t. | free on truck |
| f.o.b. | free on board | n.a. | not available |
| f.o.r. | free on rail | | |

REFERENCES

- (a) Value based on the average Australian value of alumina as published by the Bureau of Mineral Resources in the Australian Mineral Industry Review.
- (b) Value at works.
- (c) Estimated f.o.b. value.
- (d) Estimated f.o.r. value.
- (e) Estimated f.o.b. value based on the current price of nickel containing products.
- (f) Nett well head value.
- (g) Value based on the price per barrel as assessed by the Commonwealth for Barrow Island crude oil at Kwinana.
- (h) Value at pithead.
- (i) Nominal Price at Wellhead

UNITS AND CONVERSION FACTORS

| | Metric unit | Symbol | Imperial unit | Conversion factors | |
|--------|-------------|----------------|------------------------|---------------------------|-------------------------|
| | | | | Multiply imperial unit by | Multiply metric unit by |
| Mass | gram | g | troy (fine) ounce (oz) | 31.1035 | 0.0321507 |
| | kilogram | kg | pound (lb) | 0.453592 | 2.20462 |
| | tonne | t | long tonne (2240 lbs) | 1.01605 | 0.984207 |
| | tonne | t | short tonne (2000 lbs) | 0.907185 | 1.10231 |
| Volume | cubic metre | m ³ | barrel (bbl) | 0.158987 | 6.28981 |
| | litre | L | gallon | 4.54609 | 0.2199692 |
| | kilolitre | kL | | | |

SUMMARY

The total value of mineral production in Western Australia for the year 1984/85 is estimated at \$4 663.7 million, an increase of \$841.1 million over the previous financial year.

Iron Ore continued as the major mineral commodity in the state with production increasing by 4.6% to 89.27 million tonnes valued at \$1 830.09 million. Iron Ore made up 39% of the total value of mineral production.

Other minerals to record significant increases in production during the year were Alumina up 22.3% to 5.33 million tonnes, Gold up 43% to 37 424 kilograms and salt up 10.4% to 4.82 million tonnes.

Deliveries of gas and condensate from the North West Shelf project commenced in August 1984 and by years end gas and condensate with a combined estimated value of \$144.8 million had been produced.

Nickel concentrate production dropped by 3.8% to 486 491 tonnes although the value increased by 17% to \$363.3 million which reflects an improvement in prices assisted by the flow on effects of the devaluation of the Australian dollar.

Royalty revenue for the year amounted to \$130.994 million a rise of \$12.885 million over the previous year.

TABLE 1 QUANTITY AND VALUE OF MINERALS 1984/85

| Mineral | Unit of | 1983/84 | | 1984/85 | |
|------------------------|---------|-------------|---------------|-------------|---------------|
| | | Quantity | Value(\$) | Quantity | Value(\$) |
| Alumina | t | 4 355 167 | 796 706 797 | 5 326 982 | 1 056 839 641 |
| Building stone | | | | | |
| quartz | t | 3 386 | 152 534 | 2 644 | 118 980 |
| quartzite | t | 431 | 7 758 | - | - |
| Clay | | | | | |
| cement clay | t | 22 469 | 56 173 | 28 155 | 70 389 |
| fire clay | t | 190 225 | 228 919 | 242 489 | 292 136 |
| kaolin | t | - | - | 1 710 | 31 505 |
| white clay | t | 97 900 | 292 230 | - | - |
| Coal | t | 3 941 642 | 106 324 957 | 3 672 619 | 109 120 090 |
| Cobalt | t | 527 | 5 097 520 | 449 | 5 937 452 |
| Construction materials | | | | | |
| aggregate | t | 123 343 | 54 275 | 15 250 | 56 035 |
| gravel | t | - | - | 58 944 | 67 107 |
| rock | t | 68 442 | 136 880 | 46 524 | 92 686 |
| sand | t | 270 083 | 1 003 964 | 739 311 | 1 958 695 |
| Copper | t | 3 809 | 4 381 965 | 3 424 | 3 141 119 |
| Copper concentrates | t | 35 745 | 7 284 445 | 48 533 | 12 803 570 |
| Cupreous ore | t | - | - | 42 | 6 748 |
| Diamond | carats | 6 951 123 | 61 220 214 | 5 569 285 | 45 056 768 |
| Diatomite | t | - | - | 257 | 1 029 |
| Dolomite | t | - | - | 300 | 2 100 |
| Feldspar | t | 4 740 | 41 257 | 4 779 | 32 017 |
| Garnet sand | t | 3 150 | 110 257 | 4 269 | 149 459 |
| Gold | kg | 26 183 | 365 452 686 | 37 425 | 508 891 876 |
| Gypsum | t | 660 554 | 7 567 503 | 545 151 | 6 169 189 |
| Iron ore | t | 85 316 423 | 1 609 662 388 | 89 296 548 | 1 830 519 885 |
| Limestone | t | 241 867 | 1 246 635 | 209 618 | 1 187 327 |
| Magnesite | t | - | - | 16 729 | 215 936 |
| Mica | t | 84 | 22 018 | - | - |
| Mineral beach sands | | | | | |
| ilmenite | t | 1 168 020) | | 1 187 577) | |
| reduced ilmenite | t | -) | 41 867 518 | 140) | 55 385 867 |
| upgraded ilmenite | t | 48 905) | | 69 516) | |
| kyanite | t | - | - | 39 | 3 618 |
| leucoxene | t | 22 990 | 4 426 599 | 19 571 | 4 583 699 |
| monazite | t | 13 501 | 5 786 264 | 16 590 | 7 512 887 |
| rutile | t | 63 283 | 16 499 083 | 73 484 | 25 457 848 |
| xenotime | t | 48 | 246 233 | 42 | 397 547 |
| zircon | t | 309 289 | 34 467 023 | 362 339 | 41 279 076 |
| Nickel concentrates | t | 505 947 | 309 647 238 | 486 491 | 363 306 720 |
| Palladium | kg | 513 | 2 532 070 | 461 | 2 491 786 |
| Petroleum | | | | | |
| condensate | t | 2 982 | n.a. | 94 861 | n.a. |
| crude oil | kL | 1 257 841 | 283 527 375 | 1 216 456 | 284 790 518 |
| natural gas | '000m3 | 982 574 | 53 163 419 | 1 759 631 | 165 844 011 |
| Platinum | kg | 71 | 1 151 313 | 81 | 1 225 011 |
| Salt | t | 4 370 195 | 67 032 670 | 4 822 931 | 88 560 999 |
| Semi-precious stones | | | | | |
| amethyst | kg | 14 311 | 64 958 | 59 586 | 90 368 |
| moss opal | kg | 843 | 544 | - | - |
| Silica sand | t | 255 741 | 352 691 | 404 636 | 1 274 898 |
| Silver | kg | 29 189 | 12 187 136 | 44 670 | 12 761 245 |
| Spodumene | t | 4 593 | 884 751 | 8 505 | 1 852 772 |
| Talc | t | 167 069 | n.a. | 182 613 | n.a. |
| Tantalite | t | 123 | 3 148 205 | 69 | 4 219 279 |
| Tin concentrates | t | 655 | 6 348 508 | 569 | 9 442 807 |
| Vermiculite | t | 298 | 5 400 | 471 | 7 740 |
| Zinc concentrates | t | 54 448 | 12 240 785 | 42 438 | 10 451 891 |
| Total value | | | 3 822 631 168 | | 4 663 702 326 |

TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT.

| Mineral | Gold-field Mineral-field | Unit of Quantity | Quantity | Metallc Content | Value (\$) | Ref. |
|-----------------------------------------------|------------------------------|---------------------|-----------|--------------------|------------------------|---------------|
| Alumina | South West | t | 5 326 982 | | 1 056 839 641 | (a) |
| Building stone quartz | South West | t | 2 644 | | 118 980 | (b) |
| Clay | | | | | | |
| cement clay | South West | t | 28 155 | | 70 389 | |
| fire clay | South West | t | 242 489 | | 292 136 | |
| kaolin | Greenbushes | t | 1 710 | | 31 505 | |
| | | | 272 354 | | 394 030 | (b) |
| Coal | Collie | t | 3 672 619 | | 109 120 090 | (h) |
| Cobalt (metallic by-product nickel mining) | Coolgardie East Murchison | t t | | Cobalt t | 4 544 248 1 393 204 | |
| | | | | | 448.951 | 5 937 452 (c) |

TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued.

| Mineral | Gold-field | | Unit of | Quantity | Quantity | Metallic Content | Value (\$) | Ref. |
|--------------------------------------------|-----------------|---------------|----------|-----------|----------|------------------|------------|------|
| | Mineral-field | Mineral-field | | | | | | |
| Construction materials aggregate | Kimberley | | t | 2 466 | | | 9 864 | |
| | Pilbara | | t | 4 752 | | | 18 055 | |
| | West Pilbara | | t | 8 032 | | | 28 116 | |
| | | | | 15 250 | | | 56 035 | (b) |
| gravel | Pilbara | | t | 52 310 | | | 52 310 | |
| | West Kimberley | | t | 1 722 | | | 8 266 | |
| | West Pilbara | | t | 4 912 | | | 6 531 | |
| | | | | 58 944 | | | 67 107 | (b) |
| rock | West Pilbara | | t | 46 524 | | | 92 686 | (b) |
| sand | Coolgardie | | t | 12 384 | | | 58 909 | |
| | East Coolgardie | | t | 145 294 | | | 815 034 | |
| | Pilbara | | t | 12 646 | | | 58 359 | |
| | South West | | t | 556 671 | | | 988 547 | |
| | West Pilbara | | t | 12 316 | | | 37 846 | |
| | | | | 739 311 | | | 1 958 695 | (b) |
| Copper (metallic by-product nickel mining) | Coolgardie | | Copper t | | | | | |
| | East Murchison | | | 2 931.912 | | | 2 737 139 | |
| | | | | 492.445 | | | 403 980 | |
| | | | | 3 424.357 | | | 3 141 119 | (c) |

TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued.

| Mineral | Gold-field | | Unit of | Metallic | Value (\$) | Ref. |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------|---------|---------------|-------------|------|
| | Mineral-field | Quantity | | | | |
| Copper concentrates | Mt Margaret | 48 532.5 | t | 10 381.054 | 12 803 570 | (c) |
| | | | | Copper t | | |
| Cupeous Ore | Phillips River | 42.27 | t | 221.07 | 6 748 | (d) |
| | | | | Copper units | | |
| Diamond | Kimberley | 5 569 285 | carats | | 45 056 768 | (c) |
| Diatomite | South West | 257 | t | | 1 029 | (d) |
| Dolomite | South West | 300 | t | | 2 100 | (d) |
| Feldspar | South West | 4 779 | t | | 32 017 | (d) |
| Garnet sand | South West | 4 269 | t | | 149 459 | (c) |
| | | | | Ore treated t | | |
| Gold | State generally | 37 424.545 | kg | 8 352 003 | 508 891 876 | |
| | Includes alluvial, dollied and specimens, gold obtained from tailings retreatment and gold contained in exported gold bearing material. | | | | | |
| Gypsum | Dundas | 109 399 | t | | 1 074 996 | |
| | Gascoyne | 277 768 | t | | 4 233 598 | |
| | South West | 87 584 | t | | 651 538 | |
| | Yilgarn | 70 400 | t | | 209 057 | |
| | | 545 151 | | | 6 169 189 | (b) |
| | | | | | | (c) |

42 366 t of plaster of paris were manufactured from 62 025 t of gypsum.

TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued

| Mineral | Gold-field | | Unit of | Quantity | Metallic | Value (\$) | Ref. |
|-----------------------------|-----------------------|---------------|---------|------------|-----------|-------------------|------|
| | Mineral-field | Mineral-field | | | | | |
| Iron ore | | | | | Assay Fe% | | |
| ore shipped interstate | Peak Hill | | t | 4 657 593 | 64.00 | 80 631 944 | |
| | West Kimberley | | t | 1 093 461 | 67.76 | 12 036 981 | |
| <hr/> | | | | | | | |
| ore exported overseas | Peak Hill | | t | 5 751 054 | | 92 668 925 | |
| | Pilbara | | t | 24 549 501 | 63.00 | 554 476 603 | |
| | West Kimberley | | t | 4 572 191 | 62.27 | 103 194 810 | |
| | West Pilbara | | t | 2 158 916 | 66.70 | 46 195 068 | |
| <hr/> | | | | | | | |
| | | | | 52 243 453 | 61.56 | 1 033 562 370 | |
| <hr/> | | | | | | | |
| | | | | 83 524 061 | | 1 737 428 851 | |
| <hr/> | | | | | | | |
| pellets (exported overseas) | | | t | 89 275 115 | | 1 830 097 776 (c) | |
| | | | t | 21 433 | 60.71 | 422 109 (c) | |
| <hr/> | | | | | | | |
| Limestone | South West | | t | 199 915 | | 117 586 | |
| | North East Coolgardie | | t | 6 349 | | 6 349 | |
| | West Pilbara | | t | 3 354 | | 9 392 | |
| <hr/> | | | | | | | |
| | | | | 209 618 | | 1 187 327 (b) | |
| <hr/> | | | | | | | |
| Magnesite | Phillips River | | t | 16 729 | | 215 936 (c) | |

TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued.

| Mineral | Gold-field | | Unit of Quantity | Metallic Content | Value (\$) | Ref. |
|--------------------------------------------------------------------------|---------------|-----------|---------------------|-----------------------|------------|------|
| | Mineral-field | Quantity | | | | |
| Mineral beach sands ilmenite reduced ilmenite upgraded ilmentie | South West | 1 187 577 | t | Assay Ti02% 58.78) | | |
| | South West | 140 | t | 65.00) | 55 385 867 | (c) |
| | South West | 69 516 | t | 92.00) | | |
| kyanite | South West | 39 | t | | 3 618 | (c) |
| leucoxene | South West | 19 571 | t | Ti02 t 17 454 | 4 583 699 | (c) |
| monazite | South West | 16 590 | t | Th02 units 107 365 | 7 512 887 | (c) |
| rutile | South West | 73 484 | t | Ti02 t 70 073 | 25 457 848 | (c) |
| xenotime | South West | 42 | t | Y203 kg 7 069 | 397 547 | (c) |
| zircon | South West | 362 339 | t | Zr02 t 238 829 | 41 279 076 | (c) |

TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued.

| Mineral | Gold-field | | Unit of | Quantity | Metallic Content | Value (\$) | Ref. |
|-----------------------------------------------|--------------------|-----------|---------|----------|------------------|------------|------|
| | Mineral-field | Quantity | | | | | |
| Nickel concentrates | Coolgardie | 334 498 | t | 11.44 | 242 336 442 | | |
| | East Coolgardie | 34 499 | t | 11.70 | 25 878 757 | | |
| | East Murchison | 68 898 | t | 13.88 | 60 786 107 | | |
| | Mt Margaret | 48 596 | t | 11.02 | 34 305 414 | | |
| | | 486 491 | | | 363 306 720 | (e) | |
| Palladium (metallic by-product nickel mining) | Coolgardie | 461.151 | kg | | 2 491 786 | (c) | |
| | | | | | | | |
| Petroleum condensate | North Rankin Field | 92 382 | t | | NA | | |
| | South West | 2 479 | t | | NA | | |
| | | 94 861 | | | NA | | |
| crude oil | Ashburton | 1 166 187 | kL | | 276 259 366 | (g) | |
| | South West | 7 084 | kL | | 1 586 288 | (f) | |
| | West Kimberley | 43 185 | kL | | 6 944 864 | (f) | |
| | | 1 216 456 | | | 284 790 518 | | |
| natural gas | North Rankin Field | 1 028 793 | '000m3 | | 117 353 703 | | |
| | South West | 730 838 | '000m3 | | 48 490 308 | | |
| | | 1 759 631 | | | 165 844 011 | (i) | |

TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued.

| Mineral | Gold-field | | Unit of | Quantity | Quantity | Metallic Content | Value (\$) | Ref. |
|----------------------------------------------|--------------------------|---------------|---------|------------|----------|------------------|------------|--------|
| | Mineral-field | Mineral-field | | | | | | |
| Platinum (metallic by-product nickel mining) | Coolgardie | | kg | 80.938 | | | 1 225 011 | (c) |
| Salt | State generally | | t | 4 822 931 | | | 88 560 999 | (c) |
| Semi-precious stones amethyst | Gascoyne | | kg | 59 586 | | | 90 368 | |
| Silica sand | East Coolgardie | | t | 64 955 | | | 159 139 | |
| | South West | | t | 305 474 | | | 1 031 952 | |
| | Coolgardie | | t | 34 207 | | | 83 807 | |
| | | | | 404 636 | | | 1 274 898 | (b)(c) |
| Silver | By-product gold mining | | kg | 7 905.740 | | | 1 812 135 | |
| | By-product nickel mining | | kg | 345.574 | | | 89 110 | |
| | Mt Margaret | | kg | 36 418.738 | | | 10 860 000 | |
| | | | | 44 670.052 | | | 12 761 245 | |
| Spodumene | Greenbushes | | t | 8 504.66 | | Li02 t | 1 852 772 | (c) |

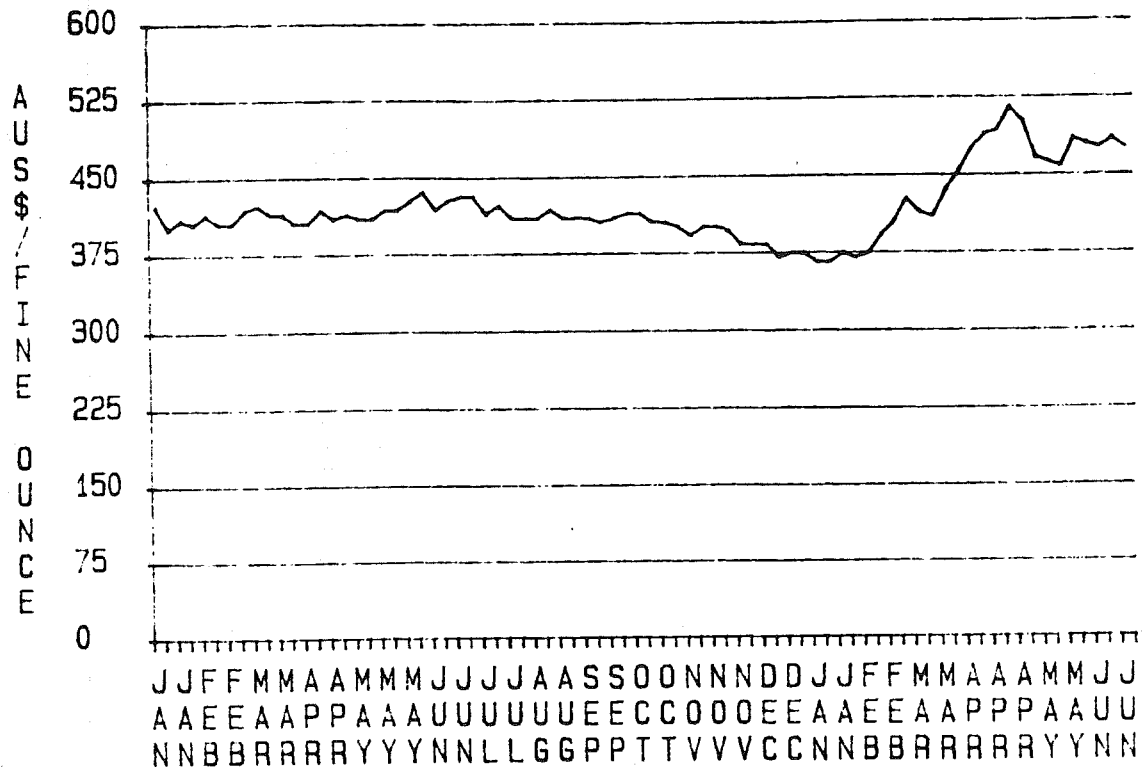
TABLE 2 QUANTITY AND VALUE OF MINERALS: SHOWING GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued.

| Mineral | Gold-field | | Unit of | Quantity | Metallic | Value (\$) | Ref. | |
|-------------------|----------------|----------|---------|----------|----------|-----------------|-----------------------------------|---------------|
| | Mineral-field | Quantity | | | | | | Content |
| Talc | Peak Hill | 3 863 | t | | | n.a. | | |
| | South West | 178 750 | t | | | n.a. | | |
| | | | | | | | 182 613 | n.a. |
| | | | | | | | Ta ₂ O ₅ kg | |
| Tantalite | Greenbushes | 58.45 | t | 27 700 | 3 389 | 286 | | |
| | Pilbara | 16.46 | t | 10 324 | 829 | 993 | | |
| | | | | | | | 74.91 | 4 219 279 (c) |
| | | | | | | | Tin t | |
| Tin concentrates | Greenbushes | 462.490 | t | 323.560 | 8 417 | 060 | | |
| | Pilbara | 106.576 | t | 75.168 | 1 025 | 747 | | |
| | | | | | | | 569.066 | 9 442 807 (c) |
| Vermiculite | Phillips River | 471 | t | | 7 740 | | (d) | |
| Zinc concentrates | Mt Margaret | 42 438 | t | 21 677 | 10 451 | 891 | (c) | |
| Total value | | | | | | \$4 663 702 326 | | |

TABLE 3
 QUANTITY OF GOLD (KG) AND ORE TREATED 1984/85
 SHOWING GOLDFIELD AND DISTRICT

| | ALLUVIAL KILOGRAMS | DOLLIED AND SPECIMENS KILOGRAMS | MILLED OR SMELTERED | | TOTAL GOLD KILOGRAMS | SILVER KILOGRAMS |
|------------------|-----------------------|------------------------------------------|-------------------------|-----------------------------|-------------------------|---------------------|
| | | | ORE TREATED (TONNES) | GOLD THEREFROM KILOGRAMS | | |
| KIMBERLEY | 8,199 | .963 | - | - | 9,162 | .095 |
| WEST KIMBERLEY | - | - | - | - | - | - |
| MARBLE BAR | 53,557 | 4,397 | 1 496 939.00 | 4 263,523 | 4 321,497 | 239,619 |
| NULLAGINE | 200,890 | 7,388 | 155.00 | 3,582 | 211,860 | .395 |
| PILBARA | 254,467 | 11,785 | 1 497 094.00 | 4 267,105 | 4 533,357 | 240,014 |
| WEST PILBARA | 12,280 | .236 | - | - | 12,516 | .291 |
| ASHBURTON | 26,771 | .214 | 601.00 | 3,903 | 30,888 | .036 |
| GASCOYNE | .332 | 1,997 | - | - | 2,329 | .038 |
| PEAK HILL | 10,730 | 1,912 | 263 719.00 | 842,404 | 855,046 | 43,944 |
| LAWLERS | 9,852 | .340 | 36 945.00 | 644,568 | 654,760 | 22,662 |
| WILUNA | 1,268 | 1,258 | - | 832,482 | 835,008 | 330,953 |
| BLACK RANGE | 59,189 | 6,358 | 234.00 | 46,326 | 81,873 | 2,221 |
| EAST MURCHISON | 40,309 | 7,956 | 37 179.00 | 1 523,376 | 1 571,641 | 335,836 |
| CUE | 42,211 | 4,021 | 182 171.00 | 631,313 | 677,545 | .794 |
| MEEKATHARRA | 103,102 | 4,712 | 581 109.00 | 1 137,106 | 1 244,920 | 6,915 |
| DAY DAWN | 17,688 | .708 | 95.00 | 19,874 | 38,270 | 6,161 |
| MT MAGNET | 8,918 | 2,947 | 313 451.00 | 1 493,312 | 1 505,177 | 158,708 |
| MURCHISON | 171,919 | 12,388 | 1 076 826.00 | 3 281,605 | 3 465,912 | 172,578 |
| YALGOO | 11,429 | 1,406 | 5 595.00 | 52,578 | 65,413 | 9,190 |
| MT MORGANS | 9,000 | 1,154 | 777.00 | 9,693 | 19,847 | .399 |
| MT MALCOLM | 58,779 | 5,842 | 619 962.00 | 2 105,627 | 2 170,248 | 44,076 |
| MT MARGARET | 22,011 | 4,232 | 276 937.00 | 1 767,899 | 1 794,142 | 484,248 |
| MT MARGARET | 89,790 | 11,228 | 897 676.00 | 3 883,219 | 3 984,237 | 528,723 |
| MENZIES | 2,863 | .223 | 3 047.00 | 173,055 | 176,141 | 5,183 |
| ULARRING | - | - | 59 909.00 | 59,842 | 59,842 | - |
| NIAGARA | .492 | .257 | 135.00 | 16,045 | 16,794 | .203 |
| YERILLA | .008 | .368 | 278 337.00 | 991,844 | 992,220 | 7,391 |
| NORTH COOLGARDIE | 3,363 | .848 | 341 428.00 | 1 240,786 | 1 244,997 | 12,777 |
| BROAD ARROW | 2,659 | .036 | 151 763.00 | 623,555 | 626,250 | 11,979 |
| KANOWNA | 7,405 | .094 | 245.00 | 13,553 | 21,052 | 1,806 |
| KURNALPI | 3,760 | .078 | 334.00 | .296 | 4,134 | .114 |
| NE COOLGARDIE | 11,165 | .172 | 579.00 | 13,849 | 25,186 | 1,920 |
| EAST COOLGARDIE | 7,108 | 3,977 | 2 437 605.00 | 11 986,412 | 11 997,497 | 2 468,918 |
| BULONG | 8,207 | .410 | 99.00 | 21,799 | 30,216 | .489 |
| EAST COOLGARDIE | 15,115 | 4,387 | 2 437 704.00 | 12 008,211 | 12 027,713 | 2 469,407 |
| COOLGARDIE | 12,817 | 4,874 | 801 863.00 | 3 731,753 | 3 749,444 | 445,183 |
| KUNANALLING | 1,504 | .103 | 828.00 | 21,884 | 23,491 | .952 |
| COOLGARDIE | 14,321 | 4,977 | 802 691.00 | 3 753,637 | 3 772,935 | 446,135 |
| YILGARN | 1,876 | .883 | 435 946.00 | 1 650,444 | 1 653,203 | 297,612 |
| DUNDAS | .327 | .768 | 317 180.00 | 3 234,054 | 3 235,149 | 1 350,973 |
| PHILLIPS RIVER | - | .066 | 158.00 | 72,367 | 72,433 | 19,210 |
| SOUTH WEST | - | - | 85 864.00 | 233,055 | 233,055 | - |
| STATE GENERALLY | 1,671 | 1,452 | - | - | 3,123 | .225 |
| TOTAL | 676,723 | 63,674 | 8 352 003.00 | 36 684,148 | 37 424,545 | 5 960,983 |

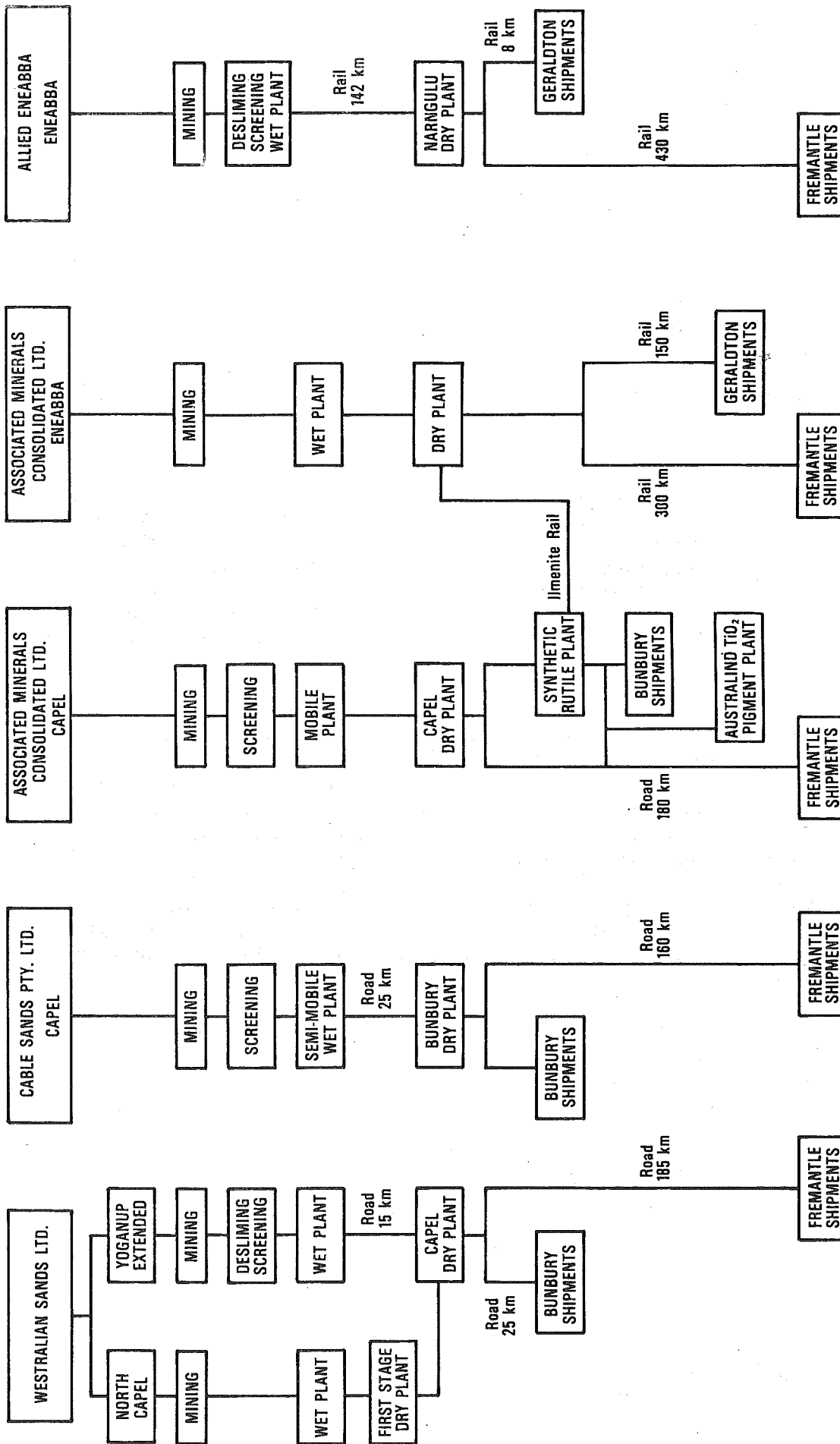
WEEKLY GOLD PRICES 1984/85



GOLD PRICE 1984/85 (MONTHLY AVERAGES)

| | PERTH \$/TROY OUNCE (DAILY FIXING) | HONG KONG \$/TROY OUNCE (DAILY FIXING) |
|-----------------|------------------------------------------|----------------------------------------------|
| JULY | 417.10 | 347.80 |
| AUGUST | 411.05 | 347.85 |
| SEPTEMBER | 411.25 | 341.70 |
| OCTOBER | 406.75 | 339.95 |
| NOVEMBER | 396.00 | 341.30 |
| DECEMBER | 380.20 | 319.80 |
| JANUARY | 370.35 | 302.20 |
| FEBRUARY | 394.10 | 298.50 |
| MARCH | 438.15 | 304.30 |
| APRIL | 490.90 | 325.55 |
| MAY | 469.90 | 316.20 |
| JUNE | 478.00 | 317.55 |
| 1984/85 AVERAGE | 422.00 | 325.20 |

FLOW CHART - WESTERN AUSTRALIAN HEAVY MINERAL SANDS INDUSTRY



MINERAL BEACH SANDS

Heavy minerals found in the deposits of Capel and Eneabba include Ilmenite, Zircon, Monazite, Leucoxene, Rutile and Xenotime.

Titanium white pigment is manufactured from Ilmenite and is used extensively in paints. Zircon is used as foundry sand, refractory bricks and derivatives of it are used in white leather tanning, paints ceramics and cosmetics. Derivatives of Monazite are used as catalysts in the oil refining industry and in the manufacture of mantles, refractories and medicines. Yttrium, used in the color television industry also comes from monazite.

The principal use for Rutile is in the manufacture of welding rod coatings and titanium white pigment but is also used in the making of titanium for the building of aircraft frames and in rockets for space programs. Leucoxene is used as a substitute for rutile in the moulding industry. Xenotime is a rare earth mineral which is also a source of Yttrium for the coloured television industry.

West Australian mineral sands are shipped from Bunbury, Geraldton and Fremantle to markets in Europe, Japan and United States while titanium dioxide pigments are produced at Bunbury and Burnie (Tasmania).

The total realised value of 1984/85 production was \$134.62 million and the average number of persons employed in the mineral sands industry during the year was 801.

TABLE 5

ROYALTY RECEIPTS 1984/85

| Mineral | 1983/84 | 1984/85 | Value (\$A) variance | % up (% down) |
|------------------------|-------------|-------------|-------------------------|------------------|
| Alumina | 7 697 140 | 9 638 703 | 1 941 563 | 25 |
| Building stone | 355 | 896 | 541 | 153 |
| Clay | 84 656 | 128 566 | 43 910 | 52 |
| Coal | 836 842 | 1 090 174 | 253 332 | 30 |
| Cobalt | 64 841 | 93 540 | 28 699 | 44 |
| Construction materials | | | | |
| aggregate | 36 567 | 2 169 | (34 398) | (94) |
| gravel | 24 | 14 684 | 14 660 | 61 083 |
| rock | 11 778 | 14 262 | 2 484 | 21 |
| sand | 60 536 | 108 941 | 48 405 | 80 |
| Copper | 424 426 | 586 568 | 162 142 | 38 |
| Diamond | 3 802 167 | 3 062 632 | (739 535) | (19) |
| Diatomite | - | 120 | 120 | Inf. |
| Dilomite | - | 60 | 60 | Inf. |
| Feldspar | 29 | 1 655 | 1 626 | 5 607 |
| Garnet sand | 5 651 | 7 177 | 1 526 | 27 |
| Gold | 87 825 | 100 622 | 12 797 | 15 |
| Gypsum | 281 438 | 159 134 | (122 304) | (43) |
| Iron ore | 78 165 503 | 88 531 269 | 10 365 766 | 13 |
| Limestone | 104 959 | 88 437 | (16 522) | (16) |
| Magnesite | - | 10 797 | 10 797 | Inf. |
| Magnetite | 51 | - | (51) | (100) |
| Mica | 1 943 | - | (1 943) | (100) |
| Mineral beach sands | | | | |
| ilmenite | 673 061 | 909 724 | 236 663 | 35 |
| leucoxene | 100 285 | 98 546 | (1 739) | (2) |
| monazite | 150 027 | 182 708 | 32 681 | 22 |
| rutile | 430 223 | 492 691 | 62 468 | 15 |
| xenotime | 2 059 | 985 | (1 074) | (52) |
| zircon | 982 764 | 987 802 | 5 038 | 1 |
| Nickel | 4 556 895 | 5 572 626 | 1 015 731 | 22 |
| Palladium | 16 046 | 23 018 | 6 972 | 43 |
| Petroleum Products | | | | |
| condensate | 40 840 | 179 770 | 138 930 | 340 |
| crude oil | 14 774 296 | 13 621 418 | (1 152 878) | (8) |
| natural gas | 3 326 836 | 3 754 615 | 427 779 | 13 |
| Platinum | 16 046 | 23 011 | 6 965 | 43 |
| Salt | 373 437 | 505 586 | 132 149 | 35 |
| Semi-precious stones | | | | |
| amethyst | 3 165 | 5 697 | 2 532 | 80 |
| moss opal | 41 | 80 | 39 | 95 |
| Silica sand | 103 334 | 160 217 | 56 883 | 55 |
| Silver | 5 225 | 76 573 | 71 348 | 1 366 |
| Spodumene | 33 468 | 82 179 | 48 711 | 146 |
| Talc | 74 001 | 74 073 | 72 | 1 |
| Tantalite | 125 425 | 67 425 | (58 000) | (46) |
| Tin concentrate | 170 560 | 144 785 | (25 775) | (15) |
| Vermiculite | 84 | 596 | 512 | 610 |
| Zinc concentrate | 484 592 | 389 744 | (94 848) | (20) |
| Total value | 118 109 441 | 130 994 275 | 12 884 834 | 11 |

PRINCIPAL MINERAL PRODUCERS 1984/85 - Head office postal address, telephone ber: minesite.

ALUMINA

Alcoa of Australia (WA) Ltd, P O Box 161, Kwinana 6167, (09) 419 1566: Del Park, Huntly, Jarrahdale
Worsley Alumina Pty Ltd, P O Box 344, Collie 6225, (097) 34 3022: Boddington.

BUILDING STONE - quartz

Snowstone Pty Ltd, P O Box 209, Cannington 6107, (09) 453 6777: Mukinbudin.

CLAY - cement clay

Bell Basic Industries Ltd, P O Box 75, Guildford 6055, (09) 279 0000: Armadale: Karragullen.

- fire clay

Clackline Refractories Ltd, P O Box 893, West Perth 6005, (09) 386 7833: Clackline.
Midland Brick Company Ltd, Bassett Road, Middle Swan 6056, (09) 274 5522: Bullsbrook.

- kaolin

Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.

COAL

Griffin Coal Mining Company Ltd, GPO Box G474, Perth 6001, (09) 325 8155: Collie.
Western Collieries Ltd, GPO Box X2231, Perth 6001, (09) 325 2711: Collie.

COBALT

Agnew Mining Company Pty Ltd, P O Box 22, Leinster 6437, (090) 37 6005: Agnew.
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

CONSTRUCTION MATERIALS - aggregate

Calsil Ltd, 5 Mill Street, Perth 6000, (09) 321 8552: Port Hedland.

~~State of Western Australia, Department of Mines, 6054, (09) 279 2707
Woodhead JL, 407 Packsaddle Road, Kununurra 6743, (091) 68 1472 : Kununurra.~~

PRINCIPAL MINERAL PRODUCERS 1984/85 - continued.

CONSTRUCTION MATERIALS - gravel

Brenel Pty Ltd, 178 St George's Terrace, Perth 6000, (09) 321 2698: Broome.
Kane DJ, 8 Oleander Place, Wickham 6720, (091) 87 1616 : Mt Welcome.
Leslie Salt Company, P O Box 420, Port Hedland 6721, (09) 72 3777: Port Hedland.
Pioneer Concrete (WA) Pty Ltd, P O Box 187, Victoria Park 6100, (09) 362 1100: Port Hedland.

- rock

Specified Services Pty Ltd, P O Box 89, West Perth 6005, (09) 321 3086: Mt Regal.

- sand

Calsil Ltd, P O Box 7214, Cloisters Square, Perth 6000, (09) 321 8552: Port Hedland.
Clackline Refractories Ltd, P O Box 893, West Perth 6005, (09) 386 7833: Clackline.
Cottiers Pty Ltd, P O Box 311, Port Hedland 6721, (09) 72 1553: Port Hedland.
Monier Ltd, P O Box 5, Willetton 6155, (09) 455 1488: Gosnells.

Pioneer Concrete (WA) Pty Ltd, P O Box 187, Victoria Park 6100, (09) 362 1100 :
Port Hedland.

Specified Services Pty Ltd, P O Box 89, West Perth 6005, (09) 321 3086: Maitland.
The Readymix Group (WA), P O Box 20, Bentley 6102, (09) 451 5566: Boulder, Jones River, Rocklea,
Turner River, Widgiemooltha.

COPPER

Agnew Mining Company Pty Ltd, P O Box 22, Leinster 6437, (090) 37 6005: Agnew.
Teutonic Bore Mine Project, GPO Box R1274, Perth 6000, (09) 325 4511: Teutonic Bore.
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

CUPREOUS ORE

Walker H&L, P O Box 169, Ravensthorpe 6346: Ravensthorpe.

DIAMOND

Argyle Diamond Mines Pty Ltd, Private Bag No 11 Post Office, West Perth 6005, (09) 325 1166: Argyle.

DIATOMITE

Hines, Horton and Rule, C/- 141 Robinson Street, Gingin 6503, (095) 75 2261: Sabys Peak.

PRINCIPAL MINERAL PRODUCERS 1984/85 - continued.

DOLOMITE

Green K&P, Newdegate 6355, (098) 71 1547 : Lake Magenta.

FELDSPAR

Snowstone Pty Ltd, P O Box 209, Cannington 6107, (09) 453 6777: Mukinbudin.

GARNET SAND

Target Minerals N L, P O Box 188, Geraldton 6530, (099) 23 3644: Port Gregory.

GOLD

Central Norseman Gold Corporation N L, P O Box 56, Norseman 6443, (090) 39 1101: Norseman.
Edjudina Gold Mines, P O Box 1014, Kalgoorlie 6430, (090) 24 2056: Edjudina.
Gold Resources Pty Ltd, Private Mail Bag 90, Kalgoorlie 6430, (090) 21 5544: Fimiston.
Hill 50 Gold Mine N L, 140 St George's Terrace, Perth 6000, (09) 322 6915: Mt Magnet.
Kalgoorlie Mining Associates, P O Box 105, Fimiston 6433, (090) 21 3411: Fimiston, Mt Charlotte.
Newmont Holdings Pty Ltd, P O Box 211, Cloverdale 6105, (09) 277 7011: Telfer.
North Kalgurli Mines Ltd, P O Box 88, Fimiston 6433, (090) 21 0600: Fimiston.
Sons of Gwalia Ltd, P O Box 669, West Perth 6005, (09) 322 1773: Leonora.
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Agnew, Boulder, Kambalda, Lancefield, Ora Banda.
Whim Creek Consolidated N L, P O Box 144, West Perth 6005, (09) 325 5855: Meekatharra.

GYPSUM

Agnew Clough Ltd, P O Box 7005, Cloisters Square, Perth 6000, (09) 322 4811: Shark Bay.
Amalgamated Industries Pty Ltd, Private Bag 16 Post Office, West Perth 6005, (09) 322 6444: Wyalkatchem.
Blake and Sita, P O Box 144, Merredin 6415: Lake Brown.
Brady H B and Company Pty Ltd, P O Box 42 Bayswater 6053, (09) 279 4422: Lake Brown.
CSR Building Materials, P O Box 91, Bentley 6102, (09) 451 4444: Yellowdine.
D & C Nominees Pty Ltd, P O Box 155, Yerecoin 6571: Wongan Hills.
Fitzgerald E M and E J, P O Box 404, Merredin 6415, (090) 41 1146, Hines Hill.
Green K L and P M, Newdegate 6355: Newdegate.
McAndrew Mining, Yelbeni 6487: Yelbeni.
Nixon P F and R S, P O Box 69, Moora 6510: Lake Hillman.
Southern Asiatic Enterprises Pty Ltd, 41 St George's Terrace, Perth 6000, (09) 325 7417: Norseman.
Swan Portland Cement Ltd, P O Box 78, Rivervale 6103, (09) 361 8822: Lake Hillman.

PRINCIPAL MINERAL PRODUCERS 1984/85 - continued.

IRON ORE

BHP Minerals Pty Ltd, P O Box 160, Kwinana 6167, (09) 410 1111: Cockatoo Island, Koolan Island.
Cliffs Robe River Iron Associates, GPO Box P1224, Perth 6001, (09) 325 9288: Pannawonica.
Goldsworthy Mining Ltd, GPO Box B80, Perth 6001, (09) 322 1788: Shay Gap, Sunrise Hill.
Hammersley Iron Pty Ltd, P O Box A42, Perth 6000, (09) 327 2327: Mt Tom Price, Paraburdoo.
Mt Newman Mining Company Pty Ltd, P O Box 7122, Cloisters Square, Perth 6000, (09) 322 0691: Mt Whal
Mt Whaleback.

LIMESTONE

Bell Basic Industries Ltd, P O Box 75, Guildford 6055, (09) 279 0000: Wanneroo.
Bellombra V, 6 Park Street, Tuart Hill 6060, (09) 349 3312: Wanneroo.
Cypress Nominees Pty Ltd, 4 Phillips Place, Karrinyup 6018, (09) 446 3930: Moore River.
Specified Services Pty Ltd, P O Box 89, West Perth 6005, (09) 321 3086: Cleaverlyville.
Swan Portland Cement Ltd, P O Box 78, Rivervale 6103, (09) 361 8822: Wanneroo.

MAGNESITE

Norseman Gold Mines N L, GPO Box E221, Perth 6001, (09) 325 2333: Bandalup.

MINERAL BEACH SANDS

Allied Eneabba Ltd, P O Box 6115, Hay Street East, Perth 6000, (09) 325 2599: Eneabba.
Associated Minerals Consolidated Ltd, 45 Stirling Highway, Nedlands 6009, (09) 386 8611: Capel,
Eneabba.
Cable Sands Pty Ltd, P O Box 133, Bunbury 6230, (097) 21 4111: Capel.
Westralian Sands Pty Ltd, P O Box 96, Capel 6271, (097) 27 2002: Boyanup, North Capel, Yoganup.

NICKEL

Agnew Mining Corporation Pty Ltd, P O Box 22, Leinster 6437, (090) 37 6005: Agnew.
BHP Minerals Ltd, GPO Box 86A, Melbourne 3001, (03) 60 0701: Carnilya Hill.
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Carnilya Hill, Kambalda,
Windarra.

PALLADIUM

Western Mining Corporation Ltd, P O Box 80, Belmont 6104 (09) 478 0711: Kambalda.

PRINCIPAL MINERAL PRODUCERS 1984/85 - continued.

PETROLEUM - condensate

Strata Oil N L, GPO Box G474, Perth 6001, (09) 325 8155: Woodada.
West Australian Petroleum Pty Ltd, GPO Box C1580, Perth 6001, (09) 325 0181: Barrow Island, Dongara.
Woodside Offshore Petroleum Pty Ltd, GPO Box D188, Perth 6001, (09) 425 1211: North Rankin.

PETROLEUM - crude oil

Home Energy Company Ltd, P O Box 6176, Hay Street East, Perth 6000, (09) 325 1555: Blina.
Pacific Basin Exploration Pty Ltd, 100 Mill Point Road, South Perth 6151, (09) 368 2800: Mt Horner.
West Australian Petroleum Pty Ltd, GPO Box C1580, Perth 6001, (09) 325 0181: Barrow Island, Dongara.

- natural gas

Strata Oil N L, GPO Box G474, Perth 6001, (09) 325 8155: Woodada.
West Australian Petroleum Pty Ltd, GPO Box C1580, Perth 6001, (09) 325 0181: North Perth Basin.
Woodside Offshore Petroleum Pty Ltd, GPO Box D188, Perth 6001, (09) 425 1211: North Rankin.

PLATINUM

Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

SALT

Dampier Salt Ltd, P O Box 7073, Cloisters Square, Perth 6000, (09) 327 2327: Dampier, Lake MacLeod.
Leslie Salt Company, P O Box 420, Port Hedland 6721, (091) 72 3777: Port Hedland.
Shark Bay Salt Joint Venture, P O Box 7005, Cloisters Square, Perth 6000, (09) 322 4811: Shark Bay.

SEMI-PRECIOUS STONES - amethyst and moss opal

Soklich Trading Company, Dale Place, Orange Grove 6109 (09) 459 1449: Gascoyne.

SILICA SAND

Australian Glass Manufacturers Co, 35 Baille Road, Canning Vale 6155 (09) 455 1111: Lake Gnangara.
Bell Basic Industries Ltd, P O Box 75, Guildford 6055, (09) 279 0000: Jandakot.
Monier Sands, P O Box 5, Willetton 6155, (09) 455 1488: Jandakot.
The Readymix Group (WA), P O Box 20, Bentley 6102, (09) 451 5566: Jandakot.
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Douglas Lake.
Westralian Sands Ltd, P O Box 96, Capel 6271, (097) 27 2002: Boyanup.

PRINCIPAL MINERAL PRODUCERS 1984/85 - continued.

SILVER

Teutonic Bore Mine Project, GPO Box R1274, Perth 6000, (09) 325 4511: Teutonic Bore.
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

SPODUMENE

Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.

TALC

Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Three Springs.
Westside Mines Pty Ltd, P O Box 572, Cloverdale 6105, (09) 277 4422: Mt Seabrook.

TANTALITE

Goldrim Mining Australia Ltd, 317 Hunter Street, Newcastle, NSW 2300, (049) 22 433: Wodgina.
Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.
Kincora Pty Ltd, P O Box 6009, Hay Street East, Perth 6000, (09) 325 6442: Old Shaw.

TIN

Endeavour Resources Ltd, Private Bag 16 Post Office, West Perth 6005, (09) 322 6444: Moolyella.
Goldrim Mining Australia Ltd, 317 Hunter Street, Newcastle, NSW 2300, (049) 22 433: Wodgina.
Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.
Kincora Pty Ltd, P O Box 6009, Hay Street East, Perth 6000, (09) 325 6442: Old Shaw.

VERMICULITE

Vermiculite Industries Pty Ltd, 101 Ewing Street, Welshpool 6106: Young River.

ZINC

Teutonic Bore Mine Project, GPO Box R1274, Perth 6000, (09) 325 4511: Teutonic Bore.

MINERAL PRODUCTION MAJOR CENTRES

