

Queensland

Bauxite-Alumina

✕ ANDOOM (see Weipa)

📄 AURUKUN

Location: 80km S of Weipa.

Management office: Aurukun team, Aurukun project team, Department of State Development and Innovation, PO Box 15168, City East, Qld 4002. Ph: (07) 3001 6359.

Geology: The Aurukun deposits are the southern extension of the Weipa deposits. The ore minerals are gibbsite and boehmite and occur in a flat-lying surficial deposit about 20 km from the coast. The alumina content of the ore is about 50%-55% with a silica content of 7%-8.2%.

Resources/Reserves: 439 Mt of in-situ bauxite containing 325 Mt of beneficiated bauxite at 53.6% Al₂O₃ and 7.4% reactive silica.

Comment: Pechiney entered the Aurukun Associates Agreement in 1975. The associates, Tipperary Land Corporation, Billiton Aluminium Australia and Pechiney, held the rights to the Aurukun bauxite lease covering an estimated resource of 500 Mt. Pechiney subsequently acquired all other interests in the project, gaining 100% control. A feasibility study by Pechiney and its former partners proposed a simple pit operation using front-end loaders for direct mining, similar to the Weipa operation (see separate entry). In 2000, the company was granted a mining license. In April 2003 Pechiney was considering building a mine and refinery on the prospect to boost supplies of raw materials for its smelters. During the latter half of 2003 the prospect was the subject of a court battle between Pechiney and the Queensland government over the future of the lease covering the Aurukun bauxite deposits. The government claimed that legislation stated that Pechiney had to surrender the land if it did not fulfill commitments to develop the site by 1983. In December 2003 Pechiney successfully blocked the government's bid to have an application heard in order to force surrender of the lease within seven days and by February 2004 Pechiney – and the Aurukun tenements – was acquired by Alcan Inc. In April 2004, Alcan commenced a \$15 million BFS with a timeframe of two years to investigate the potential for a bauxite mine and alumina refinery. However, in May 2004 the Queensland Government passed legislation revoking Alcan's rights to the Aurukun tenements. The government planned to initiate a process for the sale of the tenements. Later in 2004 the Queensland government formed the Aurukun Industry Reference Group, to advise the government on the preparation of a competitive bid process. The group consisted of Alcan, Alcoa, BHP Billiton, CHALCO, Comalco, Mitsubishi Corporation, Hindalco, RUSAL, Gallipoli Mining and Gulf Alumina. Once the project brief had been sufficiently completed, the industry reference group would be dissolved. The Queensland government had also set up a website – www.aurukun-project.qld.gov.au – providing information for the industry reference group on the project. During 2004 the Queensland government drilled 575 holes and was planning additional drilling for the 2005 dry season. In May 2005, IMC Consultants were appointed to manage the 2005 "geo-scientific investigation" at Aurukun. Results of the program would be made available to bidders.

📄 ELY (see Weipa)

KINGARROY

Location: Near Kingaroy.

Ownership: METALLICA MINERALS LTD 100%.

Management office: Andrew Gillies, managing director, Metallica Minerals Ltd, Unit 3, 1 Potts St, East Brisbane, Qld 4169. Ph: (07) 3891 9611. Fax: (07) 3891 9199.

Comment: Metallica Minerals Ltd's wholly owned subsidiary Cape Alumina Pty Ltd applied for two EPM applications comprising 202 and 129 sub-blocks respectively over an area of the Kingaroy-Murgon region. Exploration targets that were held within the EPMA were part of a 320km belt of Tertiary bauxitic laterites which occurred 100km inland and parallel to the Queensland coast. If Cape Alumina were able to establish the existence of a substantial bauxite deposit in the region, it would then investigate the potential of establishing an alumina refinery at Kingaroy. It was expected that the project would be similar to the bauxite mining and alumina producing operations in the Darling Ranges in southern WA. Metallica and Cape Alumina signed a non-binding MOU with Aldoga Minerals Pty Ltd for a placement in Metallica and the merger of Cape Alumina and Aldoga Minerals Ltd.

✕ WEIPA (Comalco – includes Andoom and Ely)

Location: 800km NW of Cairns. (Lat:-12.66700, Long:141.87300)

Ownership: ALCAN INC 100% of Ely through Alcan South Pacific; COMALCO LTD 100% and commercial agreement on Ely.

Management office: Hubie Dalsen, managing director mining and refining, Comalco Ltd, Level 25, 12 Creek St, Brisbane, Qld 4001. Ph: (07) 3867 1711. Fax: (07) 3867 1775.

Mine office: Rod Baker, mining manager; Simon Cupper, sustainability support manager; Stephen Dredge, technical services manager; Andrew Harding, general manager - operations; Vicki Jaensch, executive assistant, Comalco Ltd, c/o Post Office, Weipa, Qld 4874. Ph: (07) 4069 8432. Fax: (07) 4069 8402.

Geology: The bauxite, which consists of a mixture of trihydrate (gibbsite) and monohydrate (boehmite), occurs as a flat-lying to gently-dipping laterite varying from 1m-9m thickness. It is usually covered by about 600 mm of soil. The ore is pisolitic, varying in diameter from less than 1 mm up to 20 mm. In some localities, a surface-hardened zone up to 1m thick occurs but generally the deposit is composed of loose, free-flowing pisolites in an unconsolidated clay matrix. A typical specification for metallurgical grade bauxite from Weipa is 52%-54% total chemical alumina, 36%-43% gibbsite, 9%-13% boehmite, 2.4%-3.4% total silica, 0.3%-0.6% quartz, 14%-17% iron oxide, 2.5%-2.8% titanium, LOI 23%-27%, free moisture 11%-14%. The Ely deposits are an inland extension of the Weipa-type bauxites. The ore is 80% gibbsite and 20% boehmite and occurs as flat-lying shallow deposits about 50 km from the coast.

Resources/Reserves: At December 2004, proven-probable reserves were 1,146 Mt bauxite (53.7% aluminium oxide). In addition, there were measured-indicated resources of 2,135 Mt.

Operation: Open cut.

Treatment: Washing and screening.

Plant capacity: 16.5 Mtpa bauxite.

Production history:

Period to	Amount	Comment
31/12/2002	11.24 Mt	beneficiated bauxite
31/12/2003	11.90 Mt	beneficiated bauxite
31/12/2004	12.65 Mt	beneficiated bauxite

No. of employees: 600.

Equipment: Haulage/mine trucks: 12 x Caterpillar 776D, 1 x Komatsu HD1400, 4 x Komatsu HD785; Shovels/excavators/loaders: 2 x Komatsu PC1100-6, 2 x Komatsu WA900-3, 1 x Caterpillar 992D, 1 x Caterpillar 992C; Dozers: 3 x Caterpillar D11R, 1 x Caterpillar D10R; Haul road maintenance regime/equipment: 1 x Iomatsu HD1400 water cart (150kl), 1 x Caterpillar 776D 9150kl, 1 x Caterpillar 657E waterscraper (40kl), 2 x Caterpillar 16G graders, 1 x Caterpillar 16H grader, 1 x Caterpillar 14G grader.

Comment: Bauxite mining began at Weipa in 1961. In July 2003, Comalco announced that it would spend US\$150 million to maximise the value of Weipa's bauxite reserves by increasing production capacity to 16.5 Mtpa. The expansion project, known as NeWeipa, would mean moving to continuous two mine operation and would include the construction of a new 9.5 Mtpa beneficiation plant to be located at Andoom, and would allow Comalco to process low yielding ore within that orebody. By the end of 2004, the NeWeipa project had been completed with commissioning of the Andoom beneficiation plant underway. At December 2004, about 90% of bauxite production was shipped to the Queensland Alumina Ltd refinery in Gladstone and the Eurallumina SpA refinery in Italy. Calcined bauxite was exported to customers in Europe and North America and used as an industrial abrasive. Production at Weipa in 2004 rose 6% on figures reported for 2003. Plans to integrate the Ely deposit into Comalco's overall mining plans under agreements reached between Alcan, Comalco and local Native groups was ongoing. Mining was forecast to begin in 2010. A drilling program at Ely began in 2004 at the Ducie-Wenlock deposit. In 2005, a new US\$42 million power station was to be constructed to service the Weipa mining operations and surrounding communities.

WEIPA (Metallica)

Location: 50km W of Weipa.

Ownership: METALLICA MINERALS LTD 100%.

Management office: Andrew Gillies, managing director, Metallica Minerals Ltd, Unit 3, 1 Potts St, East Brisbane, Qld 4169. Ph: (07) 3891 9611. Fax: (07) 3891 9199.

Geology: The bauxite profile varies from about one metre to four metres thick and cementation occurs locally, generally in the one metre to two metres depth range. The major part of the deposit is not cemented. Pisolites are normally small, ranging from two millimetres to 10 mm in diameter in a fine grained red matrix, and there is an increase in size and a change to a mottled orange colour with increasing depth.

Comment: Metallica Minerals Ltd's wholly owned subsidiary, Cape Alumina Pty Ltd, acquired an area covering significant bauxite deposits in the Weipa region, Cape York Peninsula. There were four main areas of bauxite on this EPM application including Catfish Creek, Wenlock River, Wenlock and Mission River. Cape Alumina was targeting high grade bauxite in the Weipa region for the purpose of direct shipping to Asian or Australian markets. In 2004, Metallica increased its tenement holdings over extensive government mapped bauxite deposits in the world class Weipa-Aurukun bauxite province. In April 2005, Metallica signed a non-binding MoU with Aldoga Minerals Pty Ltd and its major shareholder Anegada Metals Corporation Limited to form a special purpose bauxite-alumina company with defined bauxite deposits and resources in western Cape York and the Kimberley region. Cape held all of Metallica's bauxite interests in Queensland including its flagship Weipa-Aurukun bauxite project and the Kingaroy bauxite project. Aldoga were to make a placement of \$1.86 million in shares to Metallica at an issue price of \$0.20/share. Metallica was to make available up to \$1.5 million as an interest free loan to Cape for evaluation work and a scoping study of the Weipa-Aurukun Bauxite Project. After further project evaluation and compilation during early 2005, Cape Alumina applied for five additional EPM applications in the Weipa and Aurukun region.

Bentonite

✕ CEDARS

Location: 10km SW of Yarraman.

Ownership: PCP DOUGLASS PTY LTD 100%.

Management office: Rob Douglass, director, PCP Douglass Pty Ltd, Maidenwell Rd, Upper Yarraman, Qld 4614. Ph: (07) 4163 8188. Fax: (07) 4163 8651.

Mine office: David Douglass, general manager; Robert Douglass, general manager, PCP Douglass Pty Ltd, Maidenwell Rd, Upper Yarraman, Qld 4614. Ph: (07) 4163 8188. Fax: (07) 4163 8651.

Operation: Open cut.

Plant capacity: 20,000 tpa.

Comment: Cedars was a relatively small, tertiary age deposit, that included some kaolinitic clay. Resources were claimed to be sufficient for the next 20 years at current production rates.

MANTUAN DOWNS

Location: Central Queensland.

Ownership: IPOH PACIFIC LTD 66.67%; PACIFIC MAGNESIUM CORPORATION LTD 33.33% with an option to increase to 49.9%.

Management office: Emmanuel Althaus, managing director, Pacific Magnesium Corporation Ltd, Level 3, 71 Queens Rd, Melbourne, Vic 3004. Ph: (03) 9510 2381. Fax: (03) 9510 2770.

Comment: In March 2003, IPOH Pacific Ltd and Pacific Magnesium Corporation Ltd commenced talks over Pacific Magnesium's potential farm-in to the project. During the September 2003 quarter, formal agreements were completed for Pacific Magnesium to acquire a 33.33% interest in both IPOH and in the project. Consideration for the transaction was \$300,000 and a share issue equivalent to 19.9% interest in Pacific Magnesium. Pacific Magnesium would have a right to increase its interest in the Mantuan JV to 49.9% through an additional expenditure of \$100,000. The acquisition was completed in December 2003. During the March 2004 quarter, results were received from the 37 vertical rotary holes drilled during 2003, prior to the JV agreement. 35 holes were drilled at the Area A deposit, with the remaining two wildcats drilled at the Marty's Ridge prospect. Results from Area A confirmed wide intervals of good quality bentonite with high to very high total cation exchange capacity values. In February/March 2004, consulting mining engineers, Isokangas Pty Ltd, were commissioned to undertake a scoping level evaluation on Area A. The study would comprise an evaluation of the mining, drying, processing and transportation for different bentonite products, as well as a financial and risk assessment of the project, based on production levels between 20,000 tpa to 100,000 tpa. By the end of fiscal 2004, the study had been completed with the results confirming that the Area A deposit could proceed to a feasibility stage. By early 2005, no new work had been undertaken on the prospect.

✕ MILES

Location: 350km W of Brisbane.

Ownership: UNIMIN AUSTRALIA LTD 100%.

Management office: Campbell Jones, general manager, Unimin Australia Ltd, Level 16, 111 Pacific Hwy, North Sydney, NSW 2060. Ph: (02) 9458 2929. Fax: (02) 9458 2900.

Regional office: Peter Collins, Peter Collins, Unimin Australia Ltd, 27A Pentex St, Salisbury, Qld 4107. Ph: (07) 3275 1399. Fax: (07) 3274 3599.

Mine office: Patrick Fitzgerald, operations superintendent, Unimin Australia Ltd, Gurulmundi Rd, Gurulmundi, Qld. Ph: (07) 4628 2232. Fax: (07) 4627 1865.

Geology: Gently dipping bentonite seams of the Late Jurassic Orallo Formation.

Operation: Open cut.

Coal

✕ ALLIANCE (see Oaky Creek)

ARCTURUS

Location: 15km E of Springsure.

Ownership: AMCI AUSTRALIA PTY LTD earning up to 50%; AQUILA RESOURCES LTD 100%.

Management office: Tony Poli, chairman, Aquila Resources Ltd, Suite 5, Level 3, 85 South Perth Esplanade, South Perth, WA 6152. Ph: (08) 9474 3311. Fax: (08) 9474 4433.

Geology: The tenement covers a shallow north-plunging synclinal structure developed on the eastern flank of the Denison Trough. The Orion coal prospect occurs on the western flank of a northwest trending anticline. Erosion of the Rangal Coal Measures is evident along the anticlinal axis, which appears to have formed a structural high during the outpouring of Tertiary basalt. Thickening of the coal seams appears to occur on the flanks of the structural high.

Comment: In April 2002, Aquila acquired the 941 km² Arcturus property (EPC 778), located in the southwestern part of the Bowen Basin. The area was operated under the Bowen Central Coal JV covering most of Aquila's coal assets. The JV was initiated in January 2004 between Aquila and Bowen Central Coal Pty Ltd, a wholly owned subsidiary of AMCI Holdings Australia Pty Ltd (AMCI). AMCI could earn up to 50% by free carrying Aquila for up to \$5 million in cash calls to meet all JV expenses. Aquila would equally share in the management of all JV activities through a jointly owned management entity. By late 2002, Aquila had completed 18 drill holes for 1,462m in the southeastern part of the project. The drilling outlined a coal deposit, since named Orion that was composed of up to four seams. The aggregate thickness of coal shown in three holes in which all four seams were intercepted varied from 5.0m to 6.7m with the best developed seam showing good consistency throughout the area. Initial results from washability testwork showed that the lower plies of the seam could yield a low ash, high volatile, thermal coal product. Aquila said that coal quality would be the key factor in determining economic viability. No further work had been reported to late April 2005.

✕ BLACKWATER (includes South Blackwater)

Location: 195km W of Rockhampton. (Lat:-23.68900, Long:148.80700)

Ownership: BHP BILLITON LTD 50%; MITSUBISHI CORPORATION 50% through Mitsubishi Development Pty Ltd.

Management office: Dave Murray, president metallurgical coal, BHP Billiton Ltd, BHP Billiton Centre, 180 Lonsdale St, Melbourne, Vic 3000. Ph: 1300 55 47 57. Fax: (03) 9609 3015.

Regional office: John Smith, chief executive officer, BHP Billiton Mitsubishi Alliance, Riverside Centre, 123 Eagle St, Brisbane, Qld 4000. Ph: (07) 3226 0600. Fax: (07) 3229 2575.

Mine office: Bert Allard, commercial; John Blanning, mine mgr; Michael Buckley, tech services; Deborah Cheyne, HR; Keith Downham, mining; Kevin McDonald, CPP; Paul McLaughlin, maintenance; Tim Nickols, health & safety; Jorritt Vochteloo, environment, BHP Billiton Mitsubishi Alliance, PMB, Blackwater, Qld 4717. Ph: (07) 4980 5666. Fax: (07) 4982 6825.

Geology: The low ash, hard coking coal and high energy PCI, semi-soft, and thermal coal is found in the Aries and Pollux seams of the Late Permian Rangal Coal Measures of the Bowen Basin. The PCI-thermal coal has 1.5%-2% moisture (ad), 25%-26.5% volatile matter, 59.5%-61.5% fixed carbon, 9%-13.5% ash, 0.4%-0.65% total sulphur and specific energy of 30.35 MJ/kg; coking coal 1.5%-2.8% moisture, 29%-30% volatile matter, 62.2%-63.7% fixed carbon, 6%-6.5% ash, 0.4%-0.5% total sulphur and specific energy of 32.5 MJ/kg.

Resources/Reserves: At June 2004, at Blackwater, marketable reserves were 276 Mt coal within measured-indicated-inferred resources of 675 Mt coal. At South Blackwater, marketable reserves were 66 Mt coal within measured-indicated-inferred resources of 981 Mt coal.

Operation: Open cut.

Treatment: Washing (coking) and crushing (thermal).

Plant capacity: 14 Mtpa.

Production history:

Period to	Amount	Comment
30/06/2003	13.68 Mt	saleable coal; includes South Blackwater production
30/06/2004	9.33 Mt	saleable coal; includes South Blackwater production
31/03/2005	9.92 Mt	saleable coal; includes South Blackwater production for the nine-month period

No. of employees: 1300.

Equipment: Haulage/mine trucks: 8 x Komatsu 930E-2, 7 x Caterpillar 789, 6 x Caterpillar 785, 3 x Caterpillar 776D, 6 x Caterpillar 776B, 3 x Caterpillar 776A, 3 x Caterpillar 776C, 1 x Caterpillar 777, 1 x Caterpillar 789; Shovels/excavators/loaders: 1 x P&H 4100XPB, 1 x Caterpillar 5230, 2 x Terex HR120, 1 x Terex RH170, 2 x Caterpillar 992C, 2 x Caterpillar 992G, 1 x Caterpillar 992D; Dozers: 7 x Caterpillar D10N, 3 x Caterpillar D10R, 5 x Caterpillar D11R, 3 x Caterpillar D11N, 4 x Komatsu D375, 2 Komatsu D475, 1 x Caterpillar 834, 1 x Caterpillar 854G; Draglines: 3 x Marion 8050, 2 x Bucyrus 1370W, 1 x Marion 8200; Haul road maintenance regime/equipment: 3 x Caterpillar 16G graders, 2 x Caterpillar 16H graders, 1 x Caterpillar 777C water truck, 2 x Caterpillar 776C water truck, 1 x Caterpillar 773B water truck, 1 x Caterpillar 637 scraper; Drilling equipment: 2 x Driltech D90K, 1 x Driltech D40K, 1 x Gemco coal drill, 1 x Ingersoll-Rand DMM-3, 1 x Schramm coal drill; Explosives: Dyno Nobel ANFO/heavy ANFO, emulsions, wet-hole product.

Comment: In December 2000, a decision was made to combine the South Blackwater open-cut operations previously owned by QCT Resources with the Blackwater mine, to produce up to 14 Mtpa of coking and thermal coal. During 2002, the integration process continued with further mining equipment including dozers, coal haulers and an excavator delivered. Coal was mined by open-cut methods, with seams mined using front-end loaders, a hydraulic shovel and 15 x 160t capacity coal haulers. Coal processing was handled through three coal preparation plants: the Blackwater CPP which had a coal washing capacity of 900 tph and a product conveyor capacity of 1,400 tph allowing for bypass; the South Blackwater CPP, also with a washing capacity of 900 tph and a product conveyor capacity of 1,500 tph allowing for bypass. A thermal coal plant provided a crushing and rail loadout facility with a capacity of 1,500 tph. Blackwater coking and thermal coal was sold to South and East Asia, Europe, the Middle East, the Americas, India and domestically. At mid-2004, reserves at Blackwater and South Blackwater were expected to sustain mining for nearly 20 years.

✕ BLAIR ATHOL

Location: 25km NW of Clermont. (Lat:-22.69100, Long:147.52700)

Ownership: JAPAN COAL DEVELOPMENT COMPANY LTD 3.4% through JCD Australia Pty Ltd; J-POWER (AUSTRALIA) PTY LTD 10.4% (2.4% through Leichardt Coal Pty Ltd); RIO TINTO COAL AUSTRALIA PTY LTD 71.2% (14% through Leichardt Coal Pty Ltd); UNISUPER MANAGEMENT PTY LTD 15% through Leichardt Coal Pty Ltd.

Management office: Grant Thorne, managing director, Rio Tinto Coal Australia Pty Ltd, Level 3, 410 Ann St, Brisbane, Qld 4000. Ph: (07) 3361 4200. Fax: (07) 3361 4370.

Mine office: Neil Brown, manager - planning & environment; Shane Entriken, manager employee services; Hennie Plooy, environment officer; John Robinson, coal plant superintendent; Alex Walters, senior health & safety advisor, Rio Tinto Coal Australia Pty Ltd, PO Box 177, Clermont, Qld 4721. Ph: (07) 4980 2444. Fax: (07) 4980 2477.

Geology: Steaming coal is mined from the Early Permian Blair Athol Coal Measures of the Bowen Basin. The coal is in four seams. The uppermost No. 1 seam averaged 7.5m in thickness and has been completely mined. The No. 2 seam averages 1.2m in thickness and although broad is not presently being mined. The No. 3 seam accounts for 100% of coal produced. It averages 29m in thickness with a maximum thickness of 32m in the SW. The No. 4 seam is broader than any of the overlying seams and averages between 3m and 5m in thickness where coal may be recoverable. Typical specifications are 8% ash, 7.5% moisture (ad), 27.2% volatile matter, 57.3% fixed carbon, 0.32% total sulphur and calorific value of 27.50 MJ/kg.

Resources/Reserves: At December 2004, proved-probable marketable reserves were 61 Mt (0.32% sulphur, 27.95 MJ/kg calorific value), with additional measured reserves at 3 Mt.

Operation: Open cut.

Treatment: Crushing and screening.

Plant capacity: 13 Mtpa.

Production history:

Period to	Amount	Comment
31/12/2002	11.81 Mt	thermal coal
31/12/2003	12.48 Mt	thermal coal
31/12/2004	12.23 Mt	thermal coal

No. of employees: 180.

Equipment: Haulage/mine trucks: 6 x Caterpillar 789; Shovels/excavators/loaders: 2 x P&H 2100, 1 x Caterpillar 994, 1 x Hitachi EX 1800; Dozers: 2 x Komatsu D575, 4 x Caterpillar D11, Draglines: 1 x Bucyrus BE1370; Haul road maintenance regime/equipment: 2 x Caterpillar 16G graders, 2 x Caterpillar 777 water trucks, 1 x Caterpillar 637 scraper; Drilling equipment: 1 x Driltech D90K, 1 x IngersollRand DML45, Explosives: Orica ANFO.

Comment: The Blair Athol JV was established in 1982 and the first coal was shipped from the mine in May 1984. Ranked as Australia's largest exporter, about 60% of Blair Athol thermal coal was sold to its two Japanese JV partners under contracts extending to 2008 and 2010. The rest was sold by long term and annual agreements to European and SE Asian customers. Mining was by traditional open cut stripping. After blasting, overburden was removed by bulldozers and a walking dragline to expose the No. 3 coal seam was completed. The seam was then mined in a single pass using electric shovels. Coal was transported by 170t dump trucks to the primary crusher station and then by conveyor to the secondary and tertiary crushing stations before being conveyed to one of three stockpiles (total capacity 600,000t) or fed directly to the train loading bins. The coal was shipped from the Dal-