ARROWHEAD
BUSINESS AND INVESTMENT DECISIONS

# Due Diligence and Valuation Report

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| Arrowhead Code: | 06-02-01 |
| Coverage initiated: | 20 August 2009 |
| This document: | 7 September 2009 |
| Fair share value bracket: | AUS$0.189 to AUS$1.096 |
| Share price on date: | AUS$0.135[i] |

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Eromanga Hydrocarbons NL

| | |
|---|---|
| Company: | EROMANGA HYDROCARBONS, NL |
| Ticker: | ASX: ERH |
| Headquarters: | Melbourne, VIC, Australia |
| Offices: | Melbourne, VIC, Australia |
| Managing Director: | Mr. Philip Galloway |
| Executive Chairman: | Mr. Michael Goldhirsch |
| Website: | www.erohydro.com |

### Market Data

| | |
|---|---|
| 52-Week Range: | AUS$0.08 – AUS $0.30[ii] |
| Average Daily Volume: | 135,800 [iii] |
| Market Cap. on date: | AUS $34.939MM |

### Financial Forecast Data (in AUS$)

| | '08E | '09E | '10E | '11E | '12E | '13E | '14E |
|---|---|---|---|---|---|---|---|
| High profit/ (loss) MM | (3.20) | (1.53) | 14.89 | 29.32 | 34.3 | 40.08 | 46.68 |
| High EPS cents | (1.24) | (0.59) | 5.76 | 11.33 | 13.25 | 15.49 | 18.03 |
| Low profit/ (loss) MM | (3.27) | (2.66) | 2.87 | 8.47 | 7.08 | 8.09 | 9.15 |
| Low EPS cents | (1.26) | (1.03) | 1.11 | 3.27 | 2.74 | 3.13 | 3.53 |

### Fiscal Year (FY)

1st July – 30th June

### Summary

Eromanga Hydrocarbons NL is an Australian oil and gas exploration and production company with key projects in varying exploration, development and early production stages. All key oil and gas assets are located in onshore Brazil. Eromanga Hydrocarbons has some production as of 7th September 2009 at Harpia Oilfield, and possesses good contingent resource estimates on Harpia Oilfield and Block 430, with a total of four targets identified, four wells drilled or currently being drilled and three in production or nearing the production phase for 2009-10.

The company's main target product, oil, has good marketability data[iv], with foreseeable increases in international demand in 2010 and onwards, after the 2008-2009 recession.

Given due diligence and valuation estimations based on intrinsic revenue capacity of existing assets, Arrowhead believes that Eromanga Hydrocarbons' fair share value lies in the AUS $0.189 to AUS $1.096 bracket.[v] This valuation is based solely on four wells in Blocks 330 and 430 and does not take account of the potential value of the company's portfolio of other assets.

## Company Presentation

To date all of Eromanga's production, development and exploration assets are located in onshore Brazil. Eromanga entered Brazil in 2006 and has farmed into Blocks ceded to operators in rounds of bidding from the


See important disclosures on page 14 of this report.

ANP, the national Brazilian oil and gas regulator. Overall, Eromanga has acquired working interest through the exploration and development phase in on-shore Blocks 59, 138, 330 (now Harpia Oilfield) and 430. The geographic concentration of acquired Blocks has enabled Eromanga to lower some costs.

Harpia Oilfield, formerly Block 330 saw two wells go into test production during S1 2009, PACA 1 and PACA 2. Two targets in Block 430 were drilled (TATU 1 and TATU 2 – TATU 2 is being drilled as of September 2009.) and should be tested and set up as future producers.

As a consequence, Eromanga Hydrocarbons' revenue for the forecast period is essentially dependent on Harpia Oilfield, which entered test production in early 2009 and will enter commercial production in 2010, and on production at TATU 1 and TATU 2, delivering the expected number of bpd.

**Eromanga Hydrocarbons' asset portfolio includes**

- Interest in two oil exploration and production assets generating test-production cash-flow of September 2009:
  - **40% of Harpia Oilfield (formerly Block 330) in the Sergipe-Alagoas Basin**, having produced approximately 18,000stb to 7$^{h}$ September 2009 at exploration and appraisal well PACA 1 and approximately 1,600stb to 7$^{th}$ September 2009 at PACA 2, two firm production wells planned for 2010 and one contingent well planned for 2011, with 16MMstb recoverable 2P reserves as of September 2009.
  - **40% of Block 430 in the Sergipe-Alagoas Basin**, with mid-case contingent resources of 48MMstb oil in place at the TATU 1 exploration and appraisal well as of September 2009, and a second target at TATU 2.
- Interest in two oil exploration assets in a traditional Brazilian hydrocarbon-producing area and options to participate in two other basins:
  - **50% of Block 59 in the Reconcavo Basin**.
  - **50% of Block 138 in the Reconcavo Basin.**
  - **options to participate in Rios de Piexe and Sao Francisco Basin blocks** subject to agreement on commercial terms.
- A mineral exploration asset portfolio in uranium, copper and gold, located in South Australia:
  - **20.99% interest in the Edwards Creek Base Metals Joint Venture**, which is exploring for Uranium together with Copper and Gold in Australia. Through this JV, Eromanga holds interest in three licenses – EL3250, EL 3790 and one application ELA 9/07.

**Eromanga oil assets in the project maturity timeline**

| Early Exploration (2D & 3D surveys and data interpretation) | Late Exploration (test-drilling) | Preparation for Production | In high-rate, full production | In low-rate, cyclical production |
|---|---|---|---|---|
| Investment | Investment | Investment | Returns | Low Returns |
| **Block 430, Reconcavo Basin** | **TATU 2, Block 430** | **PACA 2, Block 330 & TATU 1, Block 430** | **PACA 1, Block 330** | |

**Eromanga Hydrocarbons portfolio and company premiums**

- Eromanga has two wells in production and pre-production in Block 330, namely PACA 1 and PACA 2. It expects two more wells in production in Block 430 within the next 18 months. This will enable Eromanga to considerably increase its revenue over the next two years.

- Eromanga Hydrocarbons focuses at present on on-shore Brazil oil exploration and production, which enables it to develop considerable expertise within a specific geography, supply market and play type. Eromanga has considerable knowledge of the Brazilian bidding process. Economies of scale should result from this geographic concentration over the exploration-production cycle.
- Brazil has attractive fiscal and regulatory terms for foreign oil and gas exploration companies, a strong independent regulator and excellent prospectivity. The prospectivity has been demonstrated in particular by Eromanga's first two projects, which were both completed as future producers with total reserves and resources of around 140MMstb of oil in place (mid-case, 100% basis). The business environment is also excellent: since 2006 Eromanga and its operating partners have completed seismic programs, exploration drilling and production testing generally on time and within budget.
- Eromanga operates in a generally low cost environment. Capital costs are low with on shore fields and typically in flat dry country with excellent road access. Reservoirs are in shallow depths by average industry standards and oil recovery is conducted with conventional drilling and pumping operations. Because Eromanga is focused on basins with existing production, oil and gas infrastructure is excellent and there is good access to international and local service companies.
- Eromanga Hydrocarbons has concentrated its capital resources to "open the tap" on only the most efficient, safest and largest projects, and drop secondary, riskier or slower projects.
- Eromanga Hydrocarbons has strong and complementary management and governance, forming an all-around team for regulatory, financial and technical operations.
- Arrowhead BID feels there is significant opportunity for price stability, to growth, in oil through the next 5 years, given foreseeable supply and demand factors. There are significant arguments indicating a good future in terms of marketability and demand of petroleum products in general and oil in particular. For details on oil price forecasts, see *Technologies and Markets* below and *Key Variables* section of this report.

**Eromanga Hydrocarbons portfolio and company risks**

- Eromanga Hydrocarbons' portfolio is concentrated in the exploration and development phase, with revenue from production small as of September 2009 and expected to grow steadily; this produces to some extent a small financial risk for the early forecast years 2009, 2010, as revenue steps up. Still, with a good forecast market for petroleum products and straightforward plays in oil-country onshore Brazil, which investors should understand, Arrowhead believes Eromanga Hydrocarbons is secure given current equity and credit markets in the case of delays in the revenue forecast plan or unplanned capital expenditure increases.
- Eromanga Hydrocarbons' stated capital expenditure (the feasibility and ultimate cost of the important capital expenditure agenda) will have to be confirmed in the future with any given market conditions for financing.

**Eromanga Hydrocarbons corporate strategy**

- Management applies a rigorous asset selection process in purchasing rights to Blocks; and in pursuing with drilling targets. The assets are dropped after first-phase evaluation if risk and economics are unacceptable.
- Eromanga is not an operator at present in Brazil and focusing on partnerships with well-established local companies. Eromanga is prepared to develop operatorship of an asset in the country in the future.
- Pursue development of Blocks 330 and 430 with a planned ten wells and consistent production increases. Bring PACA 1 and 2 to maximum flow rate and develop TATU 1 and 2 to maximum flow rates, before drilling other nearby targets within the system.
- Resolve JV issues with Silver Marlin in Blocks 59 and 138 and with Reedy Lagoon in the Edwards Creek Base Metals Joint Venture.
- Eromanga plans to continue to study and participate if appropriate in next rounds of bidding in onshore/offshore Brazil. There is approximately on round per year, organized by the ANP.

**Key trends for oil and gas**

**Key drivers for petroleum product market and prices:** Petroleum products remain in many cases irreplaceable. This is especially the case with oil which is as of yet the indispensable source of energy of most automotive (and aeronautical) transportation. This should remain a reality for another decade or two, as alternative sources of energy for automotive transportation are slowly demonstrated and rendered economic from a mass-consumption point of view and adopted by the public in the variety of usage categories of automotive transportation.

**Oil prices short-term stabilization and long term growth:** Stockpile levels are expected to decline during Q2 2009, stabilizing prices, with forecasted growth for 2010 and ahead.

For more details, see *Key Variable Analysis* section on pages 5-6 of the report.

**Key variables which enter into Eromanga Hydrocarbons revenue estimations**

- **Variable 1 –** Forecast price of oil over the forecast period 2009-2014: US$59.94/stb in 2009, then:

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|
| Low estimate | 15% | 10% | 10% | 10% | 10% |
| High estimate | 25% | 15% | 15% | 15% | 15% |

- **Variable 2 –** Hypothesis for production rates at PACA 1 through 2014: 60 to 80stb/day in FY 2009, 400 to 700stb/day in FY 2010 and 500 to 1,000stb/day for FY 2011-2014.
- **Variable 3 –** Hypothesis for production rates at PACA 2 through 2014: 50 to 75stb/day for FY2009, 300 to 600stb/day for FY2010, and 750 to 1,500stb/day for FY2011-2014.
- **Variable 4 –** Hypothesis for production rates at TATU 1 through 2014: 50stb/day to 75stb/day
- **Variable 5 –** Hypothesis for production rates at TATU 2 through 2014: 100stb/day to 150stb/day
- **Variable 6 –** US$/AUS$ exchange rates over the forecast period 2009-2014: 1.00 to 1.55.

**News**

- **TATU 2 – Progress Reports No. 2 & 3:** on 17th August 2009, Eromanga Hydrocarbons announced that the Tatu 2 well at Block 430 had been drilled and cased to 243m. This completed the first of three drilling phases. The second phase is being drilled with oil based mud to a planned depth of 800m into the Calumbi Formation. On 26th August 2009, Eromanga announced that it had reached a depth of 310m.

  **PACA 2 well completed for production:** on 15th May 2009, Eromanga Hydrocarbons announced that the operator of Block 330 advised that it will complete PACA 2 as a future producer and has isolated the DDD and upper CCC zones for production. Production will commence once the well is completed with a Progressive Cavity Pump and the production license is received from the ANP.
- **Increase in resource and re-categorization of reserves at Block 330**: on 15th May 2009, Eromanga Hydrocarbons announced that an in–house technical review for the Board had resulted in an increase in the total resource for the interpreted horst structure in Block 330. The increase was 76% on the original oil in place estimate and 50% on the resource from October 2008. Total resource includes 1.7MMstb of reserves. This increase in oil in place and potentially recoverable resource is based on: the re‐mapping of top Coqueiro Seco Formation as shown in Figure 1 (attached), which indicates a fault between PACA 1 and PACA 2; and the logging in PACA 2 of additional reservoirs with oil saturations in excess of 40% in the Penedo and Barra de Itiuba Formations, which lie beneath the Coqueiro Seco Fm. Formation production performance characteristics which are still to be confirmed by the J.

**Listing and name information**

Eromanga Hydrocarbons NL has been a listed equity on ASX (Ticker: ERH) since 23rd April 1999.

**Contacts**

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## Key variable analysis

**Variable 1 – Price of crude oil over the forecast period 2009-2014**

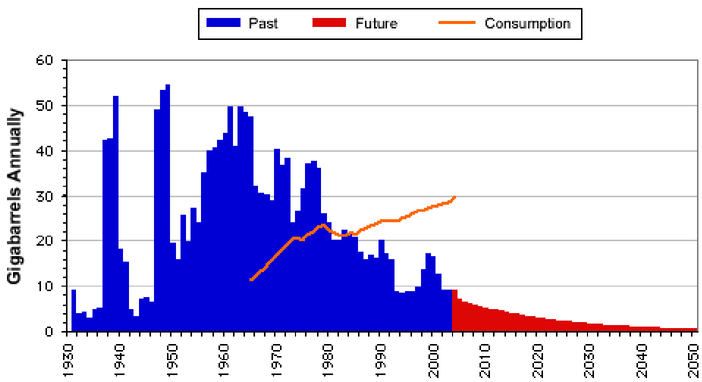


*Table 1: Oil Discovery (3 year average - past and projected) 1930-2050*[vi].

Despite important corrections since record highs on 11 July 2008[vii], Arrowhead believes that the average price of light sweet crude oil should increase substantially through 2013.

Volatility is important in oil & gas prices, in most part linked to the important and presently increased speculative movements on oil derivatives. But at the root of the issue and in terms of oil and gas sales and oil and gas supply, fundamentals are definitely excellent for steady growth in prices for the next five to ten years at least.

Demand can be expected to pick up in 2009-10, with a number of structural reasons for demand to remain growing well into the next decade. As excess inventories encouraged by contango effects shore up prices should rise again.

Chinese and Indian growth will add strain as well as traditional growth in demand from North America and Europe. Other large accelerating economies throughout the world are expected to contribute to a stable to accelerating growth in demand (i.e. Brazil, Turkey, Indonesia).

Demand for fossil fuels themselves is expected to stay high, with replacement technologies in many usage segments still costly and far ahead in time. Stability in oil & gas consumption in OECD countries for 2009-13 (a 0% growth for these regions – a very conservative target) would only dent global strain on demand for oil & gas.

An average price of US$59.94 a barrel for light sweet crude oil can be expected for 2009[viii]. Low estimates will have that average price growing by 10% every year through 2010-2013, but a higher realistic estimate is that the average price of crude oil should grow 25% in 2010 and on average 15% every year through 2011-2013. Even this high estimate makes for a much slower growth rate than that observed over 2006-2008[ix].

The following table provides the bracket estimates for annual growth of oil prices used in the valuation, starting from a forecast average US$ 59.94 per barrel in 2009:

| | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Low estimate** | 15% | 10% | 10% | 10% |
| **High estimate** | 25% | 15% | 15% | 15% |

**Variable 2 – Hypothesis for production rates at PACA 1 through 2014**

Arrowhead feels Eromanga Hydrocarbons should produce 60 to 80 barrels per day at PACA 1 in FY 2009, 400 to 700 barrels per day in FY 2010 and 500 to 1,000 barrels per day in FY 2011-14.

**Variable 3 – Hypothesis for production rates at PACA 2 through 2014**

Arrowhead feels Eromanga Hydrocarbons should produce 50 to 75 barrels per day at PACA 2 in FY2009 and 300 to 600 barrels per day in FY2010, increasing to production of between 750 to 1,500 barrels per day in FY 2011-14 as the well clears up.

**Variable 4 – Hypothesis for production rates at TATU 1 through 2014**

Arrowhead feels Eromanga Hydrocarbons should produce 50 to 75 barrels per day at TATU 1 through FY2014, starting in the last quarter of FY2009.

**Variable 5 – Hypothesis for production rates at TATU 2 through 2014**

Arrowhead feels Eromanga Hydrocarbons should produce 100 to 150 barrels per day at TATU 2 through 2014, starting in the second half of 2010.

**Variable 6 – US$/AUS$ exchange rates over the forecast period 2009-2014**

Since Eromanga Hydrocarbons' revenues are extremely sensitive to the price of oil, which is priced in US$, the currency factor is important. A historical benchmark low value for the years ahead is 1.10, while 2008-09 trading levels around 1.40-1.55 can be seen as a high value.
A variety of issues are on watch, including the relative good performance of the Australian economy and Australian interest rates which have not been lowered by much so far through the financial crisis and which could find themselves at lower levels over the forecast period.
The exchange rate should establish itself within a 1.00 - 1.55 bracket.

# Assets & Projects[x]

## Oil and gas development and production projects

Through its participation in the Gavea Oil and Gas Joint Venture, Eromanga Hydrocarbons NL possesses two advanced development and production assets in Blocks 330 and 430, in the Sergipe Alagoas Basin, onshore Brazil. Four targets have been drilled within these blocks, and the JV has succeeded in bringing one of these targets into steady and convincing test- and pre-production, with Block 330 having thus recently been re-designated as Harpia Oilfield in advance of veritable commercial production. Two more of the targets wells are being planned for production (PACA 1 and TATU 1) and the fourth is currently being drilled (TATU 2).

**Harpia Oilfield (formerly Block 330)**
Sergipe-Alagoas Basin

**Eromanga interest** in Block 330: **40%**

**Operator**
UBX Ltda., sole other partner with 60%.

**Resource**[xi]
Total recoverable 2P[xii] reserves of 16MMstb.

**Oil quality** Paca/Harpia oil is 13.3° API, which is relatively heavy, All Brazilian crude is measured against North Sea Brent at 38 degrees API, attracting either a discount or premium according mostly to gravity. Paca/Harpia oil contains neither significant sulphur (~0.5%) nor heavy metals to the knowledge of Eromanga.

**Production to date at PACA 1** **18,000 stb of oil**
*(Apr. '09 – Sep. '09)*

**Production to date at PACA 2** **1,600 stb of oil**
*(May '09 – Sep. '09)*

**Exploration and appraisal wells**

**PACA 1:** In January 2008 the JV re-entered Petrobras discovery well PTA-3, which had been drilled in 1960. This well had produced oil in drill-stem tests and had significant oil shows over an interval of 104m. The well casing was in good condition and, after completing the "work-over", PTA-3 was completed as a future producer in March 2008.
Production from PACA 1 is current following the results of the long‐term production test commenced in October 2008 and an inspection of the facilities by the ANP. The production test, commenced on 18th April 2009, led to Eromanga's first sale of oil. Based on this production test at PACA 1, the JV commenced full field development of the block in early 2009 for production.

**Flow rates:** Flow rates were **up to 75stb/day** on a number of days. Water production from the well reduced from 50% during the production test to less than 25% for the most recent production.

**PACA 2:** Zone DDD (306m to 314m) is predominantly a sandstone interval and the Operator has determined from logs that the average porosity is greater than 23% and average oil saturation is 67%. The Upper CCC Zone (331m to 334m), has an average porosity of around 27% and average oil saturation of 53%.
The JV expects to test the other zones encountered in PACA 2 with future wells. In particular, the interval from 237 to 245m, which includes Zone EEE, may provide a very shallow, and therefore, low cost target for a future production well. This interval could not be tested properly or completed in PACA 2 due to the position of the casing shoe, despite an average oil saturation of 68% interpreted between 243.5m and 245.5m. Similarly the lowest intervals in PACA 2 will be tested, subject to JV approval, by wells using drilling muds and testing and completion methods that are less antagonistic to the flow of oil and that can now be selected as a result of the test work completed at PACA 2.

**Flow rates:** The operator expects the combined zones to initially flow at a rate **up to 60stb/day** with potential for flow to increase to the pump capacity of 150stb/day as the well cleans up. Water production has decreased, but remained at 85% for the DDD and upper CCC zones which were completed for production. Eromanga believes that poor cement bonds and washouts behind the casing may be the cause of this water. Further evaluation is underway.

**JV agreement for Harpia Oilfield - Block 330**
Upon declaration of commerciality for the PACA Field, as defined in the JV Participation Agreement (PA) for Block 330, Eromanga must contribute 100% of the first US$2MM of development capital. The decision to declare commerciality (as defined in the PA) is based upon the JV parties agreed forecast of operating revenues versus the capital cost required to be expended in respect of the full field development. Also in the event of commerciality an additional farm-in payment is contemplated under the PA. This payment

arises should an independent engineering expert certify proven reserves greater than 2.8MMstb for Block 330.

The additional farm-in payment would be calculated as the net present value equivalent of $10/Stb for the Eromanga pro-rata share of production from certified, Proved reserves greater than 2.8MMstb and discounted to the date when the reserves were certified. Under the PA the $10/stb amount applies at oil prices between $40 and $80/stb and reduces to a $0/stb payment for forecast oil price below $40/stb and increases to $15/stb for forecast oil price greater than $80/Stb. It is unlikely that this amount will need to be paid. Because of the variable nature of the different reservoirs, each new well drilled as part of the full field development plan is likely to add only certified proved reserves equivalent to the drainage area of the individual well (currently estimated at approximately 0.2km$^2$ or ~50 acres). As a result, certified proved reserves are expected to be limited to the drainage area of wells actually in production.

**Future work programs**
A 'minimal case' Development Plan was submitted to the ANP and approved in July of 2009. This minimal case includes two firm and one contingent well as a first phase in the Harpia development. Two firm wells (2010) are targeted at the shallower Morro do Chaves Mbr reservoir (produced in PACA 1 and PACA 2), while the contingent well (2011) is planned to test the production potential of the deeper Penedo Fm reservoir. Provided results are encouraging, a second phase development plan would add another 12 to 14 wells over the next four years (2011 to 2014).

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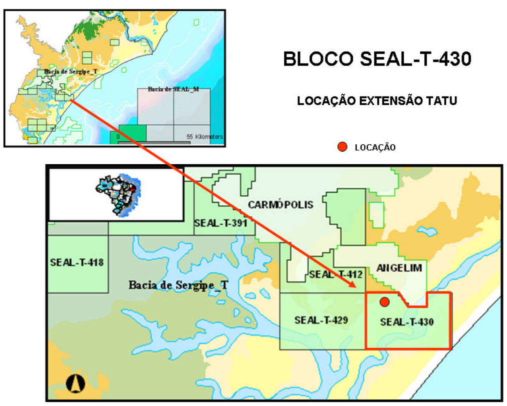
**Block 430**
Sergipe Alagoas Basin

**Eromanga interest** in Block 430: **40%**.

**Operator**
UBX Ltda., sole other partner with 60%.




Map: Block 430

**Resource**
The JV estimates a **mid-case contingent resource** of **48MMstb oil in place**[xiii] on TATU 1, with a high case of 107MMstb.

**Oil quality** Flow-testing from TATU 1 produced good quality light oil of 30° to 32° API on average and 26° to 28° API from the Upper carbonates zone with a negligible water cut.

**History**
Block 430 was released during the ANP's 7$^{th}$ Round and awarded in January 2006 to Tarmar Terminais Aero-Rodo-Marítimos Ltda. a wholly owned subsidiary of UBX Ltda., Eromanga's partner in the Gavea Joint Venture.

**Location and geology**
The Sergipe Alagoas Basin is one of Brazil's most important on-shore producing areas and has been in production since the 1960s. Block 430 is adjacent to two large Petrobras producing fields:

- *Angelim field*, which has been in production since the 1970s and is ring fenced into Block 430; and
- *Carmopolis field*, Brazil's largest on-shore discovery, which had over 1.4Bstb original oil in place and has been in production since the 1960s. It is approximately 14km from well 1-NORD-1-SE.

**Seismic exploration (2D & 3D mapping)**
Block 430 is partly covered by an existing 3D seismic survey and also has 2D surveys with good well control.

**Exploration and appraisal wells**
**TATU 1:** Eromanga's first exploration well on Block 430 in March 2008 tested oil in two zones within the fractured limestones of the Muribeca Fm and registered over 50m of oil shows within the fractured basement The well had oil indications over a total interval of 143m including shows in three different reservoir types: Upper Carbonates (Zone CCC), Middle Carbonates and Fractured Basement. In neighboring fields, Petrobras produces from all three intervals.
The JV successfully flow-tested the discovery well and, in September 2008, the Upper Carbonates section was completed as a future producer. Application was made to the ANP for an extended production test. The JV booked reserves for this discovery based on the results of the extended flow-test of early 2009.
TATU 1 swab-tested at rates of ~75stb/day, but severe reservoir damage due to the use of high specific gravity/high salinity drilling mud has limited capacity. After the completion of TATU 2, the JV intends to re-complete the uppermost reservoir section in TATU 1 (including remedial physical and chemical action) and initiate a long-term test using an electric submersible pump.


See important disclosures on page 14 of this report.

**TATU 2** is the second prospect in Block 430. The JV announced that it had identified this second prospect in June 2008, along trend from Petrobras' *Angelim field*. The well is up-dip on the Block 430 structure which has been interpreted from 3D seismic. The TATU 2 well is expected to have a terminal depth of ~1240m, but may extend to ~1300m if encouraging oil shows are encountered in the fractured basement.

The well will investigate four potential reservoir zones. The prognosed target depth (meters below rotary table) for the various target intervals are as follows:

I. 810 to 1010: turbidite sands of the Calumbi Formation, secondary reservoir target;
II. 1060 to 1160: Muribeca Formation, which includes the Oiterinhas and Ibura Members, primary reservoir target / fractured limestones;
III. at 1175: 'Basement wash' section that immediately overlies basement, secondary reservoir target / equivalent to Carmopolis Muribeca Fm (conglomeratic sands) that are the main reservoir section in the *Carmopolis* field;
IV. 1190 to 1240+: fractured basement of the Traipu Fm, primary reservoir target / quartz-mica schists.

Based on experience from TATU 1, the drilling program at TATU 2 has been designed to minimize reservoir damage by using a judicious casing program, oil-based and optimally weighted drilling fluids and open-hole testing.

Provided encouraging flow rates are obtained, TATU 2 will be completed as a producer and a long–term test application will be made to the ANP. Thereafter, an initial development plan will be prepared and submitted to the ANP for approval. As in Harpia, it is likely that a two-phase development plan will be prepared for TATU with post-test, initial production in 2011 - 12.

## Oil and gas exploration assets

Eromanga possesses five oil and gas exploration assets in the Reconcavo, Sao Francisco and Rios dos Piexe basins, onshore Brazil.

The two Reconcavo blocks are advanced with drilling targets identified and are located in mature petroleum provinces close to producing fields and infrastructure.

Eromanga possesses options to participate subject to agreement on commercial terms in the Sao Francisco and Rios de Piexe Basin blocks.

The two Sao Francisco options are high risk/high reward; these frontier basin blocks are large (ca. 3,000km$^2$ each) and contain all the elements of a working petroleum system, including gas seeps of proven geothermal origin. Available gravity, magnetic and Landsat data indicates favorable structural settings.

The Rio do Piexe blocks were released by the ANP in Round 9. Oil has been recovered from water wells in the basin, but other than a few seismic lines, the area is un-explored.

### Blocks REC-T-59 and REC-T-138

Reconcavo Basin

**Eromanga interest in Blocks 59 and 138 — 50%**

These blocks were part of five blocks originally acquired by the JV for exploration. Blocks 69, 118 and 79 were relinquished to the ANP in early 2008.

**Location and geology**

The Reconcavo Basin has been Brazil's most prolific on-shore producing area. Because of its long history, the Basin has a well understood petroleum system, an extensive data base of seismic and well information, excellent infrastructure and experienced contractors and service companies are locally available.

**Operator**

Silver Marlin, the sole other partner with 50% interest.

**Exploration**

The JV completed a 118km seismic program in August 2007 and a remodeling of extensive drilling and seismic data that was available. Two drilling targets were prioritized from a ranking of seven targets that the operator had identified over the five JV blocks.

**Status of dispute within the Silver Marlin JV**

An injunction which sought, among other things, to remove Eromanga from the Silver Marlin JV was rejected by the Corporate Court of the State of Rio de Janeiro. Defeat of the injunction is a clear validation of Eromanga's title. A dispute over the contribution of each party to drilling costs has not been resolved. The regulatory deadline to complete the wells by 12th January 2009 has been extended by the ANP.


See important disclosures on page 14 of this report.

**Minerals assets**

Eromanga holds interest in the Edwards Creek Base Metals Joint Venture (ECBMJV) which is exploring for Uranium together with Copper and Gold in South Australia.

**Edwards Creek Base Metals Joint Venture**
South Australia

**Eromanga interest** in the ECBMJV: **20.99%**

**Operator**
Reedy Lagoon Corporation Ltd.

**Licenses**
The ECBMJV holds three licenses EL3250, EL 3790 and one application ELA 9/07.

**Location and geology**
The project area is located within the transcontinental structural corridor referred to as "G2" and within the "South Australian Copper Belt". This structural feature is believed to be one of the controlling factors for the location of the poly-metallic Olympic Dam orebody located about 250km south of the Edward Creek Project. The project area is therefore prospective for "Olympic Dam" type ore deposits. Past copper mining on the ECBMJV tenements and results from regional exploration by previous explorers contribute to establishing the prospectively of the project for gold, copper, lead, zinc and uranium mineralization. Roll front and unconformity related types of uranium deposits are also being searched for at Edward Creek. The uplifted basement rocks of the Peake and Denison Inliers are potential sources of uranium which may have been dissolved and carried by surface waters to sites where deposition and concentration of uranium could occur.

Two regional gravity anomalies (Herakleion and Santorini) were identified. Drilling at Herakleion in 2006 identified rocks which petrologic studies indicate are early- to mid-Proterozoic in age. These rocks were intersected at a depth below surface of 670m. Such rocks are sufficiently old enough to be capable of hosting Olympic Dam style mineralization. However, no economic mineralization was recovered from the core sampling conducted and the exploration focus has moved to Santorini.

**Santorini target**
The target at Santorini is an "Olympic Dam" type structure. Favorable features observed at Santorini include:

- a zone of structural complexity defined in 200m line spaced and regional magnetic survey data
- a NW structural trend, identified in magnetic data
- the War Loan Copper mine is located a couple of kilometres to the east where mineralization is hosted in quartz-goethite-malachite veins (rock chip assayed: 14% Cu, 1.77 g/t Au, 8 g/t Ag).

The weathered gossans and the various quartz-malachite-goethite veins that have supported previous mining activities in the eastern part of the project area may be the result of secondary precipitation of minerals leached from a large underlying orebody.
The operator has constructed various models for depth and density calculations using ground gravity data.

**EM survey**
An airborne EM survey covering 234km$^2$ was completed on ELA 9/07 during Q3 2007 and a ground gravity survey on EL 3790 was completed by Q1 2008.

**Future work programs**
Drilling is planned at Santorini in S1 2009.

**Status of termination of the JV**
Reedy Lagoon, the operator of the ECBMJV announced that the JV would terminate on 10$^{th}$ June 2009. This termination has subsequently been challenged by parties to the ECBMJV and discussions are continuing on a commercial resolution. From Eromanga's point of view, the ECBMJV is under strategic review

## Management and Governance

The Management and Governance team is composed of a balance of experimented engineers for operations and accomplished practitioners of mining project finance, institutional and market financing for mining assets and regulatory issues.

**Phil Galloway** **Chief Executive Officer**

Phil has over 20 years experience in mining and energy projects as an engineer, investment banker and company executive. Phil has held senior roles at BHP Billiton, CS First Boston, RioTinto and Esso Australia. Phil was based in London for 5 years during which time he was a member of the executive committee for BHP Billiton Aluminium, a division with over 6,000 employees and a value in excess of $12Bn. Phil's other executive roles at BHP include Vice President for Gas Development and corporate planning manager for BHP Petroleum. He was also part of the small team that completed the $36Bn merger of BHP and Billiton. At CS First Boston, Phil advised the Victorian Government on the privatization of the Electricity Supply Industry including leading transaction worth in excess of $3Bn. Prior to that, Phil had various commercial and technical roles at Esso Australia. After graduating from engineering 1987, Phil worked for 5 years as a senior engineer and project manager for CRA Ltd (now Rio Tinto) in Australia and Papua New Guinea. Phil holds a Bachelor of Engineering from Monash University and a Graduate Diploma in Management Studies from the University of Melbourne. He is a member of the Australian Institute of Company Directors. Phil is based in Melbourne.

**John Weston** **Executive Director**

John is a petroleum geologist with over 30 years of international experience gained with BP, Gaffney, Cline & Associates and Schlumberger. John is experienced in all aspects of technical and commercial evaluation of upstream projects and exploration programs. He has had operational and development experience on oil and gas projects around the world. John established Eromanga's Brazilian business using extensive, in-country experience and contacts that were develope during his postings to Brazil, first with BP and later with Gaffney Cline. He is fluent in Portugese. John is based in London.

**Christian Turner** **Executive Director**

Christian trained as a geophysist and worked in that role with Schlumberger and BHP Petroluem. He later specialised in financing, developing and managing resource and agricultural companies. Christian is also the Managing Director of Bisan Limited an ASX listed company with interests in pelletizing technology and vanadium and magnetite resources located in the Republic of South Africa. In 2000 Mr Turner was executive director of the ASX listed company Redport Limited and appointed Chairman in 2002. Christian is based in Melbourne

**Josh Goldhirsch** **Chief Financial Officer**

Josh has extensive experience in property and commercial law and litigation. He was admitted as a Barrister and Solicitor to the Supreme Court of Victoria in 1999 and has been a partner of the law firm Goldhirsch Shnider since 2000. Josh graduated from Monash University with a Bachelor of Commerce and Law (Honours). He also holds a Masters of Law from Monash University. Josh is based in Melbourne.

## Value

The Fair Market Value for all of Eromanga Hydrocarbons' shares stands at AUS$49.041 million to AUS$283.666 million.

The Fair Market Value for one of Eromanga Hydrocarbons' publicly traded shares stands at AUS$0.189 to AUS$1.096.

**Eromanga Hydrocarbons Balance Sheet Forecast**

**CONSOLIDATED BALANCE SHEET** *all figures in '000 Aus$, unless stated differently* ***Low bracket estimates***

| *year beginning July 1st* | 2008A | 2009E | 2010E | 2011E | 2012E | 2013E | 2014E |
|---|---|---|---|---|---|---|---|
| Total Current Assets | 7,450 | 4,814 | 8,368 | 18,493 | 29,807 | 43,675 | 57,925 |
| Total Non-current Assets | 8,347 | 9,121 | 9,972 | 10,908 | 11,938 | 13,071 | 14,317 |
| **TOTAL ASSETS** | **15,797** | **13,935** | **18,341** | **29,401** | **41,745** | **56,746** | **72,242** |
| Total Current Liabilities | 41 | 41 | 41 | 41 | 41 | 1,221 | 1,348 |
| Total Non-current Liabilities | 657 | 690 | 725 | 761 | 799 | 839 | 881 |
| **TOTAL LIABILITIES** | **698** | **731** | **766** | **802** | **840** | **2,060** | **2,229** |
| Total Shareholder's Equity | **15,099** | **13,204** | **17,575** | **28,600** | **40,905** | **54,685** | **70,012** |
| **TOTAL LIABILITIES & EQUITY** | **15,797** | **13,935** | **18,341** | **29,401** | **41,745** | **56,746** | **72,242** |

**Important information on Arrowhead methodology**

The principles of the valuation methodology employed by Arrowhead BID are variable to a certain extent depending on the subsectors in which the research is conducted, but all Arrowhead valuation research possesses an underlying set of common principles and a generally common quantitative process.

With Arrowhead Commercial and Technical Due Diligence, Arrowhead extensively researches the fundamentals, assets and liabilities of a company, and builds solid estimates for revenue and expenditure over a coherently determined forecast period.

Elements of past performance such as price/earning ratios, indicated as applicable, are present mainly for reference purposes. Still, elements of real-world past performance enter the valuation through their impact on the commercial and technical due diligence.

Elements of comparison such as multiple analyses may be to some limited extent integrated in the valuation on a project-by-project or asset-by-asset basis. In the case of this Eromanga Hydrocarbons report, there are no multiple analyses integrated in the valuation.

**Arrowhead BID Fair Market Value Bracket**

The Arrowhead Fair Market Value is given as a bracket. This is based on quantitative key variable analysis, such as key price analysis for revenue and cost drivers or analysis and discounts on revenue estimates for projects, especially relevant to those projects estimated to provide revenue near the end of the chosen forecast period. Low and high estimates for key variables are produced as a tool for valuation.


See important disclosures on page 14 of this report.

In principle an investor who is comfortable with the high-brackets of our key variable analysis will align with the high-bracket in the Arrowhead Fair Value Bracket, and likewise in terms of low estimates. The investor will also take into account the company intangibles – as presented in the first pages of this document in the analysis on strengths and weaknesses and on other essential company information. These intangibles serve as supplementary decision factors for adding or subtracting a premium in the investor's own analysis.

The bracket should be understood as a tool provided by Arrowhead BID for the reader of this report and the reader should not solely rely on this information to make his decision on any particular security. The reader must also understand one the one hand that global capital markets contain inefficiencies, especially in terms of information, and that on the other hand corporations and their commercial and technical positions evolve rapidly: this present edition of the Arrowhead valuation is for a short to medium-term alignment analysis (one to twelve months). The reader should refer to important disclosures on page 14 of this report.

**Information on Eromanga Hydrocarbons valuation**

The Arrowhead fair valuation for Eromanga Hydrocarbons is based on a discounted cash flow method. The time period chosen for the valuation is 60 months (2009-2014).

Eromanga Hydrocarbons' aim at PACA 1 and PACA 2 is to set up a 150+stb/day production between both wells, with a project life over 15 years and a cost of operation of US$7.8/stb (management forecast, against US$11/stb currently). Terminal Value is estimated to depend on a terminal growth rate of 0%, representing the emptying of reserves in Harpia Oilfield and Block 430 and the rising marginal cost of replacing expended assets – i.e. comparable oil and gas assets should normally be relatively more expensive to acquire in time, as the best and easiest assets are expended, and assets become rarer.

It should be noted that this Arrowhead Fair Value Bracket estimate is a relatively prudential estimate, as it also discounts the eventuality of any of Eromanga's projects other than in Blocks 330 and 430 coming to market before 2014.

The upper and lower bounds in the estimation correspond to the extreme positions taken by the following key variables:

- **Variable 1 –** Forecast price of oil over the forecast period 2009-2014: US$59.94/stb in 2009, then:

| | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|
| Low estimate | 15% | 10% | 10% | 10% | 10% |
| High estimate | 25% | 15% | 15% | 15% | 15% |

- **Variable 2 –** Hypothesis for production rates at PACA 1 through 2014: 60 to 80stb/day in FY 2009, 400 to 700stb/day in FY 2010 and 500 to 1,000stb/day for FY 2011-2014.
- **Variable 3 –** Hypothesis for production rates at PACA 2 through 2014: 50 to 75stb/day for FY2009, 300 to 600stb/day for FY2010, and 750 to 1,500stb/day for FY2011-2014.
- **Variable 4 –** Hypothesis for production rates at TATU 1 through 2014: 50stb/day to 75stb/day
- **Variable 5 –** Hypothesis for production rates at TATU 2 through 2014: 100stb/day to 150stb/day
- **Variable 6 –** US$/AUS$ exchange rates over the forecast period 2009-2014: 1.00 to 1.55.

## Analyst certifications

I, Thomas Renaud, certify that all of the views expressed in this research report accurately reflect my personal views about the subject security and the subject company.

## Important disclosures

Arrowhead Business and Investment Decisions, LLC received fees in 2009 from Eromanga Hydrocarbons for researching and drafting this report and for a series of other services to Eromanga Hydrocarbons including distribution of this report and networking services. Neither Arrowhead BID nor any of its principals or employees own any long or short positions in Eromanga Hydrocarbons or in any other company in the iron ore sector.

Aside from certain reports published on a periodic basis, the large majority of reports are published by Arrowhead BID at irregular intervals as appropriate in the analyst's judgment.

Any opinions expressed in this report are statements of our judgment to this date and are subject to change without notice.

This report was prepared for general circulation and does not provide investment recommendations specific to individual investors. As such, any of the financial or other money-management instruments linked to the company and company valuation described in this report, hereafter referred to as "the securities", may not be suitable for all investors.

Investors must make their own investment decisions based upon their specific investment objectives and financial situation utilizing their own financial advisors as they deem necessary.

Investors are advised to gather and consult multiple sources of information while preparing their investment decisions. Recipients of this report are strongly advised to read the *Information on Arrowhead Methodology* section of this report to understand if and how the Arrowhead Due Diligence and Arrowhead Fair Value Bracket integrate alongside the rest of their stream of information and within their decision taking process.

Past performance of securities described directly or indirectly in this report should not be taken as an indication or guarantee of future results. The price, value of, and income from any of the financial securities described in this report may rise as well as fall and may be affected by simple and complex changes in economic, financial and political factors.

Should a security described in this report be denominated in a currency other than the investor's home currency, a change in exchange rates may adversely affect the price of, value of, or income derived from the security.

This report is published solely for information purposes, and is not to be considered as an offer to buy any security, in any state.

Other than disclosures relating to Arrowhead Business and Investment Decisions, LLC, the information herein is based on sources we believe to be reliable but is not guaranteed by us and does not purport to be a complete statement or summary of the available data.

Arrowhead Business and Investment Decisions, LLC is not responsible for any loss, financial or other, directly or indirectly linked to any price movement or absence of price movement of the securities described in this report.

## Valuation

Figures are in thousands AUS$, unless indicated otherwise.

### WACC

| | | |
|---|---|---|
| Risk-free rate | 5.45% | xiv |
| Beta | 1.01 | xv |
| Risk premium | 8% | xvi |
| Additional Risk Premium | 2.5% | xvii |
| Cost of Equity | 16.06% | |
| Terminal Growth Rate | 0% | xviii |

### KEY VARIABLES

| | Forecast oil prices 2009-2014 (in US$) | Hypothesis for prod. at four wells (stb/day) | US$ / AUS$ exchange rate |
|---|---|---|---|
| Max value | See chart in *Key Variables Analysis* section | See chart in *Key Variable Analysis* section | 1.55 |
| Min value | | | 1.00 |

| Time Period ---> | 0.0 | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 |
|---|---|---|---|---|---|---|---|
| Year begining 1st July | **2008E** | **2009E** | **2010E** | **2011E** | **2012E** | **2013E** | **2014E** |
| **FCFE (High)** | | | | | | | |
| Net cash from operation | (3,209) | (1,530) | 17,333 | 41,882 | 48,995 | 57,252 | 66,679 |
| Capital Expenditure | (703) | (774) | (851) | (936) | (1,030) | (1,133) | (1,246) |
| Net Debt Addition | - | - | - | - | - | - | - |
| Free Cash Flow to Equity | (3,912) | (2,304) | 16,482 | 40,946 | 47,965 | 56,120 | 65,433 |
| Discount Factor | 1.00 | 0.86 | 0.74 | 0.64 | 0.55 | 0.47 | 0.41 |
| Present Value of FCF | (3,912) | (1,985) | 12,237 | 26,195 | 26,441 | 26,656 | 26,780 |
| **FCFE (Low)** | | | | | | | |
| Net cash from operation | (3,272) | (2,656) | 2,873 | 8,872 | 10,120 | 11,560 | 13,070 |
| Capital Expenditure | (703) | (774) | (851) | (936) | (1,030) | (1,133) | (1,246) |
| Net Debt Addition | - | - | - | - | - | - | - |
| Free Cash Flow to Equity | (3,976) | (3,430) | 2,022 | 7,936 | 9,090 | 10,427 | 11,824 |
| Discount Factor | 1.00 | 0.86 | 0.74 | 0.64 | 0.55 | 0.47 | 0.41 |
| Present Value of FCF | (3,976) | (2,956) | 1,501 | 5,077 | 5,011 | 4,953 | 4,839 |

### ARROWHEAD FAIR VALUE BRACKET

| | High | Low | |
|---|---|---|---|
| **Terminal Value (TV)** | 407,558 | 73,644 | |
| **Present Value of TV** | 166,804 | 30,141 | |
| **Present Value of FCF** | **112,412** | **14,450** | |
| **Present Value of FCF + TV** | **279,216** | **44,591** | |
| + Cash | 4 450 | 4 450 | xix |
| **Equity Value Bracket** | **283,666** | **49,041** | |
| Shares on issue | 258 810 000 | 258 810 000 | xx *undiluted* |
| **Fair Share Value Bracket** | **AUS$ 1.096** | **AUS$ 0.189** | |
| Current Market Price | AUS$ 0.135 | AUS$ 0.135 | |
| Current Market Cap. (AUS$) | 34.939 MM | 34.939 MM | |
| **Target Market Cap. Bracket (AUS$)** | **283.666 MM** | **49.041 MM** | |


See important disclosures on page 14 of this report.

## Notes and references

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i Source: ASX.com detailed quote.

ii 52 weeks to 4th September 2009. Source: Google Finance, 4th September 2009.

iii 3 months to 4th September 2009. Source: Yahoo! Finance, 4th September 2009.

iv See *Key Variables* section of the report.

v Arrowhead Business and Investment Decisions Fair Value Bracket – AFVB™. See information on valuation on pages 12-15 of this report and important disclosures on page 14 of this report.

vi Source ASPO (The Association for the Study of Peak Oil) – http://www.peakoil.net/, 5 October 2008.

vii Light sweet crude reached US$147.27 a barrel on NYMEX on 11 July 2008. After heavy corrections in July and August, on 15 August 2008 light sweet crude closed at US$113.77 a barrel on NYMEX.

viii http://www.eia.doe.gov/steo - August 2009 EIA Short-Term Energy Outlook.

ix Oil growth over the 2-year period leading to 10 August 2008 was 24.54% annually, from prices on 10 August 2006 that were yearly highs at $74.2 to prices of $115.11 on 10 August 2008 , in the midst of already considerable corrections that had occurred during July and August 2008.

x All assets and projects information is sourced from Eromanga corporate website, financial documents and management disclosures, under the supervision of John Weston

xi The resources and reserves position for Block 330 is shown below

| Categorization of resources and reserves for Block 330 (MMstb) | | | | | |
|---|---|---|---|---|---|
| South Block Reserves (Area 2) | P90 | P50 | P10 | Area (km$^2$) | P50 STOIIP |
| PACA 1 | 1.3 | 1.7 | 2.1 | 1.0 | 11 |
| North Block Resources (Area 1) | C1 | C2 | C3 | Area (km$^2$) | P50 STOIIP |
| PACA 2 | 16 | 22 | 31 | 8.2 | 151 |

In accordance with the SPE/AAPG/WPC Petroleum Resource Classification System (www.spe.org/spe-app/spe/industry/reserves) the Total Resource is characterised as Reserves and Contingent Resources as shown in the above table. Once a stable production profile can be obtained from PACA 2 then the Joint Venture will have greater certainty whether oil volumes in the resource category in Area 1 (North Block) of the horst may be re - categorised from the Contingent Resource category into Reserves.

| Block 330 Reserves- Probabilistic Evaluation (MMstb) | | | | | |
|---|---|---|---|---|---|
| | % | Mean | 1P | 2P | 3P |
| **Total original oil in place** | | 101 | 28 | 92 | 189 |
| **Total recoverable reserves** | | 18 | 5 | 16 | 33 |
| **ERH Share of recoverable reserves** | 40% | 40 | 11 | 37 | 76 |

The mean value is the average of the results of the simulations. The 1P, 2P and 3P values provide a range of uncertainty for potentially recoverable volumes. 2P corresponds to a 50% probability that quantities will equal or exceed the value in the table (i.e. the median value) and represents proved plus probable reserves. 1P and 3P indicate a 90% and 10% probability, respectively that the volume will be exceeded.

Reserve estimates for Block 330 are based on seismic and drilling undertaken by Petrobras and from data recorded during the Gavea Joint Venture's re-entry and flow testing of the PTA-3 discovery well. In addition, a mineral hole on the structure was used to evaluate the extent of the reservoir.

[xii] 2P reserves are certified “proven and probable” reserves, 1P are certified “proven” reserves in the Australian resource certification hierarchy. The confidence is stronger on 1P reserves than on 2P reserves.

[xiii] The reserves and resources are based on deterministic parameters from drilling and logging of Nord-1, the existing 3D seismic survey over part of the block and the Joint Venture’s understanding of production from neighboring fields
Definitions are in accordance with the Society of Petroleum Engineers, Petroleum Resource Management System Resources are defined as “contingent” since the evaluation of the field is not sufficiently advanced at this stage to clearly confirm commerciality.
The 2C and 3C values provide the range of uncertainty for potentially recoverable volumes. 2C corresponds to a 50% probability that quantities will equal or exceed the value in the table. 3C indicates a 10% probability that the volume will be exceeded.

[xiv] 10-year Australian treasury rate on 4th September 2009. Source: www.bloomberg.com.

[xv] Source: The 1.01 beta used in the valuation is the average unlevered beta for comparable enterprises in the petroleum (integrated) sector, sourced from NYU Stern Research, 2009 – http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html.

[xvi] Source: Arrowhead BID estimate.

[xvii] Source: Arrowhead BID estimate.

[xviii] Source: Arrowhead BID estimate.

[xix] Cash position on 30th June 2009. Source: Eromanga disclosure in quarterly report to 30th June 2009.

[xx] Number of shares on issue on ASX – Source: Google Finance, retrieved 8th September 2009.


See important disclosures on page 14 of this report.