

# MONTEZUMA MINING COMPANY LTD

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#### 14 July 2011

ASX CODE: MZM ISSUED SHARES: 48.95M 52 WEEK HIGH: \$0.95 52 WEEK LOW: \$0.26

#### CONTACT:

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#### BOARD:

Seamus Cornelius: Chairman

Justin Brown: MD

John Ribbons: Non-Exec

#### **KEY PROJECTS:**

BUTCHERBIRD (100%) Manganese, Copper

PEAK HILL (85-100%) Gold

DURACK (earning 85%) Gold, Copper

MT PADBURY (100% of gold) Gold, Manganese, Iron

#### **KEY SHARE POSITIONS:**

AUVEX RESOURCES LTD 7,500,000 FPO Shares

3,010,000 FPO Shares

LITHEX RESOURCES LTD 1,525,000 FPO Shares

EXTERRA RESOURCES LTD 2,000,000 FPO Shares

# BUTCHERBIRD MANGANESE METALLURGICAL STUDY UPDATE

- DMS beneficiation test results received for Yanneri Ridge.
- Lump concentrate grades of up to 36.0% Mn confirmed.
- Crushed product grades of up to 38.6% Mn achieved.
- Further test work underway targeting grades over 40% Mn.

Montezuma Mining Company Ltd ("Montezuma") is pleased to advise it has received phase 1 & 2 beneficiation results from the diamond core manganese metallurgical study on the Yanneri Ridge JORC Resource.

Six vertical PQ3 diamond core holes were drilled into the resource during late 2010 to provide whole core sample material for metallurgical studies including beneficiation test work.

The first phase of the programme investigated the amenability of the material to upgrade via Dense Media Separation ("DMS") to produce a lump product. Results from phase 1 (see summary in Table 1 below) confirm that parts of the resource at Yanneri Ridge can be relatively easily beneficiated to grades in excess of 35% manganese with good yields and recoveries using relatively simple beneficiation techniques.

| Mining Zone Intervals (Process to Cleaner DMS) |         |      |          |                    |       |      |        |     |  |  |
|--|---------|------|----------|--------------------|-------|------|--------|-----|--|--|
|  |         | С    | oncentra | Feed               | Tota  | al   |        |     |  |  |
| HOLE ID  | Yield % |      | Fe %     | SiO <sub>2</sub> % | Р%    | Mn % | Metres | Kg  |  |  |
| 10DD01   | 31.4    | 35.3 | 8.9      | 18.3               | 0.109 | 15.4 | 15.1   | 108 |  |  |
| 10DD02   | 14.7    | 26.1 | 16.3     | 20.3               | 0.122 | 10.3 | 14.9   | 136 |  |  |
| 10DD03   | 20.0    | 32.9 | 9.4      | 19.7               | 0.108 | 16.6 | 16.6   | 164 |  |  |
| 10DD04   | 20.2    | 28.5 | 14.2     | 20.3               | 0.109 | 10.2 | 14.8   | 154 |  |  |
| 10DD05   | 17.3    | 36.0 | 8.9      | 18.4               | 0.091 | 11.3 | 11.4   | 128 |  |  |
| 10DD06   | 18.3    | 33.2 | 11.2     | 19.0               | 0.087 | 13.3 | 11.7   | 129 |  |  |
| Average  | 20.0    | 31.8 | 11.6     | 19.4               | 0.104 | 12.9 | 84.6   | 819 |  |  |

**Table 1.** Lump DMS product grades and mass yields from the diamond core beneficiation studies on the Yanneri Ridge manganese Resource.

Phase 2 work to date utilising grinding to <1mm and wet table separation has also confirmed continued improvement in both grade and recovery, with grades of up to 38.6% Mn achieved to date. This has provided encouragement that grades in excess of 40% may be achievable with further investigation, which is currently underway.

| HOLE ID | NORTHING (MGA) | EASTING (MGA) | RL     | DEPTH | AZIMUTH | DIP |
|---------|----------------|---------------|--------|-------|---------|-----|
| 10DD01  | 7297695.51     | 772298.11     | 627.16 | 30    | 330     | -90 |
| 10DD02  | 7297899.84     | 772795.38     | 626.74 | 35    | 330     | -90 |
| 10DD03  | 7297904.51     | 773300.63     | 632.37 | 38    | 330     | -90 |
| 10DD04  | 7298097.56     | 773898.54     | 633.51 | 30    | 330     | -90 |
| 10DD05  | 7297803.36     | 774099.88     | 638.04 | 25    | 330     | -90 |
| 10DD06  | 7297804.14     | 774903.29     | 621.63 | 26    | 330     | -90 |

**Table 2.** Diamond drill hole collar information.

The phase 1 test work comprised a detailed investigation of hole10DD03 to determine the optimal process pathway to derive a lump product which was then applied to the remaining core material. The process selected comprised an optimal beneficiation pathway for lump product as follows:

- Trommeling of the whole rock feed to remove clay waste material and derive lump sized rock as DMS feed.
- 2. Crushing via jaw crusher.
- 3. Rougher (S.G. 3.0) DMS upgrade of the lump sized feed.
- 4. Cleaner (S.G.3.4) DMS upgrade to yield a product concentrate of medium grades and Secondary product of low grades.

The Phase 2 processing was undertaken to investigate the amenability of the material to further upgrade through crushing of the lump product to <1mm and subsequent separation using wet tables. The results summarised in Table 3 confirm further incremental improvement at finer particle size.

The results of the test work to date show variability in the Mn Product, notably ranges in grade in the various localities. However, the study does prove that the Manganese mineralisation in the Yanneri Ridge Resource area is amenable to scrubber/trommel and DMS beneficiation to a Mn product grade that could be commercial.

The <1mm grinds of both Cleanser DMS 3.4 products processed over the wet tables show increasing grades of Mn with lessening gangue grades. These products were viewed under binocular microscope and seen to comprise discrete fine crystals of high grade cryptomelane and manganite and quartzo-feldspathic gangue minerals. This observation has led Montezuma to believe that further grinding studies using electromagnetic separation may demonstrate further upgrade of the Mn product grades, with consequent improved liberation/loss of silica, alumina and phosphorous. This study has been commenced and results will be reported to the market on completion.

| 10DD01: MZ 5.9 - 21.0m CIRCUIT SUMMARY |         |       |         |       |         |        |         |       |         |  |
|--|---------|-------|---------|-------|---------|--------|---------|-------|---------|--|
| PRODUCT                                | Yield   | Mn    |         | Fe    |         | Si     | O2      | Al2O3 |         |  |
|  | %       | %     | dist.   | %     | dist.   | %      | dist.   | %     | dist.   |  |
| HG Primary Concentrate                 | 27.05%  | 35.69 | 67.80%  | 8.51  | 21.92%  | 17.720 | 11.34%  | 4.90  | 12.50%  |  |
| Secondary Concentrate                  | 10.60%  | 28.83 | 21.47%  | 12.70 | 12.83%  | 20.757 | 5.21%   | 5.39  | 5.39%   |  |
| Process Tails                          | 9.21%   | 14.17 | 9.17%   | 19.06 | 16.72%  | 31.442 | 6.85%   | 7.44  | 6.46%   |  |
| Fine Tails                             | 53.14%  | 0.42  | 1.57%   | 9.59  | 48.53%  | 60.940 | 76.60%  | 15.10 | 75.65%  |  |
|  |         |       |         |       |         |        |         |       |         |  |
| Calculated Head                        | 100.00% | 14.24 | 100.00% | 10.50 | 100.00% | 42.272 | 100.00% | 10.61 | 100.00% |  |

### **Table 16 10DD01 Circuit Summary**

| 10DD02: MZ 14.1 - 29.0m CIRCUIT SUMMARY |         |       |         |       |         |        |         |       |         |  |
|---|---------|-------|---------|-------|---------|--------|---------|-------|---------|--|
| PRODUCT                                 | Yield   | Mn    |         | Fe    |         | SiO2   |         | Al2O3 |         |  |
|   | %       | %     | dist.   | %     | dist.   | %      | dist.   | %     | dist.   |  |
| HG Primary Concentrate                  | 12.62%  | 25.59 | 30.23%  | 17.25 | 17.26%  | 19.896 | 5.78%   | 5.17  | 6.22%   |  |
| Secondary Concentrate                   | 16.38%  | 25.25 | 38.73%  | 15.64 | 20.32%  | 21.672 | 8.17%   | 5.47  | 8.54%   |  |
| Process Tails                           | 24.89%  | 11.63 | 27.11%  | 17.18 | 33.91%  | 36.754 | 21.05%  | 8.55  | 20.27%  |  |
| Fine Tails                              | 46.10%  | 0.91  | 3.93%   | 7.80  | 28.51%  | 61.270 | 65.00%  | 14.79 | 64.97%  |  |
|   |         |       |         |       |         |        |         |       |         |  |
| Calculated Head                         | 100.00% | 10.68 | 100.00% | 12.61 | 100.00% | 43.459 | 100.00% | 10.50 | 100.00% |  |

# Table 17 10DD02 Circuit Summary

| 10DD04: MZ 12.6 - 27.4m CIRCUIT SUMMARY |         |       |         |       |         |        |         |       |         |  |
|---|---------|-------|---------|-------|---------|--------|---------|-------|---------|--|
| PRODUCT                                 | Yield   | Mn    |         | Fe    |         | SiO2   |         | Al    | 203     |  |
|   | %       | %     | dist.   | %     | dist.   | %      | dist.   | %     | dist.   |  |
| HG Primary Concentrate                  | 17.21%  | 28.92 | 44.12%  | 14.40 | 18.55%  | 19.890 | 8.10%   | 5.22  | 8.70%   |  |
| Secondary Concentrate                   | 13.92%  | 25.78 | 31.80%  | 15.26 | 15.89%  | 21.603 | 7.12%   | 5.47  | 7.37%   |  |
| Process Tails                           | 33.84%  | 7.42  | 22.25%  | 14.92 | 37.79%  | 44.907 | 35.97%  | 10.50 | 34.39%  |  |
| Fine Tails                              | 35.03%  | 0.59  | 1.83%   | 10.59 | 27.77%  | 58.850 | 48.81%  | 14.62 | 49.55%  |  |
|   |         |       |         |       |         |        |         |       |         |  |
| Calculated Head                         | 100.00% | 11.28 | 100.00% | 13.36 | 100.00% | 42.243 | 100.00% | 10.34 | 100.00% |  |

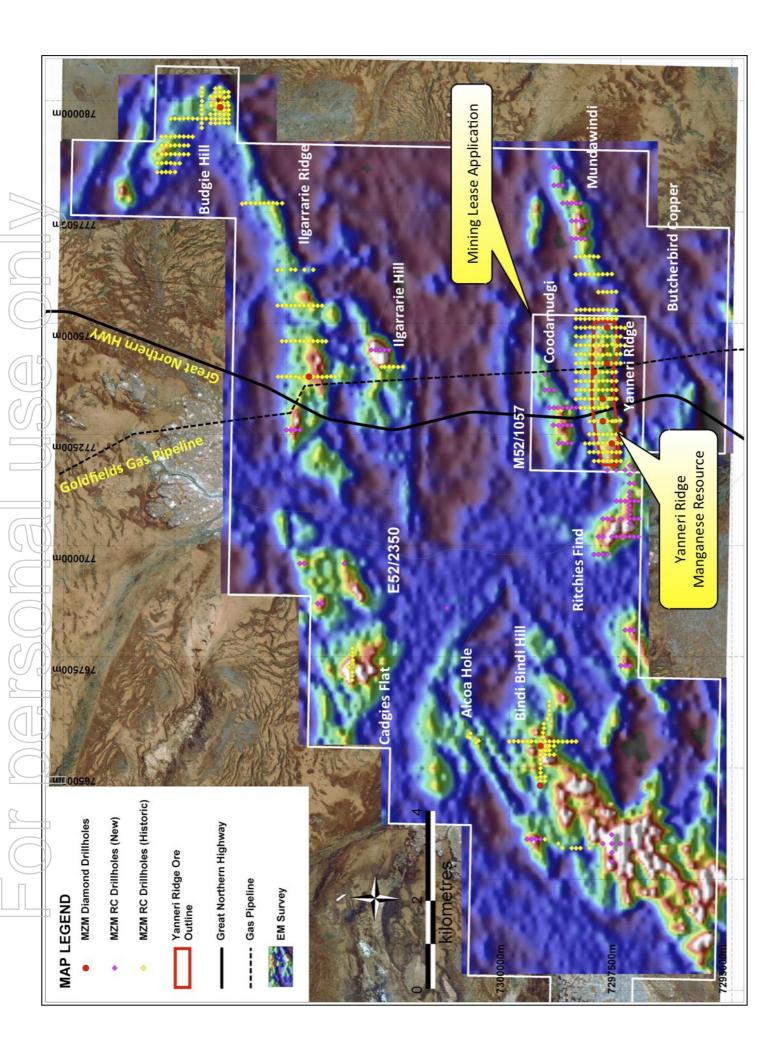
# Table 18 10DD04 Circuit Summary

| 10DD05: MZ 8.0 - 25.5m CIRCUIT SUMMARY |         |       |         |       |         |        |         |       |         |  |
|--|---------|-------|---------|-------|---------|--------|---------|-------|---------|--|
| PRODUCT                                | Yield   | Mn    |         | Fe    |         | SiO2   |         | Al2   | 203     |  |
|  | %       | %     | dist.   | %     | dist.   | %      | dist.   | %     | dist.   |  |
| HG Primary Concentrate                 | 14.35%  | 36.83 | 48.89%  | 8.59  | 10.25%  | 17.220 | 5.29%   | 4.81  | 6.95%   |  |
| Secondary Concentrate                  | 9.29%   | 28.09 | 24.13%  | 13.43 | 10.37%  | 21.060 | 4.18%   | 5.48  | 5.12%   |  |
| Process Tails                          | 17.29%  | 12.43 | 19.88%  | 19.01 | 27.32%  | 33.816 | 12.50%  | 7.97  | 13.88%  |  |
| Fine Tails                             | 59.07%  | 1.30  | 7.10%   | 10.60 | 52.06%  | 61.760 | 78.03%  | 12.44 | 74.04%  |  |
|  |         |       |         |       |         |        |         |       |         |  |
| Calculated Head                        | 100.00% | 10.81 | 100.00% | 12.03 | 100.00% | 46.756 | 100.00% | 9.92  | 100.00% |  |

## **Table 19 10DD05 Circuit Summary**

| 10DD06: MZ 4.9 - 16.6m CIRCUIT SUMMARY |         |       |         |       |         |        |         |       |         |  |
|--|---------|-------|---------|-------|---------|--------|---------|-------|---------|--|
| PRODUCT                                | Yield   | Mn    |         | Fe    |         | SiO2   |         | Al    | 203     |  |
|  | %       | %     | dist.   | %     | dist.   | %      | dist.   | %     | dist.   |  |
| HG Primary Concentrate                 | 14.95%  | 33.68 | 37.67%  | 10.69 | 11.85%  | 17.883 | 6.68%   | 4.53  | 7.37%   |  |
| Secondary Concentrate                  | 15.09%  | 26.76 | 30.20%  | 14.65 | 16.40%  | 21.261 | 8.02%   | 5.30  | 8.70%   |  |
| Process Tails                          | 26.60%  | 12.46 | 24.80%  | 19.98 | 39.42%  | 32.152 | 21.38%  | 7.64  | 22.12%  |  |
| Fine Tails                             | 43.36%  | 2.26  | 7.33%   | 10.05 | 32.33%  | 58.970 | 63.92%  | 13.10 | 61.81%  |  |
|  |         |       |         |       |         |        |         |       |         |  |
| Calculated Head                        | 100.00% | 13.37 | 100.00% | 13.48 | 100.00% | 40.005 | 100.00% | 9.19  | 100.00% |  |

**Table 20 10DD06 Circuit Summary** 



#### **Investor Coverage**

Recent investor relations, corporate videos and broker/media coverage on the Company's projects can be viewed on the Company's website at www.montezumamining.com.au.

#### **About Montezuma Mining Company Ltd**

Listed in 2006, Montezuma (ASX: MZM) is a diversified explorer primarily focused on manganese, copper and gold. Montezuma has a 100% interest in the Butcherbird Manganese/Copper Project and an 85-100% interest in the Peak Hill and Durack Gold Projects in the Murchison region of Western Australia.

#### **More Information**

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The Information in this report that relates to exploration results is based on information compiled by Justin Brown, who is a member of the Australian Institute of Mining & Metallurgy. Mr Brown is a geologist who is a full time employee of Montezuma Mining Company Ltd. and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Justin Brown consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.