FRIENDS OF THE EARTH BRISBANE CO-OP LTD RESPONSE TO THE APPLICANTS’ REQUEST FOR PARTICULARS

1. Paragraph 1(a) of the Applicants’ Request for Further and Better Particulars (“the Request”) is not a proper request for particulars as it is a request for evidence and a response is not necessary to define the issues for trial or prevent surprise at the trial.

2. In respect of paragraph 1(b) of the Request, the ongoing climate change referred to in paragraph 20 of the facts and circumstances relied on in support of the grounds of objection (“the Objection”) are:

   (a) The facts, matters and circumstances stated in paragraphs 13-19 of the Objection.

   (b) The climate system, because of its inertia, has not yet fully responded to the recent increase in human-made climate forcings (i.e. factors that alter the balance of incoming and outgoing energy in the Earth-atmosphere system), of which the principal forcing is the increased concentration of carbon dioxide (“CO₂”).

   (c) The rise of mean global temperatures of approximately 0.74°C observed between 1906 and 2007.

   (d) The current trend in mean global temperature rise of approximately 0.2°C per decade.

   (e) Observed decreases in annual average Arctic sea ice extent demonstrate that current level of atmospheric CO₂ is already deleterious.
(f) Alpine glaciers are in near-global retreat, threatening the long-term water supplies of hundreds of millions of people using water from rivers originating in the Himalayas, Andes and Rocky Mountains, which suggest that the current level of atmospheric CO₂ is already a threat.

(g) If atmospheric CO₂ is stabilised at current levels, equilibrium sea level rise will still be significant judged from paleoclimate history.

(h) Coral reefs are already impacted by warmer ocean temperatures and have experienced mass coral bleaching globally, which demonstrates that current level of atmospheric CO₂ is already deleterious.

3. In respect of paragraph 2 of the Request, the facts, matters and circumstances relied on to contend that an “initial 350 ppm carbon dioxide target may be achievable by phasing out coal use” are:

(a) The facts, matters and circumstances stated in paragraphs 17-20, 23, 33-38 and 43-45 of the Objection.

(b) Coal is the largest reservoir of conventional fossil fuels, exceeding combined reserves of oil and gas.

(c) The only realistic way to sharply curtail CO₂ emissions from human activities is to phase out coal use except where CO₂ is captured and sequestered.

(d) Phase-out of coal emissions by 2030 keeps maximum atmospheric concentrations of CO₂ close to 400 parts per million (“ppm”), depending on oil and gas reserves and reserve growth.

(e) Even with phase-out of coal emissions by 2030, atmospheric CO₂ would remain above 350 ppm for more than two centuries without human intervention to increase the natural rate of removal of carbon from the active carbon cycle.

4. In respect of paragraph 3 of the Request, the proved recoverable coal reserves in 2008 by area/region are approximately:

<table>
<thead>
<tr>
<th>Area/Region</th>
<th>Total coal (Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>31 692</td>
</tr>
<tr>
<td>North America</td>
<td>245 271</td>
</tr>
<tr>
<td>South America</td>
<td>12 508</td>
</tr>
<tr>
<td>Asia</td>
<td>228 264</td>
</tr>
<tr>
<td>Europe</td>
<td>265 027</td>
</tr>
<tr>
<td>Middle East</td>
<td>1 203</td>
</tr>
<tr>
<td>Oceania (mostly Australia)</td>
<td>76 973</td>
</tr>
<tr>
<td><strong>TOTAL WORLD</strong></td>
<td><strong>860 938</strong></td>
</tr>
</tbody>
</table>

These figures were reported by the World Energy Council (“WEC”) in the report entitled *Survey of Energy Resources 2010* sourced from its member committees, data reported for previous WEC Surveys of Energy Resources and national and international published sources.

5. In respect of paragraph 4(a) of the Request, regarding the current trends in greenhouse gas emissions:
(a) The Objector repeats and relies on facts stated in paragraphs 17, 18, 46 and 47 of the Objection and further says that the average growth rate of anthropogenic greenhouse gas emissions is approximately 0.92 billion tonnes of carbon dioxide equivalents ("CO2-eq") per year (approximately 2% per year) over the period of 1995 to 2004.

(b) The above facts are calculated or worked out by reference to reports by the Intergovernmental Panel on Climate Change ("IPCC"), World Resources Institute, Australian Government, and Global Carbon Project.

6. In respect of paragraph 4(b) of the Request, regarding the current trends in temperature rises:

(a) The Objector repeats and relies on facts stated in paragraphs 19, 22 and 23 of the Objection and further says that:

(i) Mean global temperatures have risen by approximately 0.74°C between 1906 and 2007.

(ii) Most of the observed increase over the 20th century is very likely (i.e. >90%) due to anthropogenic emissions of greenhouse gases from the combustion of fossil fuels, agriculture, and land-use changes.

(iii) The current trend in mean global temperature rise is approximately 0.2°C per decade.

(b) The above facts are calculated or worked out by reference to the report by the IPCC entitled *Climate Change 2007*.

7. In respect of paragraph 4(c) of the Request, the Objector repeats and relies on the facts, matters and circumstances stated in paragraphs 3, 5, 6, 7, 10, 11, 13-23, 27-31, 33-38, 43-49 of the Objection and the further and better particulars of each of those paragraphs provided in this document and further says that:

(a) Mean global temperatures are expected to rise to approximately 2°C above pre-Industrial levels if atmospheric concentrations of CO2 reach 450 ppm.

(b) The global emissions budget of CO2 (i.e. the cumulative human CO2 emissions to stay below a certain warming level) if the mean rise of global temperatures is to be kept beneath 2°C is:

(i) If cumulative human CO2 emissions are limited to approximately 890 billion tonnes over the period 2000 to 2050 there is a 20% probability that mean global temperatures will exceed 2°C above pre-Industrial levels;

(ii) If cumulative human CO2 emissions are limited to approximately 1,000 billion tonnes over the period 2000 to 2050 there is a 25% probability that mean global temperatures will exceed 2°C above pre-Industrial levels; and

(iii) If cumulative human CO2 emissions are limited to approximately 1,440 billion tonnes over the period 2000 to 2050 there is a 50% probability that mean global temperatures will exceed 2°C above pre-Industrial levels.
Cumulative human CO₂ emissions over the period 2000 to 2010 were approximately 300 billion tonnes, leaving a global emissions budget between 2011 to 2050 of:

(i) Approximately 590 billion tonnes of CO₂ emissions remaining to give an 80% probability that mean global temperatures will not exceed 2°C above pre-Industrial levels;

(ii) Approximately 700 billion tonnes of CO₂ emissions remaining to give a 75% probability that mean global temperatures will not exceed 2°C above pre-Industrial levels; and

(iii) Approximately 1,140 billion tonnes of CO₂ emissions remaining to give a 50% probability that mean global temperatures will not exceed 2°C above pre-Industrial levels.

If the proposed mine is allowed to proceed, the emission of approximately 1.3 billion tonnes of CO₂ from the mining and use of the coal from the mine would contribute approximately:

(i) A 1/600th part of the cumulative human CO₂ emissions remaining globally over the period 2011 to 2050 to give an 80% probability that mean global temperatures will not exceed 2°C above pre-Industrial levels;

(ii) A 1/700th part of the cumulative human CO₂ emissions remaining globally over the period 2011 to 2050 to give a 75% probability that mean global temperatures will not exceed 2°C above pre-Industrial levels; and

(iii) A 1/1140th part of the cumulative human CO₂ emissions remaining globally over the period 2011 to 2050 to give a 50% probability that mean global temperatures will not exceed 2°C above pre-Industrial levels.

For the reasons set out in paragraphs (a) to (d) above the contribution of the proposed mine to global warming is:

(i) To increase the likelihood, severity and longevity global warming; and

(ii) A significant step towards mean global temperatures exceeding 2°C above pre-Industrial levels.

In respect of paragraph 5 of the Request, the Objector repeats and relies on relies on the facts, matters and circumstances stated in paragraphs 13-23, 27-31, 33-38, 43-49 of the Objection, the further and better particulars of each of those paragraphs provided in this document in answer to the requests and further says that:

Regarding paragraph 24(a) of the Objection:

(i) The precise nature and extent of each expectation in respect of the severe impacts on many ecosystems and human society in coming decades from rises in mean global temperatures due to anthropogenic global warming is set out in the IPCC report entitled
Climate Change 2007 and summarised in parts 3.3 and 3.4 of the Synthesis Report;

(ii) The facts matters and circumstances relied upon to demonstrate those expectations are set out in the IPCC report entitled Climate Change 2007;

(iii) The precise nature and extent of each impact on ecosystems and human society in coming decades from rises in mean global temperatures due to anthropogenic global warming is set out in the IPCC report entitled Climate Change 2007 and summarised in parts 3.3 and 3.4 of the Synthesis Report;

(iv) The facts matters and circumstances relied upon to demonstrate those impacts are set out in the IPCC report entitled Climate Change 2007;

(v) The facts matters and circumstances relied upon to demonstrate those impacts will be caused or contributed to by anthropogenic global warming, including the period and precise nature and extent, are set out in the IPCC report entitled Climate Change 2007;

(vi) The contribution of the proposed mine to these impacts and damages is proportionate to its contribution to global warming and ocean acidification set out in the Objection and these further particulars, particularly paragraphs 7 and 10 of this document.

(b) Regarding paragraph 24(b) of the Objection:

(i) The expectations are that the impact due to global warming will lead to:

(A) significant loss of biodiversity in the Great Barrier Reef;

(B) significant loss of biodiversity in the Wet Tropics;

(C) loss of tourism in Queensland consequent upon (A) and (B) above, leading to damage to Queensland’s economy and lowered employment in Queensland;

(ii) The facts, matters and circumstance relied on to demonstrate the expectation of loss of biodiversity and tourism in the Great Barrier Reef are that:

(A) Increased temperatures will exceed the thermal threshold of coral species in the Great Barrier Reef causing increased bleaching and mortality, leading to a loss of coral cover;

(B) Loss of coral cover will reduce the biodiversity of coral dependant species;

(C) Loss of coral cover will increase the prevalence of macroalgae and cyanobacteria, including those harmful to human health;
(D) Loss of coral cover and dependant species, and increase in potentially harmful macroalgae and cyanobacteria will reduce tourism attracted by the Great Barrier Reef;

(E) Employment and economies dependant on tourism will be adversely affected by reduced tourism;

(F) If atmospheric CO$_2$ increases beyond 450 ppm, large scale changes to coral reefs would be inevitable and reef ecosystems at this point would resemble a mixed assemblage of fleshy seaweed, soft corals and other non-calcifying organisms with reef-building corals being much less abundant (even rare);

(G) If atmospheric CO$_2$ increases beyond 500 ppm, the three-dimensional structure of coral reef ecosystems like the Great Barrier Reef would be expected to deteriorate, with a massive loss of biodiversity and ecological function as any semblance of the reefs to the coral reefs of today would vanish.

(iii) The facts, matters and circumstance relied on to demonstrate the expectation of loss of biodiversity and tourism in the Wet Tropics are that:

(A) Increased temperatures will exceed the thermal tolerance of endemic species in the Wet Tropic causing negative impacts on the number, behaviour, diversity, distribution and range of those species;

(B) If global average temperatures exceed 2°C above pre-Industrial levels the negative impacts described in paragraphs (A) above become more significantly more pronounced;

(C) At least one endemic species may go extinct;

(D) The negative impacts on the endemic species will adversely affect ecological interactions and community dynamics leading to negative impacts on the number, behaviour, diversity, distribution and range of species ecologically connected to the endemic species;

(E) Loss of endemic species will increase the prevalence of weeds and pests;

(F) Loss of endemic species and dependant species, and increase in pests and weeds will reduce tourism attracted by the Wet Tropics;

(G) Employment and economies dependant on tourism will be adversely affected by reduced tourism.

(iv) Beyond the facts, matters and circumstances set out in the preceding paragraphs, the precise nature and extent of the impacts on the Great Barrier Reef and Wet Tropics is a matter for evidence
and not necessary to define the issues for trial or prevent surprise at the trial;

(v) The facts, matters and circumstances relied upon to demonstrate the impacts are set out in sub-paragraphs 8(b)(ii) and 8(b)(iii) above;

(vi) The facts, matters and circumstances relied upon to demonstrate those impacts will be caused or contributed to by anthropogenic global warming are set out in sub-paragraphs 8(b)(ii) and 8(b)(iii) above;

(vii) The facts, matters and circumstances relied upon to demonstrate that the proposed mine would contribute to the impacts on the Great Barrier Reef and Wet Tropics are:

(A) The contribution of the proposed mine to these impacts and damages is proportionate to its contribution to global warming and ocean acidification set out in the Objection and these further particulars, particularly paragraphs 7 and 10 of this document;

(B) The precise extent of the contribution is a matter for evidence and not necessary to define the issues for trial or prevent surprise at the trial.

(c) Regarding paragraph 24(d) of the Objection:

(i) The expectation is that severe rainfall events and severe tropical cyclones will become more frequent due to warmer ocean waters and the warmer atmosphere caused by anthropogenic global warming, thereby damaging Queensland’s infrastructure, cities and towns;

(ii) The precise nature and extent of the severe storms and tropical cyclones, their consequential damage and the contribution of the proposed mine is a matter for evidence and not necessary to define the issues for trial or prevent surprise at the trial.

(d) Regarding paragraph 24(e) of the Objection:

(i) The expectation is that sea levels will rise by approximately 0.8 metres or more by 2100 thereby damaging Queensland’s infrastructure, cities and towns; causing increased coastal erosion and coastal flooding and increased risk of damage during storm surge events.

(ii) The precise nature and extent of the sea level rise, its consequential damage and the contribution of the proposed mine is a matter for evidence and not necessary to define the issues for trial or prevent surprise at the trial.

9. In respect of paragraph 6 of the Request:

(a) The projections stated therein are those reported by the IPCC in its *Climate Change 2007* report both in the Synthesis report and in Chapter 11 (Australia and New Zealand) of the Working Group II report on impacts of climate change.
(b) Further identification of the facts, matters and circumstances on which the projections are based is a matter of evidence and not necessary to define the issues for trial or prevent surprise at the trial.

10. In respect of paragraph 7 of the Request:

(a) The Objector repeats and relies on the facts, matters and circumstances stated in paragraphs 5-7, 10-11, 18, 23-24, 33-38, 43-49 of the Objection and the further and better particulars of each of those paragraphs provided in this document in answer to the request.

(b) Through the facts, matters and circumstances set out in paragraph (a) above the proposed mine would:

(i) increase to the probability, severity and longevity of ocean acidification;

(ii) significantly contribute to the reducing the resilience of corals to increases in temperatures.

(c) Further identification of the facts, matters and circumstances on which the contribution of the mine to ocean acidification are based is a matter of evidence and not necessary to define the issues for trial or prevent surprise at the trial.

11. In respect of paragraph 8(a) of the Request, regarding the current trends in greenhouse gas emissions, the Objector repeats and relies on paragraph 5 above.

12. In respect of paragraph 8(b) of the Request:

(a) The expectation is that if current trends in global greenhouse gas emissions continue, ocean acidification will severely disrupt the world’s fisheries and destroy coral reefs, including Queensland’s Great Barrier Reef in coming decades, thereby damaging Queensland’s economy and lowering employment.

(b) The Objector repeats and relies upon the facts, matters and circumstances relevant to the expected disruption of the world’s fisheries and destruction of coral reefs and consequential damage to Queensland’s economy due to loss of fisheries and tourism stated in paragraph 8(b)(ii) above.

(c) In addition to paragraph (a), the facts matters and circumstances relied on to demonstrate the expectation are that;

(i) Ocean acidification reduces carbonate ions in the seawater;

(ii) Reduced carbonate ions decreases the ability of coral and other calcifying organisms, which form the basis of many marine food chains essential for world fisheries, to form their skeletons;

(iii) The decreased ability of coral to form its skeleton reduces its growth rate and resilience to bleaching events;

(iv) The reduction in growth rate and resilience of coral exacerbates the increases the bleaching and mortality due to increased temperatures, thereby exacerbating the loss of coral cover;
(v) Loss of coral cover will reduce the biodiversity of coral dependant species;

(vi) Loss of coral cover will increase the prevalence of macroalgae and cyanobacteria, including those harmful to human health;

(vii) Loss of coral cover and dependant species, and increases in macroalgae and potentially harmful cyanobacteria will reduce tourism attracted by the Great Barrier Reef;

(viii) Employment and economies dependant on tourism will be adversely affected by reduced tourism.

(d) Beyond the facts, matters and circumstances set out in the preceding paragraphs, the precise extent of the contribution is a matter for evidence and not necessary to define the issues for trial or prevent surprise at the trial.

13. In respect of paragraph 8(c) of the Request:

(a) The Objector repeats and relies upon the facts, matters and circumstances set out in paragraphs 8 and 12 above.

(b) The contribution of the proposed mine to these impacts and damages is proportionate to its contribution to global warming and ocean acidification set out in the Objection and these further particulars, particularly paragraphs 7 and 10 of this document.

(c) Beyond the facts, matters and circumstances set out in the preceding paragraphs, the precise nature and extent of the impacts, damage and contribution of the mine is a matter for evidence and not necessary to define the issues for trial or prevent surprise at the trial.

14. In respect of paragraph 9 of the Request:

(a) The countries emitting the majority of greenhouse gases are China, the United States of America, India, Russia and Japan.

(b) As of 2008, each of these countries emitted approximately:

(i) China – 6.8 billion tonnes of CO$_2$-eq;

(ii) United States of America – 6.9 billion tonnes of CO$_2$-eq;

(iii) India – 1.4 billion tonnes of CO$_2$-eq;

(iv) Russia – 2.2 billion tonnes of CO$_2$-eq;

(v) Japan – 1.3 billion tonnes of CO$_2$-eq.

15. In respect of paragraphs 10 and 11 of the Request:

(a) The “foreseeable future” is the period of the next 5-10 years.

(b) Current international agreements, national or Queensland laws are unlikely to return atmospheric CO$_2$ levels to beneath 350 ppm or even to avoid rises above 450 ppm or 500 ppm.
The countries emitting the majority of greenhouse gases, set out above, are presently unwilling to agree to major reductions in their emissions to stabilise or reduce atmospheric CO₂ levels to beneath 350 ppm or even to levels to avoid rises above 450 ppm or 500 ppm.

Australia’s current policy of a 5% reduction in direct national emissions are loosely based on contributing to an (as yet unagreed) international framework to stabilize atmospheric CO₂ levels around 550 ppm.

16. In respect of paragraph 12 of the Request:

(a) The top 10 countries producing thermal coal in 2009 were:

(b) On the basis of proved reserves at end-2008, coal has a reserves to production ratio of about 128 years (i.e. coal supplies will last for about 128 years on current production and consumption rates).

(c) The above figures were reported by the World Energy Council, International Energy Agency and Australian Coal Association sourced from global production figures. They are the latest figures the Objector has been able to obtain and the Objector believes that they reflect current thermal coal production.

(d) Meeting the remaining global emissions budget between 2010 and 2050 set out in paragraph 7(b) above to limit mean global temperature rises to less than 2°C necessarily requires a transition away from coal fired power stations that do not capture and store the CO₂ they produce in coming decades.

17. In respect of paragraph 13 of the Request, the facts, matters and circumstances relied on to demonstrate that cost effective baseload electricity can be supplied from wind power and concentrated solar-thermal power stations are set out in the report prepared by the University of Melbourne Energy Research Institute entitled Australian Sustainable Energy – Zero Carbon Australia Stationary Energy Plan.

18. In respect of paragraph 13(a) of the Request, the period is ten years.

19. In respect of paragraph 13(b) of the Request, the sources of electricity are wind power and concentrated solar-thermal power.

20. In respect of paragraph 13(c) of the Request, in Australia:
(a) wind power can generate approximately 130 TWh/yr which could be approximately 40% of Australia’s future energy demand;

(b) concentrated solar thermal can generate the approximately 195 TWh/yr which could be approximately 60% of Australia’s future energy demand;

(c) The capital cost of $370 billion for the required wind and solar thermal plants can be funded through revenue generated from electricity prices, leading to a rise in cost of approximately 6.5c/kWh;

(d) The total cost per kilowatt hour of approximately 26.5c is comparable with the current cost per kilowatt hour of approximately 21c for coal fire power stations;

(e) The source and calculations for paragraphs (a) to (d) are set out in report prepared by the University of Melbourne Energy Research Institute entitled *Australian Sustainable Energy – Zero Carbon Australia Stationary Energy Plan*.

21. In respect of paragraph 14 of the Request:

(a) The agricultural land that will be lost from the mine is the area to be disturbed within the mining lease, of approximately 11,000 ha which is currently used for cattle farming.

(b) The area will be lost during the operation of the mine and until the area is rehabilitated.

(c) Maintenance of agricultural production is a matter of public interest and the mine will prejudice this interest.

22. In respect of paragraph 15(a) of the Request:

(a) The economic harms caused by global warming and ocean acidification are:

(i) The loss in global productivity the precise nature and extent of which, and the facts, matters and circumstances relied on to demonstrate it are set out in the report entitled *Stern Review: The Economics of Climate Change*;

(ii) The loss to Australian economy from loss tourism associated with the Great Barrier Reef, the facts, matters and circumstances of which are set out at paragraph 8 above;

(iii) The loss to Australian economy from loss tourism associated with the Wet Tropics, the facts, matters and circumstances of which are set out at paragraph 8 above;

(iv) The loss to Queensland’s economy from coastal erosion and damage to coastal infrastructure due to increased frequency of severe rainfall events and severe cyclones, the facts, matters and circumstances of which are set out at subparagraph 8(c) above;

(b) The contribution of the proposed mine to these economic harms is proportionate to its contribution to global warming and ocean acidification
set out in the Objection and these further particulars, particularly paragraphs 7 and 10 of this document.

23. In respect of paragraph 15(b) of the Request:

(a) The social harms caused by global warming and ocean acidification are:

(i) Global losses of life, livelihood, subsistence and property due to sea level rise, droughts, flood and storms;

(ii) Loss of employment due to loss of tourism associated with the Great Barrier Reef the facts, matters and circumstances of which are set out at paragraph 8 above;

(iii) Loss of employment due to loss of tourism associated with the Wet Tropics the facts, matters and circumstances of which are set out at paragraph 8 above;

(iv) Loss of amenity due to loss of biodiversity associated with the Great Barrier Reef the facts, matters and circumstances of which are set out at paragraph 8 above;

(v) Loss of amenity due to loss of biodiversity associated with the Wet Tropics the facts, matters and circumstances of which are set out at paragraph 8 above.

(b) The contribution of the proposed mine to these social harms is proportionate to its contribution to global warming and ocean acidification set out in the Objection and these further particulars, particularly paragraphs 7 and 10 of this document.

24. In respect of paragraph 15(c) of the Request:

(a) The environmental values affected by climate change and ocean acidification are:

(i) Maintenance of a stable climate (i.e. one similar that experienced over the past 10,000 years);

(ii) Biodiversity;

(iii) Biological integrity;

(iv) Conservation value of land and marine areas, including the high conservation values and special significance of the Great Barrier Reef and the Wet Tropics;

(v) Agricultural value; and

(vi) Recreational value.

(b) Climate change and ocean acidification will cause environmental harm by deleteriously affecting each of the environmental values in subparagraph 24(a) in the manner and for the periods specified in paragraph 8 and paragraph 12 above.
(c) The contribution of the proposed mine to these environmental harms is proportionate to its contribution to global warming and ocean acidification set out in the Objection and these further particulars, particularly paragraphs 7 and 10 of this document.

25. In respect of paragraph 16 of the Request the Objector repeats and relies on the facts, matters and circumstances set out in paragraphs 17, 18, 46 and 47 of the Objection and paragraph 5 above.

26. In respect of paragraph 17 of the Request:

(a) The Objector repeats and relies on the facts, matters and circumstances set out in paragraphs 13-26, 33-38 and 41-49 of the Objection and the further and better particulars provided for those paragraphs in this document.

(b) Beyond the facts, matters and circumstances set out in the preceding paragraph, the particulars requested are a matter for evidence and not necessary to define the issues for trial or prevent surprise at the trial.

Signed: ................................................

Solicitor for Friends of the Earth – Brisbane Co-Op Ltd

Date: 10 June 2011