NSW GOVERNMENT | Department of Primary Industries

Our ref: OUT12/4119

Attention: Stephen O'Donoghue Your ref: 10/09073

Mr Stephen O'Donoghue
Senior Planner
Mining Projects
Department of Planning
Major Projects Assessment
GPO Box 39
SYDNEY NSW 2001

Via email: stephen.o'donoghue@planning.nsw.gov.au

Dear Sir

Re: Tarrawonga Mine Extension Project (11_0047)
Adequacy Review

The Office of Agricultural Sustainability & Food Security (O AS&FS) has reviewed the EA and raises the issues in detail in Attachment 1. In summary:

- There is an inadequate risk assessment of the low permeability barrier;
- The socio-economic analysis does not address cumulative impacts and further explanation is required as outlined in Attachment 1;
- The economic assessment in the Agricultural Resource & Productivity Assessment requires further explanatory information as raised in response to the preliminary EA;
- The EA provides little evidence that the proponent is able to rehabilitate the land back to the required level of agricultural productivity.

If you wish to discuss the issue further please call Ms Liz Rogers on telephone 02 63913642 or by email liz.rogers@dpi.nsw.gov.au.

Yours sincerely

Regina Fogarty

Dr Regina Fogarty
Director Office of Agricultural Sustainability & Food Security
Encl
28.2.2012

Low Permeability Barrier
The Office of Agricultural Sustainability & Food Security (Office of AS&FS) is concerned over the long-term maintenance and monitoring of the Integrity of the low permeability barrier. The Environmental Assessment does not undertake a risk assessment for, or address the rate of failure for this type of structure. The proponent has made no comment on who will monitor or maintain the impermeable barrier in perpetuity. A failure of the barrier will impact on ground water which is used for livestock and irrigation.

Agricultural Resource and Productivity Assessment (Appendix I)
The soil characteristics in the results maps (PDF Appendix I, Part 3), are coded by a "traffic light" system. This makes it clear which soils the consultant thinks are good and which are bad. However, NSW DPI does not find any justification for using these categories. For example, Map 4 depicts depth to gravel/sand layers, specifying that <100cm denotes red, 100-200cm denotes yellow and >200cm denotes green. Likewise in Map 3, a depth to bedrock of less than 100 cm gets a "red" light. The Office of AS & FS considers 100cm of soil on a rocky ridge could be good. Without an explanation of why they have used the values in each category the reader may interpret red coding of soil characteristics as bad when this is not necessarily the case.

The use of the ASWAT scoring system, while adequate, (as it is quicker than Emmerson or Loveday and Pyle) and is fairly closely correlated, is predominantly a field test and gives no values of actual exchangeable sodium percentage. Note that a score of 6 denotes that the soil did not disperse at all in its natural crumb form and only dispersed when it was moulded. This should not be confused with an ESP of 6 which is commonly used as a threshold for sodic soils. While scientific literature would indicate these are dispersive soils, in practice, something with a score of 6 is unlikely to be a problem in the field with best management practices. It is therefore unreasonable to have all soils with an ASWAT score of 6 listed as "red light" soils.

A significant number (19) of soil pits are devoted to the buffer area. The majority of these are stratic Rudosols. However, these only appear to be in the southern part of the area, primarily in the buffer area along Bollol Creek. There is a significant amount of buffer area to the east and south which is class 2 land capability and could well be valuable agricultural land affected by the development. The Office of AS & FS is of the opinion that soil classification of this land should have been conducted to better inform decision making.

In section 5.1.2 "Post Mining" (PDF Appendix I, Part 1, Page 28), figure 11 points to general areas for agricultural use but does not put these areas into boundaries - these areas should be clearly marked with boundaries. This section states that approximately 160 ha of agricultural land could be re-established for cropping. The key benchmark factors to achieving this are not stated. The Office of AS & FS can find no reliable reference to land which has been rehabilitated back to cropping land. The onus to convince the Office of AS & FS on being able to rehabilitate land back to cropping land to a standard similar to that before it was mined lies squarely with the proponent. Unless proof that this rehabilitation is possible is provided, the Office of AS & FS is not convinced it can occur.

In Appendix I, Part B, rehabilitation is planned using soil from the stratic Rudosols to a depth of 3 metres. The Office of AS & FS is sceptical that soil from a depth of 3 metres

can be used as topsoil and requests soil tests of this soil at this depth which indicate that it would be suitable. Current tests on these soils show some high ESP values and moderate salinity values. The Office of AS & FS does not consider these soils at depth suitable for rehabilitating land which will then be cropped.

More consideration should be given to the amount of soil available for rehabilitation. Given that the majority of soil is expected to come from the Rudosols and the bulk of Rudosols are in the buffer area and not in the project area (See map 2 in Part 3), the Office of AS & FS understands that this will not be used for rehabilitation therefore creating a shortfall. A more detailed calculation stating the area of soil to be used for rehabilitation along with the amount of soil to be applied on rehabilitated areas (depth by area) should be clearly stated.

The lack of explanation, references and displayed calculations on how the economic figures are derived is an issue that the Office of AS & FS raised on review of the Preliminary EA. The lack of references and displayed calculations is not conducive to informed and transparent decision making. Because the economic assessment is not clear and transparent in its assumptions or calculations the Office of AS & FS cannot repeat the results published in the economic assessment. Examples include:

- the figures in Table 3 (PDF Appendix I, Part 1, Page 32). The proponents state an estimated direct output value of $100 000 from 210ha of cropping and 125ha of grazing. Our gross margins return incomes of $810/ha for sorghum and $762/ha for wheat. Even using the lowest value wheat, 210ha @ $762/ha = $160 000 this is more than a 60% error on this figure alone not including the income from grazing.
- Table 6 ((PDF Appendix I, Part 1, Page 50) lists some assumptions but does not show calculations.
- Table 7 appears to use Gross Margins in agriculture to compare with direct output value for mining (i.e. all of the variable costs are included for agriculture but are not for mining). The value of 1.7t/ha for wheat production is used, however this figure comes from the gross margins provided by NSW Department of Primary industries in the north west zone. These gross margins are clearly inappropriate for this region as the north west zone does not start until Narrabri. The gross margins from the north east zone should have been used.

Socio-Economic Assessment (appendix M)

While the assessment is very thorough in identifying the array of affected parties and in estimating impacts at a regional, state and national level (and of particular merit is the attempt to assess the potential impacts on the local community of the eventual mine closure), no attention is given to the cumulative socio-economic impacts of the proposed mine expansion/extension in the context of other existing and known proposed mining developments in the region.

The Office of AS&FS doubts that a project of this relatively small size would generate anything like the estimated maximum employment effects, particularly the indirect effects. It is far more likely that a substantial proportion of the workforce demand will be met from existing capacity. While input-output analysis is an appropriate and commonly used technique, a weakness is that it assumes linear relationships and is therefore likely to overestimate the creation of new jobs. This can be addressed in the Benefit Cost Analysis (BCA) by sensitivity testing, eg., assuming 50% less jobs created.

The Office of AS&FS was unable to identify the time period over which the Net Present Value (NPV) was calculated. It seems that it may have been the life of the project, i.e., 17

years (out to 2030), but could not discover where this was explicitly stated. It is also unclear whether the value of the extension is stated or if it is the value of the over all project.

Where land is sterilised from future agricultural production, the loss of this productive capacity over the long-run should be accounted in the BCA. An appropriate way to do this would be for the time horizon of the BCA and NPV assessment to be whatever period is required for the present value of the future income stream to be discounted to near zero. This period will vary depending on the discount rate.