1 Introduction

ARC Energy Limited (ARC) and Origin Energy Developments Pty Limited (Origin) submitted an Environmental Management Plan (EMP) to the Department of Industry and Resources (DoIR) and the Environmental Protection Authority (EPA) on 7 January 2004 as part of its application to carry out the Denison 3D Seismic Survey. The EPA considered that the proposal warranted formal assessment at the level of Public Environmental Review (PER), with a four week review period under the provisions of the Environmental Protection Act 1986 (EP Act). The EPA notified ARC/Origin of the requirement for a PER on 2 March 2004.

An Environmental Scoping Document was prepared and submitted to the EPA on 31 March 2004 as part of this PER level of assessment. The EPA formally accepted the Environmental Scoping Document as the basis for the PER on 16 April 2004. The PER document (IRCE 2004a) was submitted on 7 June 2004 and was subject to a four week review period closing on 6 July 2004. In order to allow local landholders more opportunity to respond to the PER, ARC/Origin reopened submissions on the 14 July 2004 for an additional two week period ending on the 28 July 2004. Nine submissions were received by the EPA and ARC/Origin submitted its response to these submissions on 10 August 2004 (IRCE 2004b).

Subsequent to submitting its response, ARC/Origin received a tenth submission from a local landowner. This technical note provides ARC/Origin’s response to this tenth submission. Section 2 of this Technical Note presents the issues raised in the submission and then addresses each issue individually. In addressing each issue, this document either references the PER (IRCE 2004a) and response to submissions (IRCE 2004b) or provides new/additional information as required.
2 Response to issues raised

2.1 The seismic survey is mostly in remnant vegetation and Nature Reserves

Issue

‘...it seems grossly inappropriate to allocate 55% (or even 52%) of seismic lines to areas of remnant vegetation and Nature Reserves, with cleared land being otherwise available. This objection is not to say that the area Arc seeks to explore ‘should be shifted’, but it is an objection that the exploration is mostly, largely and primarily in bushland or wetland.’

ARC/Origin’s response

For accurate characterisation of geological formations, there is a need (requirement) for key information to be acquired in the full area of the Denison 3D seismic survey, including beneath vegetated areas. Hydrocarbons do not occur ubiquitously: they are accumulated in traps only in restricted areas where several specific geologic conditions are coincident. Spatial coverage of seismic data is required to identify this confluence of geologic conditions and the existing information and models of the subsurface clearly support the need to include the vegetated areas. In this context, there is no “cleared land being otherwise available”.

Section 3.3.5 of ARC/Origin’s response to submissions (IRCE 2004b) addresses the areas covered by the survey, and the impacts to vegetation in these areas. At a minimum, 98.1% of the native vegetation would remain unaffected because ARC/Origin propose to preferentially use existing tracks and previous seismic lines in preference to occupying areas previously undisturbed vegetation. Section 5.8.3 of the PER describes ARC/Origin’s proposal to deviate source lines to avoid wetlands, and hand-laying receiver lines near wetlands if required.

2.2 UCL is included in the proposal, but not mentioned as being in the survey area

Issue

‘UCL, although indicated on page 33 (Section 2.5.1) as being included in the seismic survey area, is not shown on Figure ES1.’

ARC/Origin’s response

UCL is included in the figure for remnant vegetation in Figure ES1.
2.3 Departmental supervision appears generic but should be specific

Issue

‘Page 12 Table ES.1: The Table fails to show indicators of success sought (or) outcomes that will be sought from the Company’s liaison with unnamed departmental personnel. Key departmental personnel should be named as being responsible for project accountability in their area of jurisdiction. Every action by the Company should appear in the proposal to have a nominated departmental signatory.’

ARC/Origin’s response

This level of detail is more appropriate in the Environmental Management Plan (EMP) for the project. All ARC/Origin commitments and management measures have been incorporated into a draft EMP that is currently under development. These commitments and management measures are summarised in a ‘Register of Environmental Management Actions’ and includes the responsible person, timing and evidence of the action being undertaken. Where liaison with government departments is required, the Register references the relevant division with the Department rather than specific personnel, which could conceivably change over the life of the project.

2.4 Commitments do not show precisely who is responsible

Issue

‘Page 13 Commitment 5 shows no timing, advice supplier, responsible person, nor responsible departmental employee position. It is therefore meaningless as being inadequately planned, unworkable, unaccountable and unacceptable.’

ARC/Origin’s response

This is a minor formatting issue in Table ES.1 – the timing and departmental advice for Commitment 4 also applies to Commitment 5. This format is used elsewhere in the table eg for Commitments 1 and 2, Commitments 7 and 8, Commitments 10 and 11 and Commitments 13 and 14.

As described in Section 2.3 above, all commitments and management measures are summarised in a ‘Register of Environmental Management Actions’ within the EMP and includes the responsible person, timing and evidence of the action being undertaken. ARC/Origin have made development of the EMP a commitment of the PER (IRCE 2004a, Commitment 2 in Table ES.1) and therefore, the EMP must be acceptable to DoE as part of obtaining environmental approval for the project.
2.5 Dieback protection should be daily and recorded

Issue

‘Steps to prevent dieback risk are shown to be intended before the survey. Whilst this is admirable and necessary, it is insufficient as an anti-dieback measure. Company vehicles are likely to be entering this and other areas daily. Accordingly, it is necessary for daily and ‘per trip’ measures to be taken such that prevention is active, frequent and taken as a matter of course. Record of vehicle hygiene activities and vehicle movements should be daily and written.’

ARC/Origin’s response

This level of detail is more appropriate in the Environmental Management Plan (EMP) for the project. ARC/Origin’s daily toolbox meetings will reinforce awareness of dieback risk areas and support planning of vehicle movements. Implementation of the dieback hygiene protocol will be monitored as part of daily environmental inspections and records of these inspections will be maintained. ARC/Origin will incorporate the above suggestions into the EMP as appropriate.

2.6 Accountability appears generic but should show personnel positions

Issue

‘Commitment 11 shows no personnel designated by the Company, nor by CALM, as responsible for the prevention of dieback risk. Such personnel (or responsible positions and signatories) must be shown on the proposal.’

ARC/Origin’s response

As described in Section 2.3 and 2.4, this level of detail is more appropriate in the Environmental Management Plan (EMP) for the project.

2.7 Post-survey monitoring actions and remediation are not indicated

Issue

‘Commitment 14 must show who will be monitoring subsequent to the survey’s completion, what actions will be available to them should monitoring show weed, dieback or failure to thrive, and how their input actions are to be resourced. The proposal should show resource availability and intent. Intent should show outcomes sought and indicators that will be used in monitoring, assessment and input safeguards.’

ARC/Origin’s response

Section 5.5 of the PER describes the activities to be carried out for post-survey rehabilitation/revegetation and monitoring. Section 3.7.2 of ARC/Origin’s response to submissions (IRCE 2004b) describes the work carried out to date in developing completion
criteria and the work yet to be carried out. These activities are as described in Figure 5.9 of the PER (IRCE 2004a).

2.8 Daily record of advance survey prior to daily work beginning

Issue

‘Table 1.3: There is no indication that plants shown as endangered have been specifically sought in the area. They should be specifically sought in advance of the seismic survey on the basis that by finding them during the survey, it is likely that the survey will already have damaged their populations or risked their local status.’

‘Should the PER outcomes not require survey of these plants prior to the beginning of the seismic survey, as a precautionary measure there must be a botanist available on a daily basis to survey in advance of the day’s vegetation rolling or accessing. Such a botanist’s actions in conducting a botanical inspection of the day’s activities in advance of the day’s activities taking place, should be diarised and recorded as taking place on a daily basis prior to the day’s work beginning.’

ARC/Origin’s response

Section 3.3.7 of ARC/Origin’s response to submissions describes the work being carried out to delineate the location of the DRF Stawellia dimorphantha. Section 3.3 of the document also describes the vegetation surveys carried out to date (WEC 2004, in prep.) and the work yet to be done. The commitment to having a botanist on site to supervise the line preparation crews during the seismic survey is described in Section 5.2.3 and elsewhere in the PER.

2.9 Post-survey monitoring duration and frequency are not shown

Issue

‘Table 2.1: No indication is given that monitoring of outcomes will be instigated after the seismic survey, nor that monitoring will be continuing. Its frequency is not shown.’

ARC/Origin’s response

Section 6.4 of the PER describes the monitoring programme to be instigated before, during and after the survey. Section 3.2.7 of ARC/Origin’s response to submissions discusses the completion criteria for rehabilitation/revegetation that will apply to the project.

2.10 Halving of source line spacing appears uncontrolled

Issue

‘No justification is provided for halving the source line spacing. No maximum has been provided, to show the maximum number of additional source lines proposed. Limestone outcrops are not shown on the maps, to indicate the limit of the area and location in which it is proposed that source line spacing is proposed to be halved.’
ARC/Origin’s response

The increased density of source lines is justified and planned based upon the prior experience with data quality in the area, the strong correlation between data quality and outcropping surface limestone ridge that runs approximately N-S along the eastern edge of the Denison 3D, and the technically justified need for the greater density to achieve adequate data quality. The increased density is not undertaken lightly in that it represents a major incremental cost to the survey, but it is required to obtain adequate data quality. Figure 2.2 shows the proposed line alignment and spacings (including the source lines at 240m intervals) and more detailed images are provided on the ARC/Origin websites, the PER CD and in Attachment 1 of ARC/Origin’s response to submissions.

2.11 Vehicle turning points need to be identifiable in advance

Issue

‘Vehicle turning points must be on areas cleared by the botanist as being ‘at minimum risk’ and as ‘only containing species common in adjacent areas and this locality’. Such vehicle turning points must be identified by individual access number, and each vehicle turning point must be identified by that number as being ‘signed off’ by the botanist as being approved as a vehicle turning point. Such approval must be diarised and recorded.’

ARC/Origin’s response

This level of detail is more appropriate in the EMP for the project. Vehicle turning point locations will be marked on field maps that will be included in the EMP.

2.12 Limestone outcrops should be protected from vehicular access

Issue

‘Seismic receiver lines must be carried over limestone outcrops where those outcrops support remnant vegetation, occur in a Nature Reserve, or are of environmental sensitivity.’

ARC/Origin’s response

As outlined in Section 2.5.1 and elsewhere in the PER, all seismic lines will be planned with the assistance of a botanist who will identify sensitive areas to be avoided or hand-prepared. CALM’s agreement on the identification of sensitive areas and the locations of the final seismic line alignments will be sought as part of the planning process.

2.13 High risk environments are not the only places where endangered species occur

Issue

‘It should be noted that the end of the Section 2.5.1 (page 34) confirms that daily inspection of the seismic line installation planned for the day is not proposed to be traversed in advance by any botanist. Accordingly, the generic environments that are intended to be avoided as likely to be where endangered or sensitive species may occur, may leave at risk areas where endangered or sensitive plants actually occur. As such, daily botanical survey immediately
prior to seismic line installation appears to be a matter of necessity, with the botanist required to sign on record that they have traversed in advance, and that the seismic line itself (and vehicle turning points etc.) do not harbour endangered or sensitive species.'

ARC/Origin’s response

The principal impact will be created by the initial line preparation, at which time a botanist will indeed be present to oversee the process, traversing ahead of the line preparation where required, and to advise details of line re-orientation as appropriate. A risk-based approach, underpinned by the extensive botanical work conducted (and still underway) in the field, where the focus is on the plant communities that present the highest probability of harbouring sensitive elements, is the proposed method of minimising impact on these sensitivities.

To conduct a ‘blanket’ approach covering all communities (as suggested by the respondent) will divert resources away from where they can be most effective. The commitment for botanical supervision of all line preparation activities is presented in Section 2.5 and elsewhere in the PER (IRCE 2004a).

2.14 No indication that accountability will be retraced back to planning

Issue

‘Figure 2.3 in general appears informative. Monitoring of environmental and species outcomes (and accountability) should reflect the information therein supplied at the planning stage.’

ARC/Origin’s response

Refer to Section 3.7.2 of ARC/Origin’s response to submissions for a discussion on the development of rehabilitation/revegetation completion criteria for the project (IRCE 2004b).

2.15 Misleading figures

Issue

‘Figures 2.4 and 2.5 are interesting, but they show no indication whether they are actually mapped and plotted, or whether their data is simply indicative of what may be achieved. If they are included as indicative (only), there is no value on their inclusion. If they are included as locationally definitive, their location is not shown and they are therefore of no value. Either way they are misleading.’

ARC/Origin’s response

ARC/Origin accept that it would have been useful to indicate on Figure 2.2, the area covered in Figure 2.5. Figure 2.5 is a close-up image of an area showing actual planned line alignments at the time of preparing the PER, with actual alignments still subject to adjustment as appropriate in the light of new botanical or other information as it becomes available. Figure 2.5 is contrasted with Figure 2.4 to demonstrate the extent to which ARC/Origin can and has deviated the lines to minimise disturbance to native vegetation.
All actual planned locations of the seismic lines are available from the ARC/Origin websites, the CD copy of the PER and shown in Attachment 1 of ARC/Origin’s response to submissions (IRCE 2004b). As described in Section 2.5.1 of the PER, these planned line alignments will be subject to refinement pending the outcomes of vegetation surveys that are currently underway. Any change in the alignments will result in less environmental impact as this is the whole point of refining the alignments.

2.16 Selection of field botanist must be an independent botanist unaligned with the company

Issue

‘Section 2.5.2 highlights the necessity for the survey team to be in close liaison and contact with a field botanist. For accountability in the protection of landscape values, said botanist must of necessity be independent and unaligned with the company.’

ARC/Origin’s response

ARC/Origin engaged Woodman Environmental Consulting (WEC) to provide botanical support for the project based on its knowledge and experience in working in the area. CALM’s feedback to ARC/Origin on the environmental management on the project is ‘…this document [the PER] provides an improved approach to environmental management standards for this type of survey conducted in the region’ and on the development of the completion criteria is ‘The approach to the development of this completion criteria being utilised by ARC/Origin is to be commended….’ ARC/Origin are satisfied that WEC provides sound, independent botanical advice for this project and will continue to be used throughout the operations phase.

2.17 Dunes for protection are not mapped in advance, nor are limestone outcrops

Issue

‘Section 2.5.2 ‘go-arounds’ to protect dunes is noted and worthwhile, as is protection from vehicular access. The same protection should be given to limestone outcrops overall. All such areas (dunes, limestone outcrops) should be mapped in advance, to ensure that advance personnel respect and protect said areas. Currently they do not appear to be mapped in advance.’

ARC/Origin’s response

Refer to Section 2.12 with respect to sensitive areas such as dunes and limestone outcrops.

2.18 Inaccuracy in figures

Issue

‘Section 2.5.2 shows that cleared farmland comprises approximately 45%. This is contradicted elsewhere in the document (showing 48% in the piechart in the beginning of the
document) and implies 55% is remnant vegetation or Nature Reserve. Nature Reserve is in Section 2.5.2 suggested as being 30%, yet Figure ES1 shows it as being 36%.

ARC/Origin’s response

ARC/Origin’s proposal is based on the figures presented in Table 2.2 of the PER (IRCE 2004a).

2.19 Undefended use of old seismic lines

Issue

‘The indication (page 37) that old seismic lines will be used in preference to the rolling of new areas shows no rationale. It seems likely in general terms that repeated rolling is deleterious to vegetation health, and no comparison is offered to clarify whether expected outcomes of a second rolling may be better or worse than fresh rolling of an unrolled area, thus spreading the environmental impact. It seems likely that economic consideration is here over-riding environmental trials and reporting.’

ARC/Origin’s response

Section 3.3.5 of ARC/Origin’s response to submissions (IRCE 2004b) addresses the issue of re-occupying previous seismic lines. Re-occupation of the seismic lines is supported by CALM and also the botanical consultant who recently observed the condition of these lines to be re-occupied, and assessed their condition and ability to withstand re-use. In general, these re-occupied lines will not be rolled again, except where the regrowth will prevent safe access. Economic consideration was not a factor in determining whether or not to reoccupy these lines.

3 References
