PP313

WHYALLA REGION

FACT-FINDING VISIT
23-24 OCTOBER 2013

NINETY FIRST REPORT

OF THE

NATURAL RESOURCES COMMITTEE

Tabled in the House of Assembly and ordered to be published, Tuesday 26 November 2013

Second Session, Fifty Second Parliament

PRESIDING MEMBER'S FOREWORD

The Natural Resources Committee visited the Whyalla region in late October 2013 at the request of Committee Member Hon Robert Brokenshire. The Hon Member had for some time been urging Committee Members to make this visit following concerns raised by landholders adjoining the Iron Duke open cut mine south of Whyalla. Mr Brokenshire visited the landholders earlier in the year and reported back to the Committee about dust from the mine impacting on native vegetation, crops and sheep. Members heard that as well as financial and environmental impacts the mine had reportedly impacted the health and wellbeing of nearby landholders. Other concerns raised related to access by mining exploration companies to farming land, inadequate compensation for the use of land for exploration and mining, the impact of the tailings dam on groundwater and the destruction of habitat from waste rock dumping.

The Committee visited Arrium's Iron Duke Mine on Wednesday 23 October and received a detailed presentation by staff. Mine staff rejected landholder concerns, asserting adequate community consultation at all stages of operations. Arrium staff reported that they had tried but failed to appease landholders and had consequently reached an impasse. Arrium also alleged the landholders had provided no proof to support claims about dust impacts, while acknowledging that dust monitoring had only commenced a year ago. From Arrium's perspective the region was an inherently dusty place, with the mine only partly responsible for dust. Mining staff acknowledged problems with their tailings dam which leaked and caused groundwater mounding leading to native vegetation dieback. Arrium appeared to be addressing this issue which was also being monitored by DMITRE. Revegetation of the areas affected by the mining operation was occurring and would continue to occur in accordance with the Program for Environmental Protection and Rehabilitation (the PEPR).

After visiting the mine the Committee visited landholders at the Turnbull family's Moonabie Homestead, south of Iron Duke Mine. The Committee heard allegations of poor practices and compliance by resource companies in the region. Landholders alleged that some mining companies were more concerned with manipulating and mining the share market rather than conducting actual mineral extraction and alleged unscrupulous practices such as illegal access and damage to farm properties.

After the landholder meeting, Committee Members travelled through grazing properties with significant stands of native vegetation adjacent to the Iron Duke Mine, and the long abandoned Iron Baron Township. Members were shocked at the obvious damage to native vegetation, much of which is dying or in the process of dying apparently as a result of being smothered by red dust which could be seen coating foliage. Members also observed that compared to locations further away from the mine and not impacted by dust, there was a marked difference in the vegetation and ground cover. In the badly impacted areas only mallee and saltbush appeared to be unaffected. This contrasted starkly with the less-impacted areas where there was a continuous and healthy cover of native and pasture grasses between the bushes and trees.

In conclusion, the Committee understands that mining in the Whyalla region is an important contributor to the local economy employing many local people. It is obvious to the landholders and committee that the mines will likely remain operational for at least the next couple of decades and no one seems to be suggesting the mines should close. What landholders say they want is for impacts to be acknowledged and for landholders to be compensated. Landholders also want the mining companies to implement best practice and comply with all relevant legislation and regulations. The landholders the Natural Resources Committee spoke with suggested that the Mining Act should be amended to provide for a much more robust environmental impact and monitoring program.

I wish to thank all those who gave their time to assist the Committee with this inquiry. I commend the members of the Committee, Mr Geoff Brock MP, Mrs Robyn Geraghty MP, Mr Lee Odenwalder MP,

Mr Don Pegler MP, Mr Dan van Holst Pellekaan MP, Hon Robert Brokenshire MLC, Hon John Dawkins MLC, and Hon Russell Wortley MLC for their contributions to this report. All members have worked cooperatively on this report. I would also like to thank Hon Lyn Brewer MP for Giles and Peter Treloar MP for Flinders both of whom accompanied the Committee on its visit. Finally, I thank the Committee staff for their assistance.

Hon Steph Key MP
Presiding Member
26 November 2013

EXECUTIVE SUMMARY

The Committee made the following comments/observations after undertaking a fact-finding visit of the Whyalla region:

- Members were warned by landholders that the crushing plant at the Iron Duke Mine would be closed on the day of their visit, to undertake routine maintenance. Committee Members noted that the plant did not appear to be operating and the only sources of dust were trucks. The shutdown of the crushing plant may well have been just a coincidence. Landholders commented that had the plant been operating at the time the Committee would have had a chance to see how bad the dust problem is (page 22);
- If the wastewater recovery facility/dam at Iron Duke Mine had been lined (either with heavy plastic or clay) at the outset the problem of groundwater mounding may have been avoided; water may have overflowed more rapidly alerting Arrium much earlier to the need for a re-design (page 29);
- Committee Members noted that the *Whyalla Steel Works Act 1958* provides in Schedule 1 Annexure B, Section 6 'That the lessee will make such provision for the disposal of the silt sludge dirt waste or refuse which may be brought out of the said mines and premises so that the same will not flow or find its way into any stream brook river or water channel or so as to injure or interfere with any land set apart for water supply purposes' (page 32);
- Members noted that a Water Affecting Activity Permit under the NRM Act is required to 'obstruct or deposit solid materials in a watercourse'. However, it was unclear, given that approval for the waste rock dump was granted under the Mining Act, whether additional approval was required under the NRM Act for the rock dump. It was also unclear whether Death Adder Gully fits the definition of a watercourse under the Act (page 33);
- Committee Members observed that there were some similarities in the case of the Turnbull family with Chowilla Station; the State Government, in return for taking over the river country held by the pastoralist, provided the owners sufficient compensation to enable them to purchase dryland country in South Australia and Victoria. Members were unsure whether the Turnbull's land occupied by the mine was held by the family freehold or as a Crown lease, or a mixture of both. This could impact on the argument regarding its value (page 37);
- It appears that dust monitoring of the properties of landholders who have complained about the mine has not been conducted to Australian standards and is arguably inadequate (page 42);
- Members agreed that there are some issues with the notice of entry process that need to be addressed. Hon Robert Brokenshire commented that the notice of entry waiver needs to be re-considered. Landholders need to understand the importance of the waiver and what happens when they choose to waive the requirement for a notice or entry by signing an agreement prepared by a mining company. In the past, the great majority of mining activity has occurred in remote areas, but in recent times mining activity has commenced in close proximity to farming, particularly on Eyre Peninsula and Yorke Peninsula (page 45);
- The DMITRE document entitled *Landowner Frequently Asked Questions* available on the agency's website is recommended reading for landholders affected by mining exploration and extraction licences (page 47);
- A Committee Member raised the possibility that some good health programs were operating but were not adequately promoted (e.g. mental health delivery). Whyalla Hospital has the capacity to roll out a lot more services than it currently is doing. Health delivery in Whyalla is adversely affected by the headquartering of decision making at Port Augusta. While South Australia has made some effort in attempting to standardise regional boundaries, there appears to have been some resistance at the departmental level to this process (page 61);

- Biosecurity SA wrote to the Natural Resources Committee on 22 October 2013 confirming that Carrion Flower had been declared a pest plant in accordance with sections 175, 177 and 182(2) of the Natural Resources Management Act 2004. This prohibits the sale, entry to South Australia and movement on roads of the plant. Control is also enforced in the Alinytjara Wilurara, Eyre Peninsula and SA Arid Lands NRM Regions (page 66).

RECOMMENDATIONS

The Natural Resources Committee recommends that:

1. The Minister for Mineral Resources and Energy seek a Crown Law opinion as to whether the Significant Environmental Benefit (SEB) agreement between One Steel / Arrium, DEWNR and the Native Vegetation Council negates the requirement of the company to comply with the *Whyalla Steel Works Act 1958* with regard to filling in a watercourse. The results of this opinion should be provided to the Committee (pages 33 and 34);

2. The Minister for Mineral Resources and Energy seek a Crown Law opinion as to whether the development approval for the Iron Duke Mine expansion under the *Mining Act 1971* negates the requirement for approval under the *Natural Resources Management Act 2004.* The results of this opinion should be provided to the Committee (page 33);

3. The Minister for Mineral Resources and Energy initiate discussion between Arrium, DMITRE and the Turnbull family about swapping suitable pastoral land held by the company as a way of compensating the family for the impacts of mining caused by rock dump encroachment, the mine expansion and the resultant dust impact on their pastoral business (page 37);

4. The Minister for Mineral Resources and Energy encourage Arrium to engage an independent consultant approved by DMITRE to monitor and test the dust from Arrium's Iron Duke Mine on neighbouring properties. All equipment and testing methodologies used should meet Australian Standards (page 42);

5. The State Government review its procedures for granting mineral exploration and extraction approval on or in close proximity to agricultural land. This review should include consideration of:

    - The EIS trigger – whether the requirement for an EIS should be granted for any mining proposal impacting on agricultural land, in much the same way that the EIS requirement is triggered for residential land or for a 'major project';
    - Whether the State Development Plan should provide special protection for high-value agricultural land, protecting it from any mining; and
    - Whether the notice of entry should be changed to provide that where a landholder refuses permission for a mining company to enter their property it should be the mining company that is required to undertake legal action rather than the current requirement that the landholder to lodge an objection, and until permission has been granted the mining company has no right to enter the property irrespective of tenure (page 45).

6. The State Government appoint an independent mining regulator to ensure that all provisions of the Mining Act and related legislation are adhered to. The regulator role should be granted to regional NRM Boards, with a specialist person in Adelaide having overall responsibility, like an ombudsman (page 46);

7. The Minister for Mineral Resources and Energy furnish the Committee with a copy of the deed of assignment that provides for all rights and obligations relating to the 'BHP Indenture' to be transferred from BHP to One Steel and subsequently to Arrium (page 47);

8. The Minister for Mineral Resources and Energy instruct DMITRE to work with Arrium to seek ways of reducing the impact of dust from the Iron Baron Mine on surrounding vegetation (page 50).

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THE NATURAL RESOURCES COMMITTEE

The Natural Resources Committee was established pursuant to the *Parliamentary Committees Act 1991* on 3 December 2003.

Its membership for the duration of this inquiry was:

The Hon Stephanie Key MP, Presiding Member
Mr Geoff Brock MP
Hon Robert Brokenshire MLC
Hon John Dawkins MLC
Mrs Robyn Geraghty MP
Mr Lee Odenwalder MP
Mr Don Pegler MP
Mr Dan van Holst Pellekaan MP
Hon Russell Wortley MLC

Executive Officer to the Committee:
Mr Patrick Dupont

Research Officer to the Committee:
Mr David Trebilcock

FUNCTIONS OF THE COMMITTEE

Pursuant to section 15L of the *Parliamentary Committees Act 1991*, the functions of the Committee are:

(a) to take an interest in and keep under review—

(i) the protection, improvement and enhancement of the natural resources of the State; and

(ii) the extent to which it is possible to adopt an integrated approach to the use and management of the natural resources of the State that accords with principles of ecologically sustainable use, development and protection; and

(iii) the operation of any Act that is relevant to the use, protection, management or enhancement of the natural resources of the State; and

(iv) without limiting the operation of a preceding subparagraph—the extent to which the objects of the *Natural Resources Management Act 2004* are being achieved; and

(b) without limiting the operation of paragraph (a), with respect to the River Murray—

(i) to consider the extent to which the *Objectives for a Healthy River Murray* are being achieved under the *River Murray Act 2003*; and

(ii) to consider and report on each review of the *River Murray Act 2003* undertaken under section 11 of that Act by the Minister to whom the administration of that Act has been committed; and

(iii) to consider the interaction between the *River Murray Act 2003* and other Acts and, in particular, to consider the report in each annual report under that Act on the referral of matters under related operational Acts to the Minister under that Act; and

(iv) at the end of the second year of operation of the *River Murray Act 2003*, to inquire into and report on—

(A) the operation of subsection (5) of section 22 of that Act, insofar as it has applied with respect to any Plan Amendment Report under the *Development Act 1993* referred to the Governor under that subsection; and

(B) the operation of section 24(3) of the *Development Act 1993*; and

(c) to perform such other functions as are imposed on the Committee under this or any other Act or by resolution of both Houses.

(2) In this section—

natural resources includes—

(a) soil;

(b) water resources;

(c) geological features and landscapes;

(d) native vegetation, native animals and other native organisms;

(e) ecosystems.

STATUTORY OBLIBATIONS OF THE COMMITTEE

The Natural Resources Committee has the statutory obligation to examine a Region's Natural Resource Management (NRM) plans that contains a levy proposal.

Sections 80 and 81 of the *Natural Resources Management Act 2004* clearly state the circumstances under which these plans are to be forwarded to the Committee.

80—Submission of plan to Minister

(8) If a plan provides that the whole or part of the funds required for implementation of the plan should comprise an amount to be raised under Chapter 5 (in this section referred to as a ***levy proposal***) the Minister must, within 7 days after adopting the plan, refer the plan to the Natural Resources Committee of Parliament.

Once the initial NRM plan (with levy proposal) has been considered by the Committee then in subsequent years only plans in which the levy proposal is increased by an amount greater than the CPI increase is referred to the Committee. Provisions of s81(10)(b)(ii) NRM Act as follows apply:

81—Review and amendment of plans

(10) If—

(b) an amendment proposes—

(i) that a levy under Chapter 5 Part 1 Division 1 or Division 2 imposed in one financial year be again imposed in the next financial year; and

(ii) that the amount to be raised or recovered by the levy in the next financial year will be an amount that exceeds the amount raised for the last financial year adjusted to take into account increases (if any) in the CPI during the 12 months ending on 30 September in that last financial year,

the procedures set out in section 80(8) to (16) must be followed when the plan is amended.

The Committee must within 28 days of receipt of a NRM plan, consider the levy proposal in that plan, as required under s80(9) the NRM Act as follows:

80—Submission of plan to Minister

(9) The Natural Resources Committee must, after receipt of a plan under subsection (8)—

(a) resolve that it does not object to the levy proposal; or

(b) resolve to suggest amendments to the levy proposal; or

(c) resolve to object to the levy proposal.

Other provisions of the NRM Act detail the process to be followed should the Committee decide to proceed in accordance with s80(9)(b) or (c) but are not discussed further in this report.

REFERRAL PROCESS

Pursuant to section 16(1) of the Act, any matter that is relevant to the functions of the Committee may be referred to it in the following ways:

(a) by resolution of the Committee's appointing House or Houses, or either of the Committee's appointing Houses;
(b) by the Governor, or by notice published in the Gazette; or
(c) of the Committee's own motion.

ITINERARY

Day One: Wednesday 23rd October 2013	
Time	**Activity**
9.10am	Members depart Adelaide Airport, arrive Whyalla Airport 10.00am. Rex flight ZL4518. Meet Hon Lyn Breuer MP and staffer Eddie Hughes, Mr Peter Treloar MP, Mr Dan van Holst Pellekaan MP at airport.
10.15am	Pick up two hire cars at airport – Avis rental 2 x Landcruiser wagons.
10.15am – 11.00am	Drive to Arrium's Iron Duke Iron Ore Mine. Vehicles to be left at security hut (limited parking on-site). All visitors to wear flat covered shoes, long sleeved shirt, long trousers. All visitors alcohol breath tested prior to entry (must be zero BAC). Visitors to be escorted at all times.
11.00am	Meet with Chris Smyth and Angie Smyth for presentation and tour of site (pit and boundary area) (11am – 2pm). Discussion of dust and tailings management. Light lunch provided by Arrium and eaten on bus to save time.
1.45pm – 4.00pm	Drive to neighbouring property Moonabie Homestead (shearing shed). Meet with landholders and supporters. Discussion and visit sites of interest. Mr Dan van Holst Pellekaan MP to depart at 3pm for Port Pirie.
4.00pm – 6.00pm	Drive to boundary of Iron Duke Mine with Moonabie Homestead accompanied by landholders, then to Iron Baron to observe impact of dust on native vegetation.
6.00pm	Drive from Iron Baron to Whyalla. Check in at Whyalla Foreshore Motor Inn; corner Foreshore And Watson Terrace Whyalla.
7.00pm	Dinner at Whyalla Foreshore with local NRM Board member and local MP.
	Overnight at Whyalla Foreshore Motor Inn
Day Two: Thursday 24th October 2013	
Time	**Activity**
8.00am	Breakfast meeting at Whyalla Foreshore Motor Inn. NRC members only.
9.00am – 12pm	Meet with Whyalla Council representatives at Civic Building (Darling Terrace) in Mayor's Parlor followed by city tour hosted by Council. Mr Dan van Holst Pellekaan MP to meet Committee here.
12.00pm	Lunch at Bay View Hotel, Farrell Street Whyalla.
1.00pm – 3.00pm	Site visit hosted by EP NRM Board Iggy Honan (DEWNR): • Tank Hill near Norrie Avenue to look at Fountain grass control and group participation with a number of stakeholders (20-30min); • Field Street Reserve to view Carrion flower a problem unique to Whyalla. Carrion flower is a succulent African plant that has spread from the city to pastoral land and is a long-term threat to the Flinders ranges and associated parks (15min); • Whyalla Foreshore to look at interpretative signage erected after dolphin issues with feeding and human interaction with marine mammals (20-30 min).
3.00pm	Drive to airport.
3.15pm	Drop off hire cars at airport.
3.55pm	Members depart Whyalla Airport, arrive Adelaide Airport 4.45pm. Rex flight L4535.

1 Introduction

1.1 Location and brief history of Arrium iron ore mines in the Middleback Ranges

The Arrium Iron Duke mine is located approximately 60 kilometres west of Whyalla. The Broken Hill Proprietary Co. Ltd. (BHP) starting mining at Iron Knob in 1899. Ore from the mine was shipped to the Port Pirie Smelter where it was used as a flux for refining silver and lead from Broken Hill. In 1901 a tramway from Iron Knob to Hummock Hill (Whyalla) was completed.

From 1930 the Iron Baron Mine was developed. In 1970 mine production peaked at 7.6 million tonnes per annum. In 1989 the Iron Duke Mine was opened and the Iron Baron Mine was closed. In 1998 the Iron Duchess Mine was opened and the Iron Knob Mine closed and in 1999 the Iron Knight Mine opened. Arrium, the current owner of the mine, estimates that depletion of iron ore reserves will occur around 2020.

(Arrium 2003)

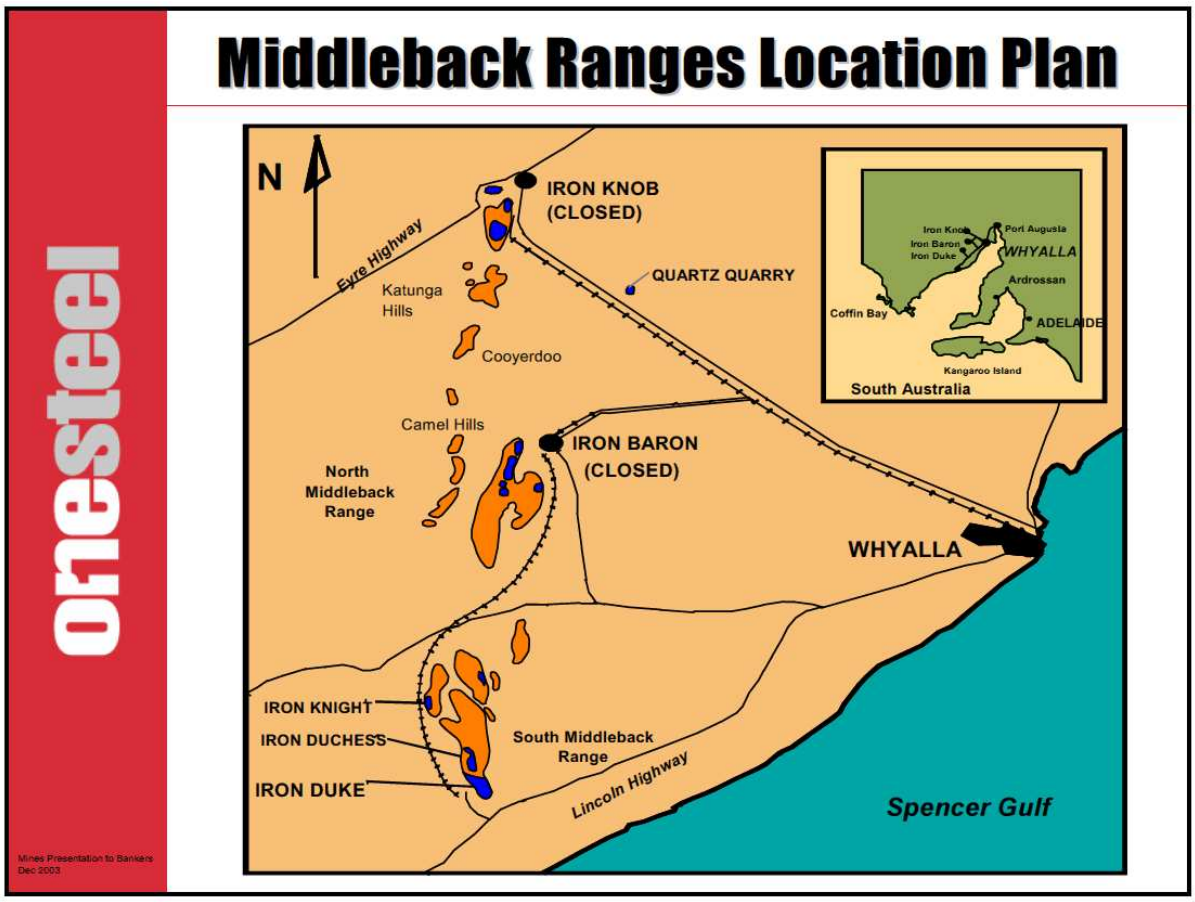


Figure 1: *Location of Arrium's iron ore mines in the Middleback Ranges, Eyre Peninsula (Arrium 2003)*

1.2 Reason for visit

The Natural Resources Committee visited the Arrium Iron Duke Mine at the behest of Committee Member Hon Robert Brokenshire MLC. Mr Brokenshire was contacted approximately a year ago by local landholders concerned about the impact of the mine on local native vegetation, water and agricultural produce including wool and wheat. Landholders complained about economic loss and psychological stress due to the mine. They also raised concerns about serious breaches of the Mining Act relating to dust emissions and water discharges. Some landholders made allegations of illegal entry of land by mining companies undertaking mining exploration together with poor landholder engagement, and insufficient reporting and monitoring.

2 Presentation by Arrium and visit to mine site

2.1 General operations

2.1.1 Steel production

The Committee heard that Arrium, formerly One Steel, changed name in 2012[1] reflecting the fact that the business had diversified from its original steel-making function to mining consumables and mining. Steel production employs the largest group of Arrium employees, but the industry has been significantly challenged by the high Australian dollar and low steel prices.

2.1.2 Mining consumables

The second part of the business, the product of a series of acquisitions primarily in the Americas, is the mining consumables business. The majority of the product is grinding media i.e. steel balls used in minerals processing, particularly copper. This is one of the parts of the company that has significant growth opportunity because global demand for copper is continuing to grow. Arrium is the largest grinding media producer in the world.

2.1.3 Location of mining operations

The mining part of the business is largely centred on:

- Southern iron operations in the north of the State (a product of the acquisition of the haematite projects from the Western Plains group approximately two years ago) and the driver of the most recent expansion of the Whyalla Port;
- Middleback Ranges operations; and
- A small dolomite quarry operation at Ardrossan, Yorke Peninsula.

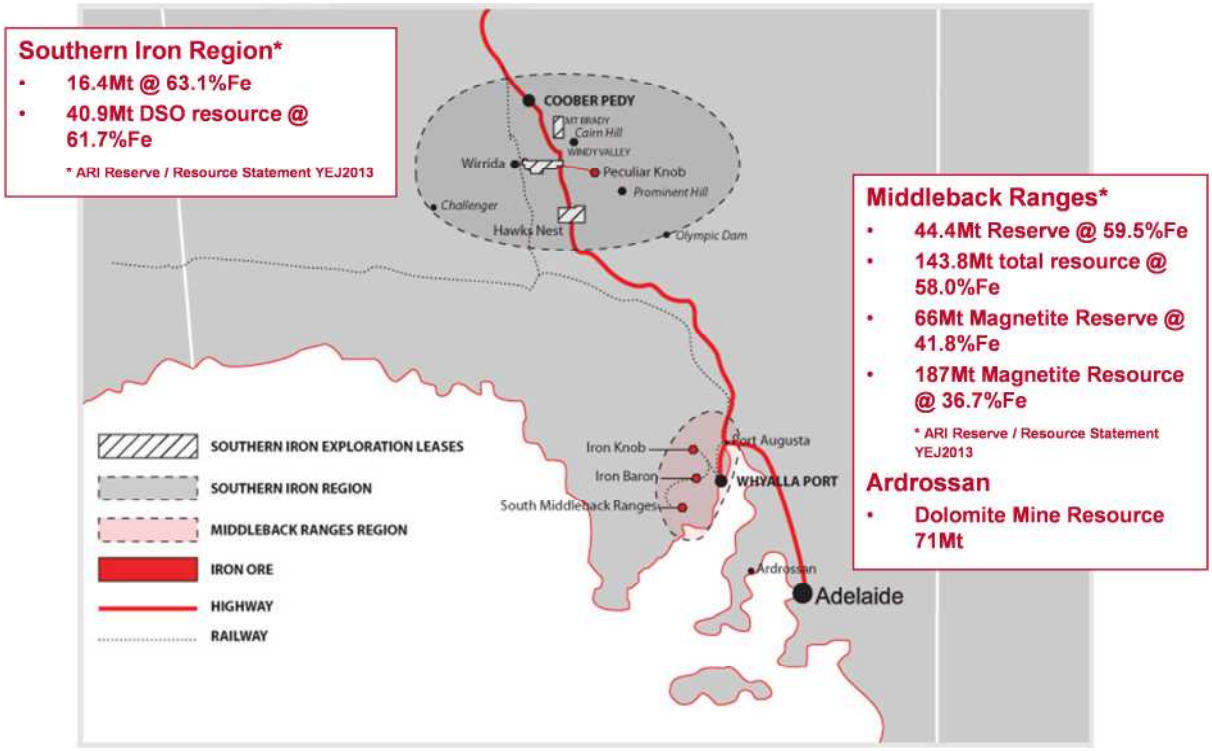


Figure 2: *Arrium Mining Resources Regions in South Australia (Arrium 2013, p3)*

[1] See: http://www.onesteel.com/ (accessed November 2013)

The Middleback Ranges iron ore mines extend a distance of approximately 60km from Iron Knob in the north to Iron Duke in the south. The Iron Duke mine is about 60km south-west of Whyalla. Further to the north, approximately 50km, is Iron Knob mine. Members heard that the Iron Duke is essentially a magnetite mine. The haematite is 'depleted' (subject to new technologies being developed and there being sufficient demand for the ore to make mining haematite financially viable).

2.1.4 History of mine development in Middleback Ranges

The Committee heard that mining in the Middleback Ranges commenced more than 100 years ago with the first mining occurring at Iron Knob in 1899; the first iron ore mine in Australia. Development moved to the south from Iron Knob (to be re-opened in the next 6 months after being closed in 1990s) through Iron Baron (1930s opened, 1990s closed, re-established 2012) to Iron Duke (1990). It was not until 2007 that iron ore production returned to the peak production levels that occurred in the 1970s. In the past 12 months Arrium has moved well beyond that level across its operations.

Figure 3: *Mining History, Arrium (Arrium 2013, p4)*

2.1.5 Output

Members heard that the Southern Iron site (see Figure 2) produces around 3.8 to 4 million tonnes of iron ore per annum at Peculiar Knob, near Coober Pedy. This ore is road-hauled 100 km to Wirrida where there is a crushing plant and rail siding on the Adelaide – Alice Springs rail line. From there the company rails the ore down to Whyalla and the expanded port facility that was recently opened.

The remainder of the total export sales of approx. 12 million per annum will come from the Middleback Ranges including the South Middleback Ranges (SMR) Iron Knob and Iron Baron mines. In addition to haematite, which is the main mineral mined in the Middleback Ranges, Arrium generates magnetite (mostly from Iron Duke Mine) for the Whyalla steelworks. After concentrating the magnetite it is pumped to Whyalla via a slurry pipeline for conversion to pellets at a pellet plant

and converted to steel. About 1.4 million tonnes per annum of magnetite concentrate is produced. The Committee heard this will increase by 400,000 tonnes in six months with the completion of an optimisation of the current facility. The water sources for the slurry are a reverse-osmosis plant at Whyalla, mains water from the Morgan-Whyalla pipeline and recycled water at the Iron Duke mine (see section 2.3.3). There is a slurry pipeline running into Whyalla and a return water pipeline which recovers most of the water used to deliver the slurry.

2.1.6 Transport of ore

Arrium has its own narrow-gauge rail network through the Middleback Ranges to get the haematite to the port at Whyalla. Compared to the Pilbara operations in Western Australia the sites in South Australia are small and more scattered. Members heard there are 17 pits across six sites, multiple crushing plants, a couple of beneficiation plants which are used to concentrate haematite, a magnetite concentrator and a pellet plant. There is a mix of owner-operated activities as well as contact activities and about 1,400 people are employed fulltime on site. For the mining business as a whole around 2,000 people are employed fulltime.

From the Whyalla Port the haematite ore is trans-shipped (barged via a self-propelled vessel) out to Cape sized vessels in Spencer Gulf. The company has two ship loading facilities in Whyalla and two sets of trans-shipping facilities. The loads are 170 to 190 thousand tonnes. The customers for the ore are almost exclusively in China, including the largest steel maker in that country. Some of the contracts are very long term. The company has increased its exports from six million tonnes per annum to twelve million tonnes, which appears to be somewhat of a breakpoint.

Members heard there is interest from many other steel makers in China and NE Asia in general, and Arrium currently has more than enough demand for its product to consume its supply. However, steel makers' margins are very low in China. This has affected the demand for the product more recently and prices have started to go down.

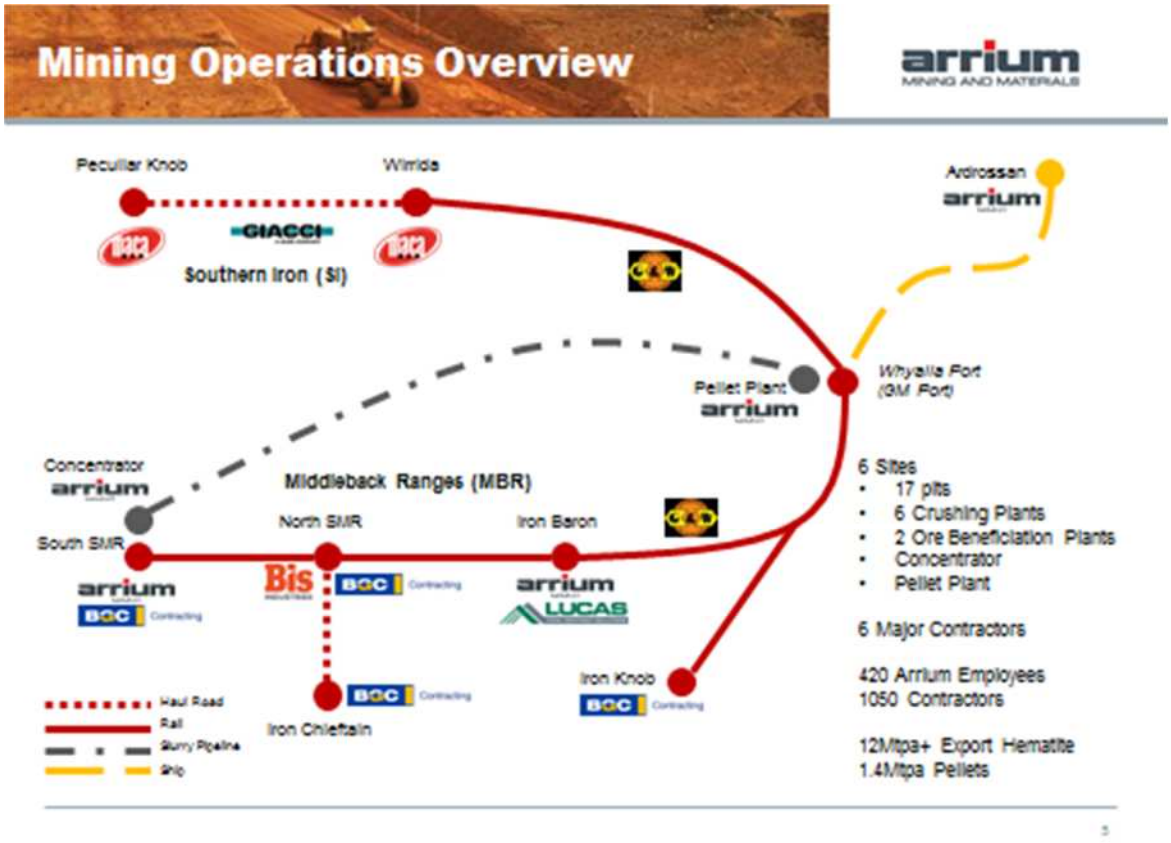


Figure 4: *Mining operations overview (Arrium 2013, p5)*

2.1.7 Life expectancy of mines

Members heard that the current estimated life expectancy of the Arrium iron ore mines is ten years for the current export rate of around 12 million tonnes per annum i.e. 2025. In addition to the Iron Duke Mine there are three other active mines in the Middleback Ranges; Iron Duchess, Iron Knight and Iron Chieftain. Mining at Iron Duchess for haematite is about to commence. Iron Knight is essentially depleted but the mine has more or less reached the end of its life, and Iron Chieftain is still in the early stages of development.

2.2 Mining licence to operate

The Committee heard that Arrium has policy and protocols around environment and stakeholder engagement including landholders, local communities and Traditional Owners (both Barngala and Kokatha). There is a process of feedback through to the design phase before making an application for a mining tenement. Public notification is facilitated via public advertisements (in the SA Government Gazette and state and local newspapers). The Program for Environment Protection and Rehabilitation (PEPR) is developed in accordance with the Mining Act (Part 10A) and describes the conditions of approval for mining activities. It also includes conditions for ongoing stakeholder engagement.

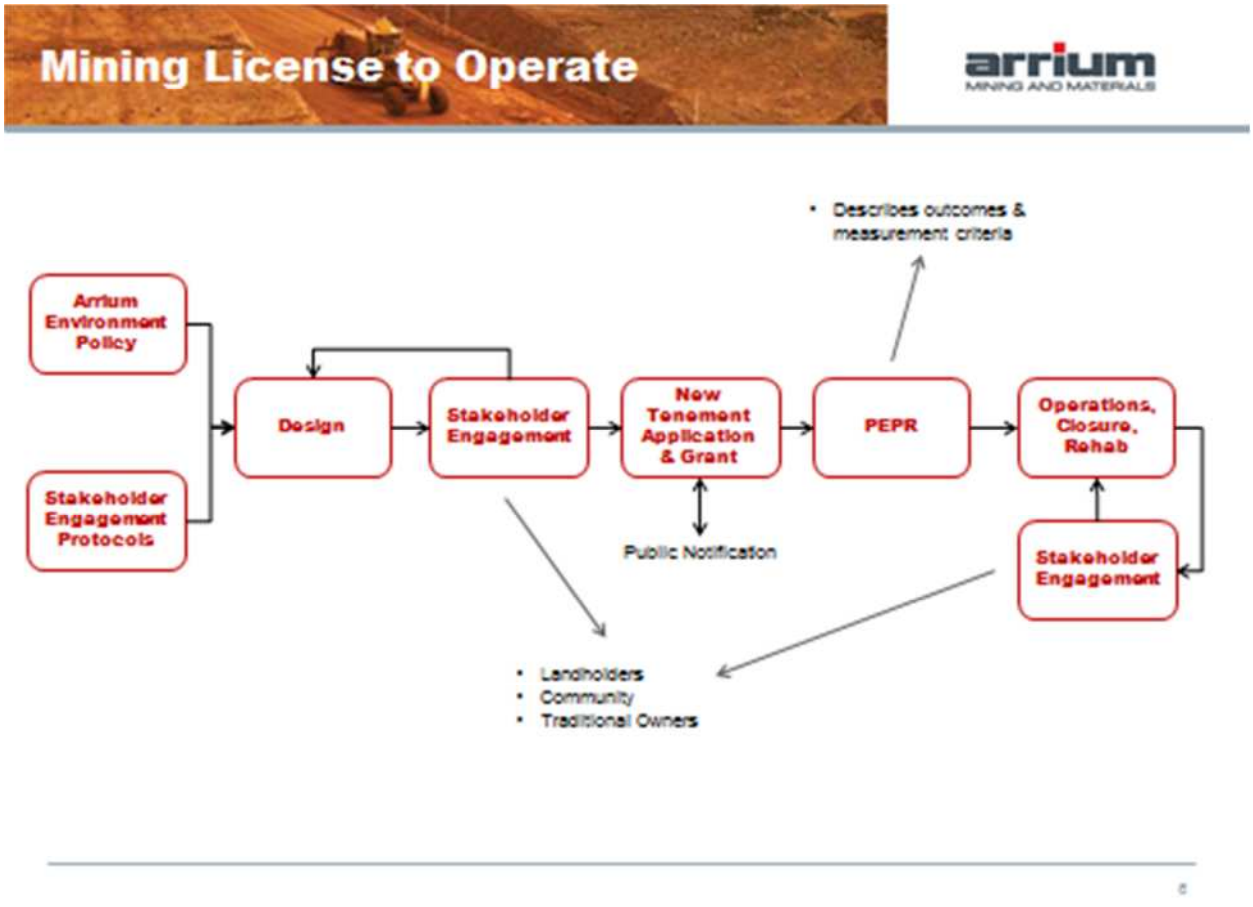


Figure 5: *Flowchart – Arrium Licence to Operate (Arrium 2013, p6)*

2.2.1 PEPR review

The Committee heard that the PEPR is in the process of being reviewed. The revision will include a consultation process with all stakeholders including major landholders. Arrium reported that the dust management provision was to be amended; the current requirement (expressed as an outcome) is 'no increased impact on vegetation including adjacent landholders'.

2.2.2 DMITRE inspections

The Committee heard that DMITRE inspectors give notice before coming to the mine site. The number of inspections carried out since the commencement of mining was not known, but an inspection was due on the following day. Arrium stated that DMITRE inspectors look at all aspects and areas of the mine operation and normal operating conditions are maintained during the inspections; there are no shutdowns. The company stated that input from DMITRE staff is welcomed by the mine operators. Their advice is sought in relation to products used to reduce environmental impacts.

Committee comment:

Members were warned by landholders that the crushing plant at the Iron Duke Mine would be closed on the day of their visit, to undertake routine maintenance. Committee Members noted that the plant did not appear to be operating and the only sources of dust were trucks. The shutdown of the crushing plant may well have been just a coincidence. Landholders commented that had the plant been operating at the time the Committee would have had a chance to see how bad the dust problem is.

Members heard that the last DMITRE visit, which was to the Iron Baron Mine, was two or three months before the Committee visit. Approximately 24 hours' notice was given of the visit. Arrium reported that normally a longer period of notice is given in order to allow Arrium to get the right people in the right place to take DMITRE staff to areas they wish to inspect and respond to questions. The next visit will include inspections of work Arrium is doing on its tailing dam and its magnetite optimisation process (increasing the magnetite output).

2.2.3 Stakeholder consultation

The Committee heard that the target date for the next phase of landholder consultation was 21 November 2013. With the revision of the PEPR, DMITRE asked Arrium to look at the dust outcomes first primarily because of concerns by stakeholders. Arrium is attempting to work on an outcome that all stakeholders are happy with. Concerns will be recorded and measureable targets will be developed for the amended PEPR in consultation with independent experts.

Members were told that every six months a landholders' dinner is hosted for landholders subject to Arrium's mining leases, miscellaneous purpose licences and exploration licences. Arrium gives a presentation on exploration, the regulatory environment, how each operation manages dust and any other offsite impacts and overarching business issues. On top of that there are regular opportunities to catch up with individual landholders and community forums are held every six months at Iron Knob. There is also an ECG (environmental consultative group) at Whyalla. The first meeting of the ECG was in 2003; the group has therefore been going for ten years.

Principles of engagement

Members heard that Arrium (and previously One Steel) made firm commitments to the community to act in a socially responsible way, to respect its neighbours and try to work with them to get the best outcome. Arrium has recently signed up to the South Australian Chamber of Mines and Energy (SACOME) principles for effective community engagement. The foundation principles are summarised as;

- inclusive
- transparent and accountable
- clear and informed
- accessible and timely
- meaningful

Angie Smyth from Arrium spoke of the challenges facing mining companies engaging landholders. She was confident that most of the time stakeholders are happy and speak well of the company;

differences of opinion can be resolved as long as people are prepared to engage in the process. The company cited the Whyalla Resident Action Group as an example of successful engagement.

Negotiating compensation for use of land
Arrium stated in when it needs to negotiate compensation for landholders who are subject to new mining tenements on their properties a land valuation process is undertaken. The results of that are taken back to the landholder and the Manager, Stakeholder Engagement negotiates with them to establish a land access and compensation agreement. If they are unhappy with the process or compensation arrangements an 'escalation process' can be initiated, managed by the General Manager, Development. This person is able to give a higher level review of the process and revisit the company's position to find a suitable agreement on access and compensation. If that fails then independent mediation is offered to find an acceptable position for both parties.

Dialogue stalled
The Committee heard that dialogue with the Moonabie Station landowners, from whom Arrium leases its Iron Duke Mine site, has become stalled at the escalation stage. Two options for mediation have been offered by the company; independent mediation between the two parties, and a 'four-player model'. In the second case an independent mediator is used and an independent observer is brought in as an observer to the two negotiating parties. The independent observer is not to make judgement or recommendations but to observe the process as a way of increasing trust. Arrium was hoping to have DMITRE in that role. The two options for mediation have been put to the Moonabie Station landowners but have not, according to Arrium, been taken up.

Complaints management process
Members heard that Arrium has a complaints management system that has been in place for a number of years. The aim is to respond to all complaints within 48 hours and come up with actions within 30 days. If a point has been reached where a resolution has not been able to be achieved, Arrium attempts to clarify the issues of concern through technical assessment including soil testing, water analysis, and vegetation assessments. If there is still no resolution an independent mediator is engaged. This was done in the case of other adjoining landholders to see if their complaints could be resolved, but according to Arrium the landholders decided they did not want to progress with the process.

2.2.4 Complaints from adjoining landholders

Bronte Plane
The Committee heard that Arrium has received complaints from Bronte Plane since around May 2012. Mr Plane's property is approximately six kilometres from the mine and his complaints relate to health, rainwater quality at the house and crop yields. Arrium said it has made several site visits and tested the water at the homestead. It has implemented a dust monitoring program in cooperation with the landholder as well as a third-party review of the impact on the landholder's crops due to dust. Part of that review took place the day before the Committee visit.

From the Arrium site visits, the water quality testing and work undertaken internally by Arrium the company has not been able to ascertain that there is any impact on crops. The water also was found to be of good quality – pure rainwater of very low salinity. Arrium claimed the low salinity causes the water to act corrosively which could explain the impacts experienced.

Members heard that soil analysis was also carried out on the property in 2012. Arrium said there were some issues with soil quality which could have explained the impact on crops, but that could be a natural occurrence and therefore nothing to do with the mine. No excess iron was found in the soil or any other key issues relating to the landholder's concerns[2]. Arrium paid for a report based on the soil sampling which gave expert advice on how to address the issue of lack of nutrients. An independent group of scientists visited the landholder's property the day before the Committee visit. Soil quality and tissue analysis were undertaken. The soil analysis and water quality test analysis were provided to DMITRE at its request.

[2] This contradicts landholder claims – see section 3.3.6.

Natural Resources Committee urged to assist

Angie Smyth urged the Natural Resources Committee to assist in getting landholders back to the negotiating table and to undertake the mediation processes offered. She said independent mediation had proven in the past to be successful in getting a resolution when the parties committed to the process and stuck with it.

2.3 Critical activities

The Committee heard there are three critical activities associated with Arrium's mining activities at Iron Duke; dust management, general land management and groundwater management.

2.3.1 Dust

Members heard there are two sources of dust on the mine; point sources associated with the fixed-plant activity including crushing and train loading, and non-point ('fugitive') sources e.g. from haul roads and access tracks.

The Committee heard that the company commenced chemical treatment of roads in 2011. This has seen significant improvements in the way it manages fugitive dust sources. A magnesium chloride additive is used on the haul roads. This chemical is hygroscopic i.e. attracts water and binds the surface of the haul road, stopping it from breaking down (see Figure 6). Prior to chemical treatment the roads were managed by water cart on a day to day basis. After treatment the water carts are not needed as often and the road surface wears well. Members heard that the treatment ensures that the company meets its fugitive dust ranking (FDR) standard (see Figure 7) on more occasions than it otherwise would.

Figure 10 - Rear Haul Truck on Untreated Section of Knight Haul Road – Note barely visible LV behind rear truck

Figure 6: *'before' and 'after' photographs of roads treated with magnesium chloride to reduce fugitive dust from roads (Arrium 2013, p7)*

The Committee heard that monitoring of the dust levels includes assessment of likely weather conditions each day and resultant activities to reduce the dust levels to within acceptable standards (FDR2 and below). These activities include an assessment of what material is being mined e.g. hard rock (Type 1) and 'fluffy' dusty material (Type 2). The company has developed a way of encapsulating the type 2 material; where one part of the tip head has opened up material, once the material has been mined it is covered within 12-36 hours depending on the size of the tip head.

In locations where the geologist reports that there is likely to be more dusty material generated the company stated it will increase its use of water carts and use water cannons from the tip point to the dig point.

Arrium reported that it abides by the PEPR, but aims to continuously improve its dust management programs. It also generates an action plan over a 36 hour period on how it controls the dust. When

FDR1 events occur the company escalates the dust control measures to the required level immediately. If the situation goes to FDR2, the supervisor is notified and the dust management is escalated. When FDR2 and FDR3 events occur the incident is recorded. Possible remediation actions are considered to stop such incidents occurring again. Water carts will be kept going to control conditions as far as possible but a complete shutdown is sometimes the only viable way of avoiding an incident where dust exceeds the acceptable standards. These standards apply to both the mine site and the crushing plant. Each area of the operation is managed autonomously and the contractor BGC Australia Pty Ltd, which works with Arrium, is included in the dust management program as well as land rehabilitation.

In addition to treating the roads Arrium stated that it injects magnesium chloride into the secondary circuit of the crushing plant. The way in which the company builds its stockpiles has also been changed; in the past material was simply dumped on pads on either side of the crusher. Arrium now builds the stockpiles up to a much greater height and water cannons are used to increase the moisture content of the extracted ore prior to introducing it to either the Knight 1 or Knight 2 crusher. This has seen a major reduction in the amount of dust.

FUGITIVE DUST RANKING – ARRIUM MINES (QP50.68 Att A)

FDR	Assessment			Controls	Reporting
	1. Impact	2. Roads / Vehicle Movement	3. Material Processing (Crushing & Screening / Mobile Plant)	Note: Refer to the site EMP.	Environment Incident reports. Safely Incident reports
FDR 0	**Acceptable emissions** Dust is 90% transparent 50m from the dust source			**Ensure adequate EMP controls are in place, think ahead.**	*None required*
FDR 1	**Localised impact that warrants control measures** Dust is 50% transparent 50m from the dust source			**Notify your Supervisor.** **Escalate EMP dust control measures to the required level immediately**	*Record Actions in Shift Log.*
FDR 2	**Potential safety hazard/environmental impacts** Dust is 25% transparent 50m from the dust source Vision partially obscured Discomfort to operators Smothering of vegetation			**Notify your Supervisor.** **Escalate EMP dust control measures to maximum immediately** Approval to continue without controls must be sought. (Unless exempted as production critical) or the supervisor informs Operations Manager and gains temporary exemption status.	*Report an Incident only if continuing without controls* ***Note:*** *This applies whether temporary exemption status approved or not*
FDR 3	**Definite safety hazard/Environmental harm** Very low visibility/transparency 50m from the dust source Vision obscured High level discomfort to operators High impact on vegetation			**Stop activity** unless: ▪ Task is pre-approved as Production Critical by Dept. Manager, or ▪ Temporary Exemption status has been applied by PC, and Dept Manager, and is placed on Temporary Exemption list	*Incident report within 24 hours* ***Note:*** *This applies whether temporary exemption status approved or not*

Figure 7: *Fugitive Dust Ranking – Arrium Mines (Arrium 2013, p8)*

Weather/climate

Members heard that weather is a factor that is beyond the control of the operator; over the past six months it has been very windy, and the mine is located in a semi-arid environment. There is great natural variation in dust levels, making it very difficult to separate out the additional impact of mining operations. These variations are exacerbated by the roughly three to eight year *El Niño–Southern*

Oscillation[3]. The Committee heard that during the last decade *El Niño* conditions prevailed and it was very dusty. More recently *La Niña* conditions have prevailed and it has been easier to control dust.

Health impacts of dust from iron ore
Arrium stated that the dust from iron ore mining is chemically inert; it is not like cement dust or other dusts that cause health issues and is not bio-available in water or through plants. Members were told that a health-risk analysis was done in Whyalla in 2003 and apart from concerns about increased dust levels in the air of very small particle sizes of PM10 and PM2.5 (which at high levels could impact on human health) there were no problems.

Pellet plant, Whyalla
Arrium, which also operates the pellet plant at Whyalla, informed Committee Members that it and its predecessors (One Steel and BHP) have operated the Whyalla pellet plant for approximately 40 years. Until recently the plant had a haematite feed with a dry grind which had potential to expose employees to high levels of fine haematite dust. The Committee heard that a number of lung surveys including a function survey and a pathology survey have been carried out on the workforce, many of whom have worked in the plant over 30 years. None of the surveys were reported to have identified any health issues associated with the plant.

Monitoring
Members heard Arrium has a number of dust-monitoring sites around the Iron Duke Mine. A risk assessment is undertaken whereby all the environmental operations are investigated and appropriate measures designed to deal with potential problems. Arrium uses *ecosystem function analysis* to attempt to gauge the impact of dust on native vegetation and associated environment. This analysis includes an investigation of:

- The amount of dust that is deposited on the foliage;
- Whether this dust interacts with the stomata pores;
- The permeability of the soil – comparing the moisture content of the soil in areas impacted by dust with a control site;
- Soil temperature compared to control sites;
- Soil pH compared to control sites; and
- Temperature of leaves of impacted vegetation compared to control sites.

Arrium also collects data on dust deposition. Members were told that ambient levels of dust are of very limited use. Deposition monitoring is a much better method of monitoring dust particularly if undertaken over a long time period. Quite a few monitors are located very close to the mine plant, but and there is so much 'noise' (i.e. different sources of dust) it is very difficult to discern much at all in those locations over the short term. Nevertheless the data collected is used internally by the company to set targets for day to day operation of the plant.

The dust collected at some locations is also analysed for its mineralogy. The purpose of this is to determine how much of the dust is 'background dust' and how much has come from the mining operation. Arrium only has about two or three months of data and, like the deposition data, it is going to be very difficult to determine long term trends until sufficient data is collected. In time this will improve as more data is collected.

2.3.2 Land Management

Ironstone Conservation Park and the Middleback Alliance
Arrium told the Committee that it purchased a 20,000 ha pastoral lease adjoining Iron Duke Mine to the west and the land now is managed as Ironstone Hill Conservation Park. It also purchased an 8,000 ha pastoral company within which Iron Chieftain Mine is located (Uplands). The company manages this property in a 'whole of landscape' context in partnership with DEWNR, Ecological Horizons and Arrium. This group is known as the 'Middleback Alliance'. Members heard that the Uplands lease land had a long history of poor management with excessive clearing and stocking resulting in soil

[3] See: http://www.bom.gov.au/climate/glossary/soi.shtml (accessed November 2013)

erosion. The first thing Arrium did after purchasing the lease was to destock the land. This was followed by warren ripping to get rid of the rabbits and saltbush seeding to encourage revegetation (see Figure 8).

Contour ripping has also been carried out to increase water and soil retention and reduce gully erosion. Arrium provides funding for goat management in particular radio tracking collars fitted to Judas goats. The goats are mustered and taken off the land by a private operator who subsequently sells them. The Committee heard that about 5,000 goats have been removed from the Middleback Ranges since 2008, with approximately 2,000 removed in 2012 alone.

Figure 8: *Upland Pastoral Lease, purchased by Arrium – example of rabbit warren ripping and reseeding with saltbush in foreground (Arrium 2013, p12)*

Land rehabilitation

Members heard that Arrium has undertaken an extensive land rehabilitation program at Iron Duke. In one location near the entrance to the mine the company has re-sloped the site, put topsoil back in place, cross-ripped the site and is going through the seeding process, making sure that it is returning the landscape as far as possible to its original condition. External consultants are also employed; once the rehabilitation has been completed the consultant will prepare a report including recommendations to be undertaken later.

The main plants used for revegetation are saltbush, bluebush and mallee. The original topsoil is removed before mining commences. This contains the seed bank. The company also has seeds which have been stockpiled for a number of years. Generally there is a saltbush / bluebush on the eastern side of the range and mallee community on the western side of the range. The saltbush in particular has proven to be a very good plant for rehabilitation. Members were told that saltbush will grow even on waste material whereas the mallee requires a more sandy soil. Spinifex has also been used for revegetation where appropriate.

2.3.3 Groundwater Management

Groundwater mounding problem

The Committee heard that in early 2009 Arrium identified groundwater mounding adjacent to its tailings storage (see Figure 9). Associated with the tailings dam (in particular the magnetite dam) there are a series of monitoring bores used to measure the depth of groundwater around the dam. In 2009 the monitoring bores showed that the groundwater was rising. Notification to DMITRE (PIRSA at the time) was undertaken as required together with a number of studies to find out the cause and develop a solution.

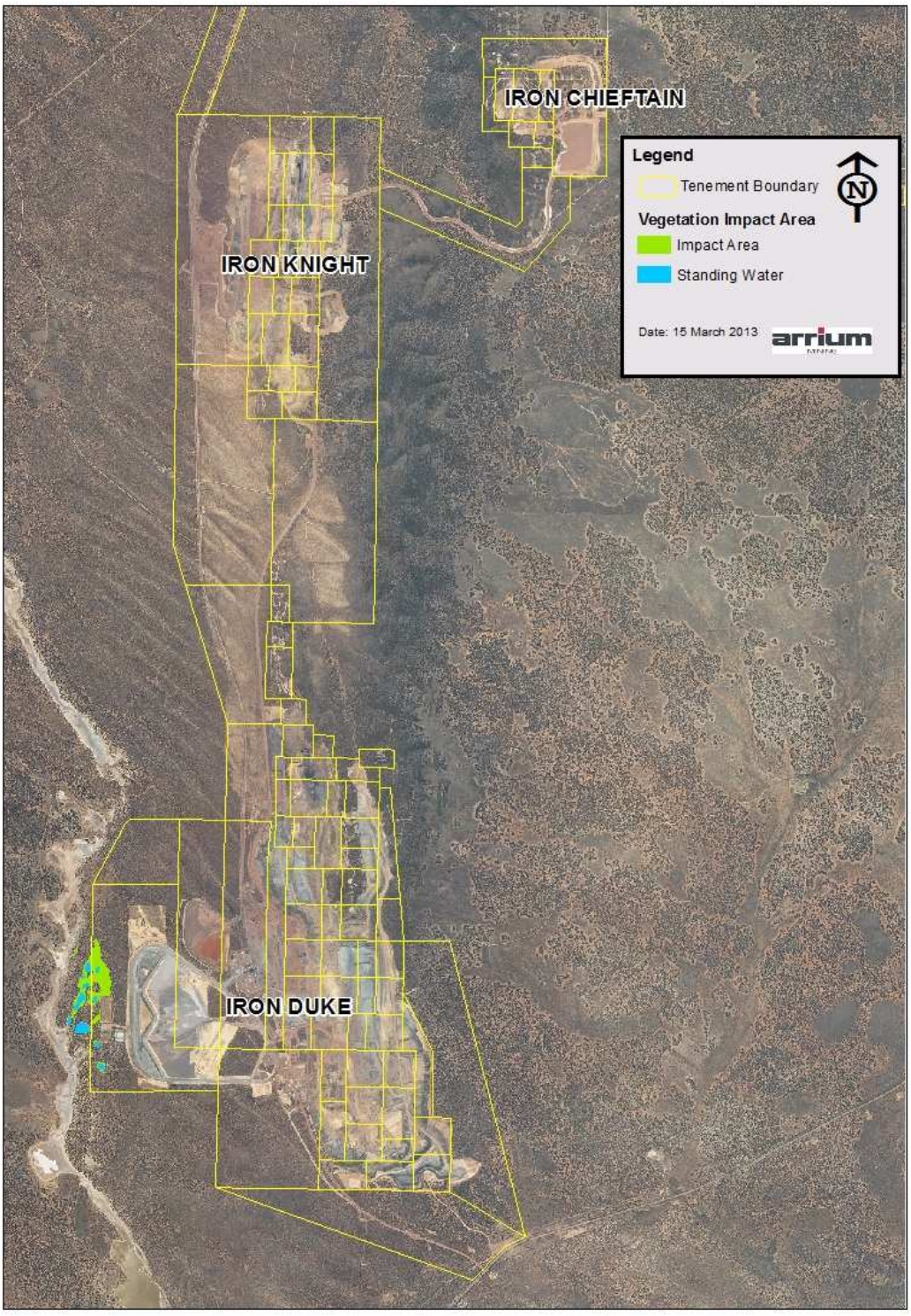


Figure 9: *Location of groundwater mounding at Iron Duke Mine (Arrium 2013, p15)*

Arrium advised that a series of wells was commissioned (four initially, but only three were viable) to draw water out. Based on assessment of this work and development of a hydrogeological model a remediation program was submitted for DMITRE's approval including an additional series of wells redesigned around the tailings storage and a program to recover water from the dam and reuse it throughout the mine site. Members were told the work has been carried over the past three years and the final seven wells plus one caisson (a well with a wider diameter) have been commissioned over the past month. Arrium advised that the results were successful in reducing the mounding problem and reusing the stored water for the slurry pipeline.

Members heard that the groundwater mounding was caused by more water being put into the aquifer than normally would have occurred naturally, causing the water table to rise in the vicinity of the dam. Because the groundwater in this region is naturally saline (similar to seawater) the rising water table affected the root zone of the trees and bushes; almost 30 ha died or were heavily impacted. The source of the water going into the tailings dam is the magnetite concentrator. Arrium advised that the process is not a chemical one but a simple separation process, so the water going into the dam is mostly fresh water (the water was previously used as a transport medium).

The company suggested that the word 'dam' is a slight misnomer in that the wastewater facility was intended not so much to hold water as to allow recovery of water, and evaporate the water out from the remaining ore. Arrium assumed that some seepage would occur; the dam was unlined. However, the density of the tailings was never achieved due to the unexpected mineralogy of the ore being mined and there was an excess of water not anticipated in the original design. The excess water seeped into the ground and caused the mounding.

Committee comment:

If the wastewater recovery facility/dam had been lined (either with heavy plastic or clay) at the outset the problem of groundwater mounding may have been avoided; water may have overflowed more rapidly alerting Arrium much earlier to the need for a re-design.

The Committee heard that the 'fix' for the wastewater facility was not straight forward. Four wells were drilled, three of which were viable. Testing and modelling were undertaken and the final model suggested that if eleven wells were operating at a certain rate it would be possible to reduce the groundwater more than 1.5m below ground level (sufficient to avoid the tree roots and allow the vegetation to regrow). Approximately 450kL of water per day is now being extracted from the wells and this water is being reused. Encouraging results have been found in the monitoring wells which are checked weekly.

Remediation of affected vegetation

Arrium advised that when the groundwater mounding has been reduced to the target level the affected areas will be rehabilitated. Arrium is also reportedly negotiating with the Native Vegetation Council for a Significant Environmental Benefit (SEB) offset for the area (i.e. rehabilitating another area of degraded land in South Australia in lieu of the vegetation destroyed by the mounding). Irrespective of that the company intends to remediate the affected area bearing in mind that some of the affected area is outside of its tenement (in Ironstone Hill CP).

New proposed management of tailings facility

The Committee heard that a flocculent has been trialled at the end of the pipe as it goes into the tailings dam to separate the tailings (solids) from the water. This will allow more water to be recovered by the two existing decant wells. Members were told DMITRE officers would be inspecting the trial the following day. The next stage of the trial is to change the design of the tailings dam such that the decanting is carried out in the middle of the dam instead of one edge. This will be a more efficient process. The tailings will be put into the dam around the edge instead of at one end. In addition two pumps have been put into the central decant where previously gravity feed was used.

Because there will be better separation of water by using the flocculent pumps can be used to positively pull the water out faster and get better inflow into the decants.

Members heard all of this work has been consolidated into a single management plan. Monthly reporting to DMITRE is undertaken against the plan. The water that is decanted from the tailings dam is used or pumped up to a disused mining pits where it is stored for usage in summer i.e. for dust suppression.

Figure 10: *Committee Members view Iron Duke Mine, hosted by Arrium staff*

3 Presentation by adjoining landholders

3.1 Mine approval

Committee Members heard that the Turnbull/Whyte family have owned Moonabie Station since 1908. Originally it was considered a substantial landholding, but properties now need to be larger in size to be viable. The Turnbulls are concerned that due to the ever-expanding mine, which occupies part of their land, Moonabie Station will become financially non-viable. The Iron Duke Mine was opened in 1987 with operations commencing in 1990. According to Mark Turnbull, relations between landholders and the mine were good with BHP, but that was probably a product of the era; in the 1990s agreements were made 'on a handshake'. Mark Turnbull said that after One Steel took over from BHP in 1994 communication has been mainly in writing and has become cautious and legalistic.

One Steel's 'Project Magnet', which saw the current mining expansion at Iron Duke, started in 2004. According to Mark Turnbull, One Steel played 'hardball' with adjoining landowners. The company initially compensated landowners whose properties were impacted by new mining infrastructure such as railway lines and pipelines, but when it came to negotiating compensation for the mine and its associated impacts things became much more difficult.

3.1.1 EIS not required

Members heard that before Project Magnet commenced the Iron Duke Mine was on the 'other side of the hill' and was not bothering the Turnbulls, but with the expansion of the mine and the dumping of rock on the eastern side of the mine impacts from dust started to become apparent (see Figures 21 and 22). Because the mine was not a declared 'major development' under the *Development Act 1993* a formal Environmental Impact Statement was not required and the Planning Department was not required to prepare an Environmental Impact Assessment of the mine proposal. Instead, in accordance with the *Mining Act 1971***,** a development proposal was prepared by One Steel and the relevant government agency responsible for assessing the proposal was PIRSA (now DMITRE).

3.1.2 Options for rock dump canvassed

Six alternative options for the mine expansion and rock dump were canvassed in the development proposal (see Figure 11). The Turnbulls said they preferred Option 3, but based on a 'triple bottom line' analysis the company, they claimed, stated that it had chosen Option 6 and the decision was non-negotiable. This option required the filling of Death Adder Gully, said by landholders to be a major water catchment until destroyed by the mine.

Mr and Mrs Turnbull told the Committee they believed that the further they could be away from the rock dump the better, but the adoption of Option 6 resulted in the rock dump moving closer to their properties. Another adjoining landholder, Bronte Plane, stated that he believed the north-south orientation of the rock dump was causing dust from the mine to funnel onto his property due to its interaction with the prevailing winds.

Members heard that when Mark Turnbull asked the company why it could not go to the other side of the hill and have a lower rock mound Arrium said it could not do that because it is a sand basin and unstable therefore unsafe for its workforce. However, according to Mr Turnbull, the company did in fact dump rock on that very site, stating that the location proposed in Option 6 was too congested with the number of truck movements; dumping had to be split into two locations.

3.1.3 BHP Indenture

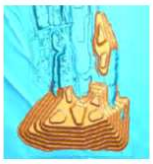
Landholders believe the proposal to fill in the watercourse is in contravention with the BHP Indenture, as provided in the *Whyalla Steel Works Act 1958*. The indenture sets out requirements in Schedule 1, Annexure B, with regard to disposal of mine waste. According to landholders, Arrium has

argued that it does not have to comply with these requirements because it has an agreement with the Native Vegetation Council to offset impacts by undertaking re-vegetation in other locations.

Committee comment:

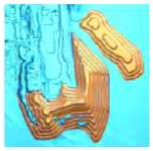
Committee Members noted that the *Whyalla Steel Works Act 1958* provides in Schedule 1 Annexure B, Section 6 'That the lessee will make such provision for the disposal of the silt sludge dirt waste or refuse which may be brought out of the said mines and premises so that the same will not flow or find its way into any stream brook river or water channel or so as to injure or interfere with any land set apart for water supply purposes'.

Option 1 - Constrained to Current Leases



- Security for the landholders, minimal material stored to the east.
- High visual impacts and possible impacts to highway by dust.
- Short & Long term slope stability issues.
- Does not require lease acquisition.

Option 2 - Constrained to Ecologically Preferred Areas



- Impractical landform that may have long term stability issues.
- Operability – both safety and efficiencies.
- Nominated ecologically preferred areas may change due to water flow management.

Option 3 - Extension to the West

- Landholder preferred option, no lease extension required.
- Significant impact on visual amenity.
- Significant economic and socially impacts due to reduced mine life.
- Significant dust impacts to landholders, mine workings and highway.
- Large footprint – and underlying stability issues.

Option 4 - Extension to the North-East

- Significant impacts on ecologically sensitive areas to the north.
- Impacts on haulage costs for LOM due to height profile.
- Operability – both safety and efficiencies.
- Largest lease extension required.

Option 5 - Extension to the East

- Most cost effective for the operation due to height, shape and positioning
- Does not utilise existing tenements
- Impacts to landholders

Option 6 - Extension to the South-East

- Practical and achievable landform
- Impacts landowner
- Utilises full potential of current lease
- Cost effective

Figure 11: *Summary of key impacts of six options presented in One Steel's Southern SMR Waste Dump Study Iron Duke / Magnet Pit Waste Rock Dump Conceptual Design document (Mining Plus Ltd. 2011, p35)*

Recommendation 1:

The Natural Resources Committee recommends that the Minister for Mineral Resources and Energy seek a Crown Law opinion as to whether the Significant Environmental Benefit (SEB) agreement between One Steel / Arrium, DEWNR and the Native Vegetation Council negates the requirement of the company to comply with the *Whyalla Steel Works Act 1958* with regard to filling in a watercourse. The results of this opinion should be provided to the Committee.

3.1.4 NRM Act approval

In addition, Members noted that a Water Affecting Activity Permit under the NRM Act is required to 'obstruct or deposit solid materials in a watercourse[4]. However, it was unclear, given that approval for the waste dump was granted under the Mining Act, whether additional approval was required under the NRM Act for the rock dump. It was also unclear whether Death Adder Gully fits the definition of a watercourse[5] under that Act.

Committee comment:

Members noted that a Water Affecting Activity Permit under the NRM Act is required to 'obstruct or deposit solid materials in a watercourse'. However, it was unclear, given that approval for the waste rock dump was granted under the Mining Act, whether additional approval was required under the NRM Act for the rock dump. It was also unclear whether Death Adder Gully fits the definition of a watercourse under the Act.

Recommendation 2:

The Natural Resources Committee recommends that the Minister for Mineral Resources and Energy seek a Crown Law opinion as to whether the development approval for the Iron Duke Mine expansion under the *Mining Act 1971* negates the requirement for approval under the *Natural Resources Management Act 2004*. The results of this opinion should be provided to the Committee.

3.1.5 Mining Act and Licence Conditions

In addition to the rock dump potentially being at odds with provisions of the *Whyalla Steel Works Act 1958* and the *Natural Resources Management Act 2004*, Kathy Turnbull also was of the view that the Second Schedule of the Licence Conditions for the Mine states that the Licensee must ensure that there are no adverse impacts to adjacent land use (see Appendix 1). Furthermore the Mining Act itself sets out requirements for programs for environmental protection and rehabilitation[6] and the Governor may make regulations to 'restrict or prohibit mining operations that may result in the pollution of any watercourse or water supply or any natural amenities'.[7]

Landholders alleged that Arrium would not accept that any dust travelled any further than the boundary of its lease. The Turnbulls, after receiving a 21 day notice of entry[8] from Arrium to peg out the land required for the rock dump, sought the assistance of Craig James, a plant ecologist, to prepare a preliminary flora survey together with a formal objection to the proposal. The results of the survey,

[4] See: http://www.epnrm.sa.gov.au/WaterResources/WaterAffectingActivities.aspx
[5] The NRM Act states that a watercourse 'means a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows whether permanently or from time to time'.
[6] Specifically Part 10A, sections 70A(1) and 70B(2).
[7] Section 92(l).
[8] The notice specifically related to an application for an additional miscellaneous purposes licence (under the Mining Act) and for an application to include additional purposes to existing miscellaneous purpose licences.

whilst prepared in a hurry, confirmed that dust was impacting on native vegetation within 1km of the mine and rock dump.

The Committee heard that Ken Wetherby, a soil survey and land use specialist who was asked to assist the Turnbulls, confirmed that the land to be impacted by Option 6 (Figure 11) definitely included watercourses as defined by the BHP Indenture Act[9] and should not be filled in. He prepared a report stating this but no further response was provided from Arrium or DMITRE. At that point Mark Turnbull sought the assistance of Hon Robert Brokenshire MLC. Mr Turnbull also met with the Member for Flinders Mr Peter Treloar MP. Mr Brokenshire visited the site including the leaking tailings dam where he reported witnessed water discharging from the ground and forming a sizable stream. After contacting the EPA, Mark Turnbull was reportedly told that the Native Vegetation Council and DMITRE were aware of the problem and action was being taken.

Members heard that Mark Turnbull then contacted Brendan Lay, a land management expert. Mr Lay inspected the area and confirmed that there was a dust problem, noting that sheep would not readily graze vegetation impacted by iron ore dust. Rudimentary dust traps were also observed (and photographed) at this time, many of which had fallen over and were not functioning. Mark Turnbull suggested the installation of the dust traps was a 'knee-jerk reaction' to the visit by Robert Brokenshire.

3.1.6 DMITRE advice re vegetation impacts

The Committee heard that Hon Robert Brokenshire had a meeting with the Minister for Mineral Resources and Energy (Hon Tom Koutsantonis MP) and at the instigation of the Minister, Greg Marshall, Director Mining Regulation DMITRE, visited the property. Landholders claim he confirmed that heavy dust loading on vegetation equates to illegal clearance. However, he was also alleged to have said that when One Steel started up Project Magnet the company acquired an adjoining non-viable farm and removed the livestock in order to promote land remediation. This enabled the company to claim a Significant Environmental Benefit (SEB) to offset loss of native vegetation at Iron Duke Mine site. Landholders did not accept this argument and believe that the legislation has let them down.

Recommendation 1:

The Natural Resources Committee recommends that the Minister for Mineral Resources and Energy seek a Crown Law opinion as to whether the Significant Environmental Benefit (SEB) agreement between One Steel / Arrium, DEWNR and the Native Vegetation Council negates the requirement of the company to comply with the *Whyalla Steel Works Act 1958* with regard to filling in a watercourse. The results of this opinion should be provided to the Committee.

3.1.7 Fires started along mine rail corridor

The Committee heard that until recently grass fires commonly broke out along the railway line connecting the Iron Duke Mine to Whyalla but One Steel (now Arrium) took no responsibility for putting them out. The company simply contacted the CFS which subsequently phoned the Turnbulls and asked for assistance in locating the fires. Since that time one of the Turnbulls' neighbours has been contracted to clear vegetation along the railway line.

3.1.8 Threats to jobs and contracts and access to services

Members heard that many local people rely on Arrium for their employment either directly or through contract agreements. They are therefore reluctant to complain about the company or report any issues. One Steel reportedly said to Mr Turnbull that the company's policy was to employ or engage local landholders to carry out work for it (e.g. fencing, vegetation management etc.) rather than provide compensation. Landholders stated that many of these people have outlaid large amounts of money to

[9] As provided in the *Whyalla Steel Works Act 1958* Schedule 1 Annexure B section 6.

purchase machinery and consequently cannot afford to upset the relationship they have with the company; he said that they were happy for Mr Turnbull to speak up but they do not want to 'upset the applecart'.

3.1.9 Death Adder Creek

The Committee heard that before being filled in by the rock dump Death Adder Gully originally lay between the Iron Duchess/Iron Duke mines and another range to the east (see Figure 12). As water flowed south from the hills it formed an alluvial fan and ephemeral ponds (where the highway now stands). The ephemeral watercourse has been progressively filled in by the rock dump and this process is continuing. The ephemeral lakes now rarely develop.

Figure 12: *An aerial photo showing Death Adder Gully between the two ranges, as it appeared before being impacted by mining (photograph supplied by Kathy Turnbull).*

Figure 13: *Iron Duke Mine as it appears on Google Earth at the present time*

3.1.10 Tailings Dam

Members heard that the poor management of the leaking tailings dam which caused groundwater mounding (see section 2.3.3) is a well understood process and the tailings dam incident is similar to what the Committee would have found on its visit to Koppio where dams in watercourses caused salinisation of the Tod Reservoir catchment. The only difference is that at Koppio the watercourses involved are contemporary watercourses whereas in this case they are much older features known as 'paleo-channels'. They were originally rivers flowing into the gulf but have filled in and contain saline aquifers. Establishing a leaky tailings dam in this location, landholders claimed, puts a head on that water which in turn affects the water in the paleo-channel, pushing up the salt water creating salt lakes. Members were told that it was for this exact reason that Chowilla Dam was rejected; it would have pushed salt into the River Murray.

Figure 14: *Dead trees caused by groundwater mound (photograph supplied by Kathy Turnbull)*

Landholders claimed that unless something is done to address the problem the saline water mound will continue to move down the paleo-channel, eventually flowing into Moonabie Station and beyond. Members also heard that the area where Death Adder Creek 'floods out' is habitat for Maireana suaedifolia (Lax Bluebush) which is a nationally recognised threatened plant. The Committee heard that cutting off the ephemeral water supply will destroy the habitat for this species. This issue was reportedly documented in the environmental impact studies carried out when mining was first proposed.

3.1.11 Offer of land swap rejected

Members heard that Moonabie Station is 55,000 acres but barely sustains an income for a family. About 2,500 acres of the property is covered by the mine or rock dump. Mark Turnbull said that Brendan Lay, the rangeland expert present at the meeting, had advised him that a minimum of 6,000 acres of the property had become unusable for grazing due to mine dust on the sheep wool (see Figure 15) and the vegetation on which the sheep depend (see Figures 21 and 22). He said that about 14% of Moonabie Station has been lost or is in the process of being lost due to the impact of the Iron Duke Mine.

Mr Turnbull told the Committee that Arrium had offered a land swap with part of the property adjoining the mine, but only for the size of the rock dump, which was 177 ha. He said this was

inadequate. Mr Turnbull counter-offered that given the company had already taken up nearly 3,000 acres of his property with the mine and rock dump an acceptable offer would be to transfer a similar area of Uplands Station (purchased by Arrium) as compensation. This would 'square up' a corner of his property. However, this proposal was rejected.

Figure 15: *Evidence of staining of sheep wool by mine dust*

Mark Turnbull opined that the land swap proposal failed due to a change of personnel at a critical point of negotiations. The officer from Arrium who initiated the negotiation left the company and his replacement stated that the proposal for a land swap was now off the table, possibly because a small sliver of 170 ha (less than 500 acres) wouldn't be worth the fencing to do it. Mark Turnbull said that he would not have agreed to that either. However, the larger counter offer (3,000 acres) would have been a sensible solution. Mr Turnbull said the land in question is degraded; One Steel bought it for just under $1,000,000 and it is roughly the same size as the land parcel occupied by the mine (on Mark Turnbull's property, which Arrium leases for a nominal sum). Mr Turnbull argued that if Arrium were forced to purchase the land it occupies at market value the company would owe him a considerable amount.

Committee comment:

Committee Members observed that there were some similarities in the case of the Turnbull family with Chowilla Station; the State Government, in return for taking over the river country held by the pastoralist, provided the owners sufficient compensation to enable them to purchase dryland country in South Australia and Victoria. Members were unsure whether the Turnbull's land occupied by the mine was held by the family freehold or as a Crown lease, or a mixture of both. This could impact on the argument regarding its value.

Recommendation 3:

The Natural Resources Committee recommends that the Minister for Mineral Resources and Energy initiate discussion between Arrium, DMITRE and the Turnbull family about swapping suitable pastoral land held by the company as a way of compensating the family for the impacts of mining caused by rock dump encroachment, the mine expansion and the resultant dust impact on their pastoral business.

3.2 Dust

The Committee heard that Bronte Plane's property is located about ten kilometres from Iron Duke and that he has increasing problems with dust generated by Iron Duke Mine (see Figure 16). The Planes reported that they have complained about the problem but have got nowhere with Arrium or DMITRE. They reportedly live with the dust 'seven days a week' and the impact ranges from 'manageable' to 'horrific' depending on conditions on the day and mine activities.

Members were told that some years ago the Planes planted 15,000 trees on their property to prevent soil erosion and encourage birds and native animals around their home including mallee fowl, marsupial rats and parrots. Members heard that over the last two years and despite improved climatic conditions the birds and animals have disappeared and failed to return allegedly because of dust impacts from the mine.

Figure 16: *Photographs provided by Bronte Plane showing dust caused by Iron Duke Mine*

Nigel Turnbull (the son of Mark and Kathy Turnbull) told the Committee that he and another worker were constructing a 10km fence through thick scrub, approximately half way between Bronte Plane's property and the Iron Duke Mine. He remembered commenting at the time that they did not hear a bird for the six days that they were fencing.

The Committee heard that crops were impacted by the iron ore dust and may be unfit for sale. The Planes have had difficulty in dealing with DMITRE and Arrium to determine exactly what is happening with regard to the dust issue. Negotiations have been taking place over 14 months and they are still 'battling away'. Arrium installed a dust monitor on the property a year ago and soil testing was carried out the day before the Committee visit. Results of the dust monitoring have yet to be reported. The monitor also seems to be faulty; because the monitor is fixed at times it is facing in the wrong direction - the dust swirls around rather than coming directly from the mine.

3.2.1 Rainwater quality and claim relating to corruption and pressuring of individuals and businesses

Members heard that rainwater is collected from the Plane homestead roof into a concrete tank. Since ore processing started in 2004 the water has reportedly become undrinkable. The Planes have installed filters to filter the water. Bronte Plane believes the processing plant to be the main dust source. Arrium has reportedly tested the water and been 'pretty cagey' about giving out the results. Mr Plane suggested the tests weren't comprehensive enough.

Mr Plane stated that he wanted them to test for microbes but the company refused. He took a sample to a laboratory located in a country town in Eyre Peninsula, the name of which he did not wish to reveal for fear of retribution. The laboratory technician after testing the water sample allegedly told Mr Plane that Arrium had put pressure on him to find that the water was safe for drinking. Mr Plane commented that ninety-five per cent of the income of the laboratory comes from the mining industry.

3.2.2 Concentrator accused of being large contributor to the dust problem

Mark Turnbull claimed the concentrator was the main source of the mine dust; he alleged that the extremely fine dust goes straight up and 'mushrooms out'. Mr Turnbull also claimed that Arrium closed down the crusher during the Committee visit to hide this impact.

3.2.3 Sulphur emissions

Bronte Plane claimed that since the mine processing plant started operating sulphur emissions have occurred on six or seven occasions. Mr Plane reported a sulphurous smell at his property for a period of 36 to 40 hours. On four or five occasions it rained at the same time and rainwater collected in his tank caused burning eyes, rashes and nausea. He reported these incidences to the EPA, which he claimed was a waste of time. He also reported the incidences to DMITRE and Arrium, but both of them refuted the possibility of sulphur impacting on his property. The cause of the alleged sulphur emissions is unknown. Bronte Plane suggested the source could be the tailings dam.

3.2.4 Claim that Arrium personnel not senior enough

Bronte Plane said that he has had to deal with the same two people from Arrium ever since he first complained about the dust emitted by the mine. He complained that they did not seem to have sufficient authority to adequately respond to his complaints. He wanted to be able to deal with someone with sufficient authority to get an appropriate response, but it appeared that the approach being taken was to keep denying there was a problem and avoid taking any responsibility.

3.2.5 Impact on wheat crops

High productivity wheat property

Bronte Plane explained to the Committee that his property is highly productive farmland; some of the best land in the Cowell District. During a visit by Peter Treloar in 2012, the two travelled through his property and it was clearly evident that the quality of his wheat crops dropped dramatically the closer they were to the adjoining Iron Duke Mine. When he reaped the crop, the yield went from 7.5 bags per acre to 3 bags per acre. Members were told there is no difference in the rainfall across the property. In 2013 because the prevailing winds have been from a different direction to the normal direction his crops have not been impacted to the same degree, until the past two weeks during which a lot of dust has been blown onto the property.

Peter Treloar, who was present at the meeting with landholders, confirmed that when he visited Bronte Plane's property in 2012 he did notice a differential between the crops in one place as opposed to another. At the time Mr Treloar said that he thought it possible that the dust may be supressing the ability of the plants to photosynthesize.

Soil testing

Bronte Plane told the Committee he had not carried out any soil testing, but was aware that consultants employed by Arrium had taken samples. The consultants were not able to provide details

of why they were there. When Mr Plane asked them the purpose of their visit they reportedly said they had been instructed by Arrium to take the samples in order to be able to provide a 'soil description'.

Difficulty in measuring the impact of dust

Craig James (plant ecologist who assisted the Turnbulls in preparing their submission to DMITRE objecting to the proposed rock dump) informed the Committee that plants have widely different physical characteristics making it very difficult to predict what their reaction to dust. He stated that there are a number of mechanisms at play where dust is concerned, depending on the plant:

- Direct impact on the stomata – the pores of the leaves – through which the plant breathes by diffusing gas. If the plant can't close the stomata because they are clogged with dust when under heat duress they leak water prolifically. The wheat crops suffer water stress and die prematurely;
- Dust alters the way in which light passes into the leaf and out of the leaf so the plant uses excessive energy trying to function. This can lead to increased leaf temperatures. In an environment akin to that of Eyre Peninsula it is expected to be in the order of approximately 2-4 degrees Celsius. This increase in temperature is enough to kill certain species;
- Different plants respond differently in how they trap dust. Some have hairs, some have wax, and some have stomata on the bottom of the leaf and some on the top.

Craig James stated that it is well documented that dust affects vegetation and it should never have been an argument, but because the impact has never been quantified right from the start it has become very difficult to prove. He did not believe that Bronte Plane would lie about what has happened.

3.2.6 Impact on health

Members heard that Bronte Plane contracted chronic sinusitis in 2001 and he suspected dust to have contributed to this. Mr Plane stated that people in Whyalla had similar problems. Bronte Plane's property is located directly in the path of the prevailing winds coming past the Iron Duke Mine. His farm is in a slight gully which appears to funnel dust directly to his homestead.

3.2.7 Failure of dust monitoring traps

The Committee heard that the Turnbulls asked Arrium to install dust traps to monitor the dust. Kathy Turnbull said the company installed the traps in 2013 and the fifth set of monthly tests had just been completed. However, she claimed the design of the traps was inadequate and several were observed to have fallen over (see Figures 17 and 18).

Figure 17: *Fallen dust traps photographed by landholders 17 August 2013*

Figure 18: *Fallen dust traps photographed by landholders 18 September 2013*

Mark Turnbull said that Arrium told him the company Amdel Veritas was responsible for installing and monitoring the dust traps. John Turnbull (son of Mark and Kathy Turnbull) met with the company. Reportedly the representative he spoke to was under the impression the purpose of the dust traps was to monitor dust on Aboriginal land at the behest of Traditional Owners. John Turnbull also noted that the construction of the dust traps was such that when they were being emptied the dust from one of the devices was spilt. Another two of the devices were reportedly lying on the ground (Figure 17) and consequently the company was unable to use them. John Turnbull also claimed that Amdel Veritas said it was being paid to collect the dust and 'cook' it to dehydrate it or carbonise it, but not to test the samples. The samples were reportedly given to Arrium to send away for testing.

Mark Turnbull said he contacted consultants (name not stated) from Cummins who advised that the dust trap designs were not fit for purpose and that they should have been funnel or bottle type devices. The Turnbulls suspected that the Arrium was trying to hide something, because the funnel and bottle type devices are being used at other sites around the mine (see Figure 19). They provided a photograph of a commercially available dust deposition gauge that they claimed complies with the Australian Standard for such devices (Figure 20).

Figure 19: *Bottle type dust trap – landholders stated this type of device should have been used by Arrium on their but was not, despite being used elsewhere around the mine and at Iron Baron mine.*

Figure 20: *A commercially available dust deposition gauge as per Australian Standard, claimed by landholders to be the type of dust monitoring device Arrium should have installed on their properties*

Committee comment:

It appears that dust monitoring of the properties of landholders who have complained about the mine has not been conducted to Australian standards and is arguably inadequate.

Recommendation 4:

The Natural Resources Committee recommends that the Minister for Mineral Resources and Energy strongly encourage Arrium to engage an independent consultant approved by DMITRE to monitor and test the dust from Arrium's Iron Duke Mine on neighbouring properties. All equipment and testing methodologies used should meet Australian Standards.

3.3 Uranium SA and Mullaquana Station

Members heard that Mullaquana Station was established in 1907 and the Jones' have been at Mullaquana Station for nearly eight years. Since their dealings with Uranium SA commenced in 2010 the Jones' have developed a very jaundiced view of the mining industry. They claimed that DMITRE supports the mining industry at the expense of landholders and alleged illegal entry onto their land, irresponsible behaviour of the company and reckless indifference to the conditions of their exploration licence.

3.3.1 Proposed low-level radioactive waste dump

The Committee heard that Uranium SA wants to set up a retention lease just inside the property boundary of the Jones' property, 20 km from Whyalla and 3 km from the ocean. An open pit proposed for the low grade uranium waste will be only 34 metres from the Jones' property boundary. The Committee heard that there were community safety issues that need to be considered. The retention lease states that a closed pit is proposed rather than an open cut mine. It is understood that the proposal started off as an insitu mining process and changed to open cut mining when uranium was discovered in the basement rock.

3.3.2 Claimed illegal entry

Mr and Mrs Jones claimed that Uranium SA entered their property illegally in mid-2007. The company cut the gate off the hinges and failed to provide a notice of entry. The explanation given at the time by Uranium SA was that the staff who made the initial entry thought they were entering a different property. The Jones' stated that the first notice of entry was served on them by the company in November 2008. In mid-2010 Uranium SA was granted a retention lease over their property and offered a lump sum payment if the Jones' would waive their rights in granting access. A second notice of entry was issued in July 2012. Mr and Mrs Jones commenced legal action by lodging an objection with the Warden's Court, as provided under the Mining Act.

3.3.3 Access cut-off

The Committee heard that the access road to Mullaquana Station had traditionally been granted through adjoining Nonowie Station. Uranium SA bought 20,000 acres from Nonowie Station, completely surrounding the Jones' and prevented them from using the traditional access route. The Jones' had to put another track through further down the road.

3.3.4 Impact on property of exploration activities

Members heard that dust raised by Uranium SA vehicles is impacting on sheep farming at Mullaquana Station and the Jones' have had difficulty getting the company to reduce vehicle speeds. The Jones' have documentary evidence prepared by a consultant of financial losses which they attribute to the company. Losses have impacted on the value of their wool (due to vehicles frightening the sheep and causing them to run in to spear grass which gets caught in the wool) as well as impacts on farm dams (the two dams one of which brings water to the house, have reportedly not been shown on the retention lease where the low-level dump is proposed by the company).

Another impact reported by the Jones' was water trucks, of which up to twelve per day travel through their property when drilling takes place. These are large trucks with heavy loads that cause enormous damage to the access tracks and landscape.

3.3.5 Uranium SA non-compliance with work program

Ken Wetherby (soil scientist assisting landholders) told the Committee that when investigating the exploration proposal by Uranium SA he discovered that mud drilling was proposed in the work program. For mud drilling a sump is required. The program stated that when the sump was dug the top soil should be taken off and stockpiled, then the marl (calcrete layer) should be taken off and set aside and stockpiled, then the parent material should be separately stockpiled. Salt water would be collected in the pit as the groundwater used in the drilling process in this area is salty. When drilling is complete, the pit would be allowed to dry out, the subsoil would be put in, next the marl (calcrete layer) material, then the topsoil.

Members heard that when Ken Wetherby investigated what the company did at some of the sump sites along the boundary in the mallee country, he found that some regrowth of vegetation had occurred, but further into the Mullaquana property nothing was growing. Mr Wetherby took some soil samples in a control site away from the sump as well as soil that had been filled back into the sump. He discovered that the marl material had been exposed and no topsoil was present. The vegetation was unable to grow back due to the very high salinity.

Given that some of the sump holes that had not yet been filled in Ken Wetherby surmised that when the contractors returned to fill the holes in there was still salt water in the sumps and it was not possible to follow the procedure in the work program. The result, he claimed, is numerous sump sites that will never be able to be re-vegetated. Mr Wetherby said that DMITRE found more problems after making its own investigations, but no action has been taken apart from a report which is ongoing. His understanding was that there were 133 sites identified and that DMITRE was still assessing the situation.

Ken Wetherby told the Committee that in his opinion the only way to rehabilitate the sites would be to dig them out and find some topsoil from elsewhere to fill them in again.

3.4 Desired outcomes

Committee Members asked the landholders what they were seeking from Arrium and DMITRE. Were they asking for their land to be remediated, for compensation, or for the company to purchase their properties? Given that it was extremely unlikely the mine would be closed, the main issues and outcomes sought by landholders needed to be clearly defined to facilitate negotiated settlements.

3.4.1 Property acquisition at market value

Plane family
Bronte Plane told the Committee he would like the company to 'buy him out so he can go and live his life in peace somewhere else'. He said he has put this to the company on two occasions face to face and has had no response. Arrium reportedly asked him whether he wanted to be bought out. When he responded that he did there was reportedly no follow up.

Turnbull family
The Committee understands that the Turnbull family is not seeking to be bought out by Arrium but wants to be properly compensated for the impacts of mining and to receive a reasonable return for leasing their land to the company. At present the amount of money they receive is miniscule because of the BHP Indenture. The Turnbulls would like to recommence negotiations for a land swap so they can continue farming.

Jones family
The Committee understands that the Jones family is also not seeking to be bought out. They are seeking clarity and certainty and a fair go. The Committee understands that they are taking legal action to stop mining exploration from proceeding on their land and intend to continue farming.

3.4.2 Clarification and reform of legislation regarding notices of entry

Members heard that Uranium SA failed to provide notice of entry when it came onto Max and Pat Jones' property; reportedly cutting the gate and entering illegally. The Jones' argued that the Notice of Entry should afford greater detail to enable landholders to respond appropriately (e.g. contact the independent regulator referred to below)[10].

Landholders reported that the Notice of Entry was an important document that needs to be properly explained especially as companies can make additions to the standard document. If the landholder receives the notice and makes no objection, the company can enter after 21 days. This sets the course of action and has had a lot of ramifications right from the word go. The document, like the PEPR, is understated by DMITRE in its importance. For a landowner to take action against a notice of entry they must lodge an objection with the Warden's Court within three months of the issue of the notice, by which time exploration or mining may have already commenced. Members heard this was not enough time; for a lay person who is not informed about the rules and regulations of the mining sector it is very difficult.

[10] DMITRE has prepared a document *Guidelines: landowner rights and access arrangements in relation to mineral exploration and mining in South Australia.*

Furthermore, mining companies can come to agreements with landowners whereby the requirement for a notice of entry is not required. If such agreements are signed, then landowners are considered to have waived any objection to exploration or mining going ahead.

Committee comment:

Members agreed that there are some issues with the notice of entry process that need to be addressed. Hon Robert Brokenshire commented that the notice of entry waiver needs to be re-considered. Landholders need to understand the importance of the waiver and what happens when they choose to waive the requirement for a notice or entry by signing an agreement prepared by a mining company. In the past, the great majority of mining activity has occurred in remote areas, but in recent times mining activity has commenced in close proximity to farming, particularly on Eyre Peninsula and Yorke Peninsula.

Recommendation 5:

The Natural Resources Committee recommends that the State Government review its procedures for granting mineral exploration and extraction approval on or in close proximity to agricultural land. This review should include consideration of:

- The EIS trigger – whether the requirement for an EIS should be granted for any mining proposal impacting on agricultural land, in much the same way that the EIS requirement is triggered for residential land or for a major project;
- Whether the State Development Plan should provide special protection for high-value agricultural land, protecting it from any mining; and
- Whether the notice of entry should be changed to provide that where a landholder refuses permission for a mining company to enter their property it should be the mining company that is required to undertake legal action rather than the current requirement that the landholder to lodge an objection, and until permission has been granted the mining company has no right to enter the property irrespective of tenure.

3.4.3 Program for Environmental Protection and Rehabilitation

Landholders said they were not aware of the Program for Environmental Protection and Rehabilitation (PEPR) and it took them a long time to work out how this document fits into the regulatory process managed by DMITRE. The landholders said they were told that the PEPR is only made available at the discretion of the mining company. The PEPR details the conduct and requirements of the company's activities on the landholder's land, yet the landholder is not included. Landholders told Committee Members they thought this was a bizarre situation.

The landholders recommended that the PEPR should be made known to the landholder and signed off by them as soon as they are engaged by the company concerned. The property owner should be involved in the construction where possible. This would act like an induction into the PEPR. If that process is undertaken right from the beginning at least the landholder would have a chance to consider the repercussions and impacts of the mining development rather than having it 'hit them in the face'.

3.4.4 Certainty and transparency

Mark Turnbull told the Committee he wanted certainty to enable him to continue farming. He said he initially thought the Mining Act would protect him, but after meeting with Greg Marshall from DMITRE he no longer thought this.

Mark Turnbull said he needs to know whether to stop upgrading and maintaining Moonabie Station and sell out like his neighbours (thereby waste all the efforts he has put into the property e.g. building a new shearing shed, new yards, fencing, upgrading watering facilities etc.), or continue to battle on.

Mr Turnbull said his fear was that the mine would expand and impact more and more on his property. He said he wants to stay on the property but he requires certainty that he is not wasting his time.

3.4.5 Administrative reform

Members heard that landholders accepted that the Iron Duke Mine was there to stay for the next 20-25 years and they understand that Whyalla would not exist without Arrium. Reportedly half the population of Cowell works at the mine, so landholders understand its importance to the local community and economy. However, the landholders would like to see the Mining Act amended. The fundamental problem as they see it is that DMITRE is compromised and conflicted; DMITRE is attempting to serve two masters - it is a government department attempting to promote and regulate mining at the same time.

Independent regulator needed

Ian Sampson, the solicitor acting on behalf of the Turnbull family, suggested that an independent regulator who was not trying to promote mining but to look after the rights of all parties was required. This person could facilitate and review landholder/mining negotiations. To navigate their way through the massive number of rules and regulations involved in administering mining is very difficult and Members heard that NRM Boards could potentially fill this role at the regional level, with a specialist in Adelaide having overall responsibility; rather like an ombudsman.

Recommendation 6:

The Natural Resources Committee recommends that the State Government appoint an independent mining regulator to ensure that all provisions of the Mining Act and related legislation are adhered to. The regulator role should be granted to regional NRM Boards, with a specialist person in Adelaide having overall responsibility, like an ombudsman.

Phoney exploration companies and insider trading stopped

Ian Sampson also suggested that it is common practice for mining exploration companies to talk up the prospects of mineral deposits with no real intention of eventually undertaking mining. The purpose of this is to make money on the stock market. Landholders know the economy is reliant upon mining revenue, but these companies are entering freehold property and exploiting an unfair legal principle. Mr Sampson said he did not believe that the EPA was up to the task of protecting the environment given its poor track record in responding to community complaints about mining.

Lack of baseline data

There was no baseline data or monitoring in place from the beginning of the Iron Duke Mine operation. Reporting and monitoring at the Turnbulls' property had only started six months prior to the Committee visit, but the mine has been operating since 2004; ten years. Landholders want the government to ensure that when exploration and mining leases and licences are granted and work commences, proper research is carried out and monitoring put in place to ensure accurate baseline data is captured and any changes in environmental conditions quantified to ensure that provisions of the PEPR are adhere to.

DMITRE should stop random audits

Landholders suggested that DMITRE should change from undertaking random audits to scheduled audits. If there is conflict over a mine site it shouldn't be left to a random process because DMITRE can claim it is not required to respond within a particular timeframe. There should be scheduled audits on a regular basis so that problems can be dealt with in a timely fashion and both parties to a dispute have time to prepare their cases.

Simple process explanation

The Committee heard that it has been very difficult for landholders to get information from Arrium. They claimed that while they have made slight progress in recent times, every little bit of progress has required dragging the company 'kicking and screaming'.

The landholders suggested that a simple flowchart on the DMITRE website or another government website is needed to explain each step of the process and explain what each of the key documents are and how they work (e.g. notice of entry, PEPR). During its inquiry into Eyre Peninsula Water Supply the Committee was provided a flowchart by DMITRE explaining the process for assessment of mining proposals under the Mining Act (see Appendix 2). A more complex but outdated flowchart[11] is provided on the DMITRE website. However, Members were able to locate a much better document entitled *Landowner Frequently Asked Questions* (DMITRE 2013). A shorter document that also explains landowners' rights is available on the DMITRE website (see Appendix 3).

Committee comment:

The DMITRE document entitled *Landowner Frequently Asked Questions* available on the agency's website is recommended reading for landholders affected by mining exploration and extraction licences. The document can be downloaded from:
https://sarigbasis.pir.sa.gov.au/WebtopEw/ws/samref/sarig1/image/DDD/IS54.pdf

3.4.6 Leasing arrangements and remuneration

The Committee heard that many people assume that where freehold land is involved landholders are paid a reasonable rental by mining companies occupying their land. The Turnbulls stated that 877 hectares of their land are held by Arrium under miscellaneous petroleum leases and mining leases. 417 ha have been taken up since 1988 for which rent is paid. The remaining 460 ha are under the 'BHP Indenture Act'. For that land the Turnbulls get 86 cents per ha per year, $3.80 for others and up to $9.40 for some others. Altogether this equals $1,200 per year for 460 ha. Members heard that if some of the land was not under the Indenture Act the Turnbulls would be paid over $20,000 per year. If this were the case it would make a big difference to how the Turnbulls feel about the mine and its impacts. The Committee heard that the Turnbull family gets more compensation from a mobile phone tower on its property than all the rent it gets from the mine site.

The Committee understands that the effect of the BHP Indenture is that reduced rentals apply to the land in question. The purpose of the indenture is to assist mining and steel production. Landholders therefore do not receive a market rent. In the case of Crown leasehold land, Members understanding is that no rental applies for land affected by the Indenture. However, all of this is based on the assumption that the indenture still applies to Arrium given that BHP has sold its interests to One Steel which in turn has sold its interests to Arrium. Presumably for this to occur the State Government must have made appropriate amendments to the legislation or there must have been a legal agreement to effect the transfer of the indenture rights. Members were told by landholders that they had asked DMITRE to provide such evidence but to date had not received a response.

Recommendation 7:

The Natural Resources Committee recommends that the Minister for Mineral Resources and Energy furnish the Committee with a copy of the deed of assignment that provides for all rights and obligations relating to the 'BHP Indenture' to be transferred from BHP to One Steel and subsequently to Arrium.

[11] See:
http://www.pir.sa.gov.au/minerals/licensing_and_regulation/mining_operations/flowchart_of_mining_proposal_approval_processes

4 Tour of Death Adder Gully and Iron Baron

Following the meeting with landholders Committee Members were taken on a tour of land in the vicinity of Iron Duke and Iron Baron Mines by the Turnbull family. The purpose of this was to show the Committee the extent of damage to the vegetation in locations close to the mines compared to locations further away where dust was less of a problem.

Figure 21: *Bushland affected by mine dust in the lower catchment of Death Adder Cully. Note bare earth between bushes and trees, dying bushes.*

Figure 22: *Nearby healthy bushland apparently less affected by mine dust*

4.1 Iron Duke

Members observed that native vegetation further away from Iron Duke Mine appeared to be less affected by dust than locations close to the mine (e.g. Death Adder Gully). Further away from the mine the ground was not exposed; it had grasses, clovers and other ground covers (see Figure 22). In the vicinity of Death Adder Gully there was no vegetation covering the ground; it was dusty and exposed and individual trees and shrubs were dying (see Figure 21).

According to landholders, a consultant employed by Arrium claimed the de-vegetation was caused by goats. The Turnbulls said that Death Adder Gully has a much higher rainfall than Moonabie Station, yet the density of vegetation at the latter is clearly much greater than at Death Adder Gully. In particular the Senna[12] shrubs have been adversely affected by the nearby rock dump (Figure 21).

4.2 Iron Baron

Following the visit to Death Adder Gully Members were taken to the former Iron Baron Township which was closed in the late 1990s. The Committee observed that Senna has completely disappeared from this location. Landholders said that saltbush generally seems to be able to recover from the dust but the bluebush does not (see Figure 24). In some cases even salt bush species were clearly dying (Figure 27). Larger trees also appeared to be dying (Figures 23, 25 and 26).

Figure 23: *Natural Resources Committee and landholders at Iron Baron. Note the dying pepper tree in the background and dying shrubs in the foreground.*

[12] Believed to be Senna artemisioides: http://en.wikipedia.org/wiki/Senna_artemisioides

Figure 24: *Dying bluebush – according to landholders the most recognised drought proofing plant species of the region.*

Recommendation 8:

The Natural Resources Committee recommends that the Minister for Mineral Resources and Energy instruct DMITRE to work with Arrium to seek ways of reducing the impact of dust from the Iron Baron Mine on surrounding vegetation

Figure 25: *Larger trees e.g. Casuarina also appeared to be dying*

Figure 26: *Dying larger trees. Front left Eucalyptus oleosa and in background Western Myall. Landholders said this occurred after 12 months of dust exposure.*

Figure 27: *Atriplex vesicaria (Bladder Salt Bush) impacted by mine dust*

5 Meeting with Whyalla Council

On Thursday 24 October the Natural Resources Committee met with the Peter Peppin - Chief Executive of the Whyalla Council, Jason Willcox - Executive Manager Planning and Ravi Joshi - Executive Manager Council Operations at the Mayor's Chamber. Following the meeting the Committee accompanied the Council officers on a tour of several projects currently being managed by the City.

Figure 28: *Meeting with Whyalla Council staff*

5.1 Benefits of mining expansion

The Chief Executive explained that during the period 2006 to 2011 the City of Whyalla experienced its first period of population growth since the 1970s, representing an increase of approximately 1.5% per annum. The population is currently around 23,000, although the population was 35,000 in the 1970s. The primary cause of the recent population increase is mining. Mr Peppin described steel-making as a difficult industry to be involved in. This is due to the fluctuating iron ore price and the high value of the Australian dollar. Members were told that the consultant, Deloitte, estimated that the trans-shipment facility completed a few months prior to the Committee visit added an extra $16/tonne to the cost of extracting and exporting the ore. This makes the steel business very marginal, with small drops in the iron ore price adversely affecting profit margins.

Members heard that the iron ore price at the time of their visit was around $133/tonne. Arrium, which operates the Whyalla steel works, has become more of a mining company than a steel manufacturing company. The trans-shipment facility expansion (Figure 29) doubled the capacity of the port from 6 million tonnes per year to 12 million and there is a possibility that the capacity will increase further to 13 million tonnes. Arrium employs in total (including Whyalla and the region) 4,000 people, making it the fourth largest iron ore exporter in Australia after BHP, Rio Tinto and Fortescue. Because of the importance of the company to the city the Council maintains a close relationship with Arrium.

The Committee heard that the mining boom has been very good for the local community. The State Government recently rolled out a $70 million upgrade of the hospital. In late 2012, the Council had a meeting with the financiers of the Westland shopping centre. The financier agreed to support a $40 million expansion of the shopping centre. Also in 2013, 150 new homes were constructed and development approvals were the highest ever. The Council approved its highest ever budget of $41 million in 2013/14 including a $14 million capital works program which was double what it was the previous year.

Figure 29: *Trans-shipment facility, Whyalla*

Members heard that the Council has $220 million worth of fixed assets and a $50 million backlog (infrastructure awaiting renewal). It is in operating surplus and has reasonable debt capacity. This provides for considerable opportunities for the Council to stimulate projects and attract staff, including engineers who are in short supply due to the mining boom.

5.2 Airport expansion

Members heard that State and Commonwealth funding has been provided to expand the Whyalla Airport ($2.7 million upgrade – affectively doubling the capacity of the airport). A tender for the work has been accepted and contract negotiations are underway. Work is scheduled to start in November.

The Council Chief Executive sees the expansion of the airport as a three-stage process, but only the first stage has been funded at this point in time. Mr Peppin stated that in his view the demand for usage of the airport will always determine supply. At the time of the Committee visit growth in air traffic was running at around 6% per annum over the previous three years. During peak periods in the mornings and evenings the departure lounges and car parks can barely cope with the passenger numbers and there are problems with the current ticketing outlets. If the 6% growth continues the airport will have to accommodate 100,000 passengers annually within four years. According to its business consultants the Council should then be in a position to bargain for a second carrier (currently only REX services the airport).

The Committee heard that if a new carrier were attracted to the airport that utilised jets (rather than the current turbo-prop planes) a further expansion of the runway would be required and security screening would need to be installed. The 6% projected growth in air traffic is primarily business related; in particular fly in /fly out (FIFO). However, the increase in passengers declined in the second half of 2012/13, due possibly to public sector cutbacks. The Chief Executive admitted that Whyalla is not a major tourist destination, but the work the Council is nevertheless attempting through projects like the upgrade to its foreshore area to build up its tourism and leisure attractions. Members heard that most of the mining personnel travel by car or bus to the Arrium Middleback Ranges operations. With the Arrium Peculiar Knob (near Coober Pedy) operation about to open up there will be additional people transferring to that location. Arrium has reported that the majority of its workforce lives in Whyalla. Most of the people flying in are contractors or business related passengers.

The Chief Executive stated that airports are not just people movers, but have the potential to become business/export parks. The Council is in discussion with several major companies about establishing branches at Whyalla Airport. Arrium is interested in building a compound for its vehicles at the airport, with a fly in, bus in bus out arrangement. Another developer is interested in establishing a residential compound at the airport. A consultant has recently been engaged to prepare a masterplan for the airport expansion taking all these things into account.

The City of Whyalla owns Whyalla Airport. Whilst the Council is not currently getting a return on its investment it is managing to break even. The Council is putting in place some initiatives through an operating plan review, moving on to the masterplan process. It anticipates it will be able to make between $300,000 and $400,000 per year within three to four years when the expansion is complete. $300,000 in funding for the airport redevelopment was provided under the Regional Development Australia Fund Program managed by the Commonwealth and $600,000 was provided by the State Government through the Enterprise Zone Fund (EZF).

5.3 Council business units

The Committee heard that the Council has five 'business units' most of which are services not normally provided by a local council. These include a childcare centre, airport, landfill depot, visitor centre (including ship tours and steelworks tours) and a cemetery/crematorium. Because these businesses are largely competing against other business they need to be as profitable as possible to get a return on investment. The Council also owns a large recreation centre. Operation of the centre is contracted out to a not for profit operator. The recreation centre is currently undergoing a major improvement costing around $1 million, but it is the only indoor recreation centre in Whyalla. Members heard that the improvements are being implemented in stages and have been modelled on the Adelaide City Council's North Adelaide Swimming Centre.

5.4 Whyalla Foreshore, CBD improvement and related programs

Members heard that because of its focus on industry in the past Whyalla did not address quality of life issues as much as it could have. Mine workers were flying in and flying out without having much to do with the town. The Council is attempting to improve the liveability of the city to encourage people to set up in Whyalla rather than fly in / fly out or drive in / drive out.

Several projects underway have been aimed at doing this, including landscaping and improvements to sports/recreational facilities and the foreshore improvement program. A landscape architect was appointed to prepare a masterplan for the next 5-10 years. The challenge is to 'green' the city given the arid region in which it sits. Different themes of tree planting have been employed in each of the main avenues of the city that link the regional hubs. The plan starts with the key centres of the city including the foreshore, CBD and links to regional hubs (e.g. Westland Shopping Centre). Details of the CBD improvement program can be viewed on the Council's website.

5.4.1 Beach restoration

Works include bringing in beach sand to the foreshore (approx. 36,000 cubic metres moved from an existing sandbar), expanding picnic and barbecue areas and tree planting. Members heard there are big issues with beach erosion at the foreshore due to the removal of the original sand dunes many years ago. In November 2011 there was a king tide and the sea wall collapsed. The sea wall was replaced with a concrete wall but the erosion problem continued because of the loss of the sand dunes. The Council therefore introduced a sand replenishment program. The Coast Protection Board and DEWNR were consulted due to their extensive experience in this area in Metropolitan Adelaide.

After pushing sand back up onto the foreshore the Council has introduced new vegetation along the sea wall to minimise further erosion. It will continue to reintroduce sand along the beach on an annual or biannual basis. Members heard that the Coast Protection Board is very happy with the program to date and provided some funding support. More than $3,000,000 has been spent over the past three

years on the program. *People for Places* funding was the main contributor of funds, provided by the State Government. The Council has applied once again for this funding for 2014 and has been shortlisted, awaiting a final decision. Following the redevelopment of the foreshore there was an immediate improvement of visitor numbers.

Figure 30: *Whyalla foreshore redevelopment, from Hummock Hill*

5.4.2 CBD redevelopment

The Committee heard that the CBD redevelopment will be the next major project following the foreshore redevelopment. The major stakeholder in the CBD is the City Plaza Association. The Council has involved this organisation at each stage of the redevelopment. In addition to tree planting additional car parking is being provided and road safety improvements made using traffic calming devices. Discussions included the possibility of introducing a pedestrian mall, but this option was not popular with stakeholders. A local area traffic management plan is being developed for the CBD.

5.4.3 Marina

Members heard that the Council is planning to prepare a masterplan for the redevelopment of the marina (Figure 31). Specialist advice is being sought on how best to do this. Coastal processes are impacted by the marina and need to be taken into account. The Council owns the land freehold and believes there are some opportunities for a tourist facility to be provided on land adjacent to the marina (Figure 32). A study is currently being prepared.

Figure 31: *Whyalla Marina, just north of the foreshore (see Figure 30)*

Figure 32: *Land adjoining the marina on Hummock Hill that Whyalla Council is hoping to have redeveloped for tourism*

Figure 33: *The reconstructed sea wall which was damaged by a king tide*

5.4.4 Waterproofing Whyalla Project

The Committee heard that the Waterproofing Whyalla Project commenced in 2012. Recycled water is provided to all Council reserves, sporting ovals and road medians sourced from SA Water's wastewater treatment plant with approval from the Department of Health. The work was commissioned at the end of 2012, but there were some technical problems and the project has been re-started in 2013. The ovals have already been irrigated using recycled stormwater since the past three years.

5.4.5 Street tree planting and median improvements

Members heard that tree planting, turf installation and irrigation of medians has recently commenced. Ready-made turf has been laid on some high-profile sections of the medians. Street trees are being planted along all key dual line divided arterial roads covering all major suburbs of the city using different species for different roads (Figure 34). Approximately 195 trees have been planted in just under two months. The target is to plant at least 360 trees by the end of December.

During summer the tree planting program will slow down. The planting program will recommence in winter of 2014 when temperatures are more conducive. The Waterproofing Whyalla Project is a five-year strategy and $800,000 has been spent in 2013.

Figure 34: *Ready-made turf recently laid out in a road median together with tree planting, watered using recycled reticulated water from the SA Water treatment plant.*

Figure 35: *Stormwater capture project*

5.4.6 Stormwater recycling and management

Members were told that Whyalla Council recycles some stormwater captured from road runoff (see Figure 35). Flood modelling is being undertaken to provide sufficient data to enable stormwater management to be undertaken city wide and collect all the stormwater and store it one or two locations. The aim is to collect and recycle all stormwater thereby making Council irrigation of its assets independent of SA Water supply. A wetland has been created, a boardwalk is planned to connect the islands of the wetland, and a major tree planting program is ongoing to encourage local residents to use the area.

5.4.7 Hummock Hill improvements and Arrium funding support

The Committee heard that Arrium provided cash support to the Hummock Hill improvement project (see Figure 36). Lookouts have been developed and a walkway from the top of the hill down to the foreshore is being planned. Natural species are to be planted along the walkway together with a commentary providing information about the plants.

Members heard that Arrium also provides funding support for the remediation of houses in Whyalla affected by red dust. The company invested around $360 million (Project Magnet) in changing its refining process from a dry process to a wet process and the town has benefitted enormously from this with the reduction in red dust emissions.

An environmental consultative group has been operating for some time driven by Arrium and with community and Council representation. According to the Council the group works quite well in providing improved outcomes for Whyalla. The houses in the vicinity of the railway line and in close proximity to the processing plant haven been very much affected by the red dust. Funding has been provided to assist residents in cleaning up their houses, though some residents have chosen not to receive assistance. Arrium is also playing a role in improving the image of Iron Knob. Members heard that Iron Knob is not within a council area and has an interesting history that could be exploited for tourism. It is also a stop-off point for tourists travelling to the Gawler Ranges.

The rail connection from Whyalla to Port Augusta was upgraded to standard gauge in 2012. This was another Project Magnet project, together with the port expansion. Arrium invested between $600 and $700 million in this project. Iron ore is brought south from Peculiar Knob to Whyalla for treatment and export by ship. There is no rail passenger service connecting Whyalla (the Bluebird broad gauge connection ceased in the 1980s when South Australian Railways was taken over by the Commonwealth).

Figure 36: *Hummock Hill improvements funded by Arrium*

Figure 37: *Whyalla steelworks, from Hummock Hill*

5.5 Education

The Committee heard that education, particularly tertiary education, has been a major focus for Whyalla. However, the Council is concerned that the university appears to be essentially servicing the industrial sector and it is no longer possible to complete a business degree at Whyalla. There are some concerns about the teaching course as well; there was positive discussion about teaching being taught at Whyalla in 2012, but only six full time students were enrolled and five of those were mature aged students. The Chief Executive was concerned at the lack of young students at the university; the cohort is predominantly part timers working in the various industries in the region.

Members heard that a teaching program was rolled out at both Whyalla and Mount Gambier in 2013, but they only attracted six students together. The Chief Executive was disappointed at this poor takeup given that on the West Coast around 50 students are undertaking externally-run teaching courses run by Charles Darwin University. The Whyalla University has residential accommodation, so there is no reason why students from the wider region should not be encouraged to enrol.

The Committee heard that the university is an asset to Whyalla in that it broadens the knowledge base of the city. The Council aims to work with the university not just with respect to tertiary education but with primary and secondary education. Literacy and numeracy is not good generally in the region and much work needs to be done to address it. The Chief Executive expressed the view that reduced funding for universities is partly to blame for the problem of reduced attendees on campus and the tendency for more and more students to study online.

5.6 Health

The Council Chief Executive commented that there are a lot of FIFO specialists working at the Whyalla Hospital. If the Council is successful in making Whyalla more liveable including in the areas of education, a self-sustaining community might develop. He stated that Victoria appears to be better than South Australia in its regional service-delivery, but that state has the advantage of a much more even population spread, large regional cities and a much smaller overall area.

Committee comment:

A Committee Member raised the possibility that some good health programs were operating but were not adequately promoted (e.g. mental health delivery). Whyalla Hospital has the capacity to roll out a lot more services than it currently is doing. Health delivery in Whyalla is adversely affected by the headquartering of decision making at Port Augusta. While South Australia has made some effort in attempting to standardise regional boundaries, there appears to have been some resistance at the departmental level to this process.

5.7 Other projects

5.7.1 Green energy demonstration site – 'Muradel'

Members heard that the Council has worked hard to stimulate green energy programs. The company 'Muradel' (Murdock and Adelaide universities) was assisted in finding a site to produce algae to be used to produce biofuel and has already successfully established a pilot operation in Western Australia. The aim is to set up a demonstration site in Whyalla. The Council has given the company land under a leasehold arrangement just north of the Council's industrial estate (created to take advantage of the mining expansion) to enable the company to 'prove up' the pilot operation over the next two years. Muradel has been granted significant funding from the Commonwealth as well as corporate support. The Committee heard that Arrium is considering similar programs in an attempt to reduce its 'carbon footprint'. There could be spinoffs for other green technology projects.

5.7.2 Solar power generation projects

Members heard that two companies are interested in doing their own versions of the 'solar oasis' project[13]. The original 'oasis project', Members heard, was a demonstration project reliant on government funding. These privately funded projects will not utilise dishes that concentrate solar radiation, but PVC panels instead. The aim is to generate electricity on a commercial basis. The Chief Executive said that while the projects are in their early stages they are moving forward quickly and the Council expects to see more projects developed on the same line, providing for Whyalla to become a centre for green energy projects.

[13] See: http://www.solaroasis.net.au/

6 Tour of NRM projects

On the afternoon of Thursday 24th October, following the tour hosted by Whyalla Council, the Natural Resources Committee viewed several projects of the Eyre Peninsula NRM Board, hosted by Cleve based NRM Officer Iggy Honan.

6.1 Invasive weeds

6.1.1 Fountain grass – Tank Hill, Whyalla

Iggy Honan told Committee Members that when he first migrated to Whyalla from Europe thirty years ago the quality of the remnant native vegetation in the Whyalla region was better than it is today. There have been various negative impacts not least of which are invasive weeds. Mr Honan thought it was ironic that when a pest plant risk-assessment was undertaken by Biosecurity SA for Eyre Peninsula in 2008/09 a number of the pest plants that came to the top as being a problem were not declared plants (under the NRM Act). It takes quite a while for the declaration of pest plants to get through the bureaucratic system[14].

Members heard that Fountain Grass is highly invasive even in quite inhospitable areas. By way of example, Iggy Honan explained that at Cleve four plants on the side of the road invaded a creek and spread to the point where 11ha were covered and 3.5km of creek bed infested. At the time farmers on adjoining land were not concerned because the plant did not jump the fence into their cropping land; it was more of an environmental problem than an agricultural problem.

The Committee heard that Fountain Grass burns ferociously when ignited and attempting to kill the plant using herbicide has had mixed success. The NRM Board has prepared a fact sheet[15] for Fountain Grass which includes a photograph of the plant (see Figure 40).

Figure 38: *Fountain grass at Tank Hill recently burnt*

The EP NRM Board investigated treatments and found that if they burnt the plant and let it regrow it used a lot of the plant's reserves and herbicides worked much more effectively on the regrowth; nice

[14] Biosecurity SA has just reviewed its declaration of pest plants – see Committee comment.
[15] See: http://www.epnrm.sa.gov.au/Portals/4/Animals%20and%20plants/Fountain%20grass.pdf

green stems could be targeted rather than old fibrous leaves. At Tank Hill the weed was recently burnt by volunteers as the first stage of an attempt at eradication (see Figure 38).

Members heard there is room for improvement in the management of Tank Hill and its associated weed problems. At present the site has no amenities and no attempt has been made to take advantage of the panoramic views offered. However, the NRM Board has recently got involved and volunteers are undertaking weed management. Permission has also been obtained for a youth group to paint the tank and the Council is beginning to manage other weed problems on the site (a caustic vine that was not identified on the day).

Figure 39: *Tank Hill – permission has been obtained from the Council by a youth group to paint the tank and the Council is managing a caustic vine that has spread on the site. A remnant patch of fountain grass was observed.*

Figure 40: *Fountain grass, as photographed in the EP NRM Board fact sheet*

Figure 41: *Carrion Flower*[16]

[16] See: http://www.google.com.au/imgres?imgurl=http://upload.wikimedia.org/wikipedia/commons/c/cc/Stapelia_pulchellus1.jpg&imgrefurl=http://it.wikipedia.org/wiki/Stapelia&h=194&w=259&sz=1&tbnid=-a787CgVWb116M:&tbnh=160&tbnw=213&zoom=1&usg=__MSC3r2BDTU-NwttmKo1UGWg0RnQ=&docid=xidOn8qMPPp_zM&itg=1&sa=X&ei=YX95UszDKImXige-yYGgAg&ved=0CJkBEPwdMAo

6.1.2 Carrion Flower – Field Street Reserve, Whyalla

The Committee heard that Carrion Flower is native to South Africa and is found in the north east corner of the country in the Gobi Desert. The landscape at that location is very similar to that of northern Eyre Peninsula. Carrion Flower is a garden escapee. Anecdotal evidence, from Ceduna, suggests the plant was used as a pot plant to attract flies away from the house; it has a distinctive smell of rotten flesh. However, the plant is no longer found at Ceduna; it may not have been able to survive the harsh dry climate.

Members heard that the only other place where the plant is known to have escaped is Kalgoorlie in WA and Longreach in Queensland. How the plant became established at Whyalla and Port Augusta (and between) is not known. The plant, which closes at night, has a very pretty flower (see Figure 41) which makes it attractive for enthusiasts to cultivate. Some flowers can grow to a metre in size.

The EP NRM Board was funded in 2006 to survey the region for Carrion Flower and discovered that the plant is quite widespread between Port Augusta and Whyalla (as well as throughout Whyalla itself). The Committee heard that when Carrion Flower gets into pastoral country it tends not to spread as rapidly; the spread is quite localised. The Board initially thought that the plant was being spread by vehicles because it was discovered near tracks. However, it was later realised that the tracks were being filled with rainwater following rainfall events and it was access to moisture that was allowing the weed to establish; it needs an extended period of moisture to get going. The plant is strong but the seed is weak and can die readily if there is insufficient rainfall. Members heard it is not like Buffel grass in that it will not take over large areas as a monoculture in five years. It is more of a 'hundred year' plant.

The Committee heard that the seed tends to get caught up in existing vegetation and generally grows in the shade of another plant (e.g. saltbush and bluebush) (see Figure 42) adversely affecting its health. Once the plant starts growing it produces a pair of seed pods (Figure 43). On a hot day the seed pods crack open and release the seeds. The seeds are fluffy but also quite heavy (comparable to a wild oat seed) but when a cool change comes through they are readily spread by wurley winds and breezes. The plant can also be spread from cuttings.

Carrion Flower is well adapted to desert conditions and dries off during the hot months of the year. As soon as rain occurs it 'bounces back'. The plant stores a lot of its moisture in its stems rather than its roots. This makes it very difficult to kill it with herbicide. Furthermore, the fact that the plant tends to grow underneath other plants makes it difficult to find and treatment with herbicide can easily result in off-target damage (i.e. the bush it is growing under may die from the herbicide as well). Consequently, it has been found that the best way to apply herbicide is to use a brush (specially developed by SABCO at Murray Bridge) and apply it to the leaves. All of the plant has to be covered; if any part is not treated the plant will grow back even more vigorously. The painting is a very laborious task, making eradication very difficult. Spraying is not effective because it is easy to miss parts of the plant and the off-target damage can be significant.

Iggy Honan is of the view that total eradication, or even control, of Carrion Flower is probably not possible, but measures need to be taken to halt the spread; if the plant were to get into the Flinders Ranges it would be a disaster.

Figure 42: *Carrion Flower growing in a Council reserve in Whyalla*

Figure 43: *Carrion Flower seed pods*

Committee Members heard that the Council reserve where the Carrion Flower has been detected exhibits good biodiversity and probably is a good guide to the original vegetation of Whyalla before it was settled (see Figure 44). There probably would have been Myall trees also at the location. It is unlikely the Council would be able to develop the site because there is a senior citizens club next door and local residents would probably object to the loss of open space.

Mr Honan mentioned that the work of South African authorities attempting to eradicate invasive cacti mirrors much of the work being undertaken in South Australia in dealing with similar problems. If there are biological agents that attack Carrion Flower in its native habitat in South Africa they could possibly be used as a control in South Australia, but permission would need to be given to export the agent and import it into Australia.

Figure 44: *Council reserve in Whyalla where Carrion Flower was detected. The reserve nevertheless contains a good diversity of native endemic plants.*

Members heard that Carrion Flower has not been declared a pest plant. This is because currently there is no effective control measure. The Eyre Peninsula NRM Board would like to see the plant declared to stop people purchasing it and transporting it over large distances. Declaration would also potentially attract greater funding for control programs. Whilst Carrion Flower does not form a monoculture in the same sense that Buffel grass does, it is nevertheless very problematic because when it spreads into saltbush and bluebush country it invades every single bush by growing underneath it and negatively impacting on the health of the bush. At present most of the outbreaks of the Carrion Flower are within 10km of the Whyalla.

Committee comment:

Biosecurity SA wrote to the Natural Resources Committee on 22 October 2013 confirming that Carrion Flower had been declared a pest plant in accordance with sections 175, 177 and 182(2) of the *Natural Resources Management Act 2004*. This prohibits the sale, entry to South Australia and movement on roads of the plant. Control is also enforced in the Alinytjara Wilurara, Eyre Peninsula and SA Arid Lands NRM Regions.

A small group of volunteers in Whyalla is active in controlling weeds in the town. This group has been involved in the restoration of Flinders Reserve and now that the dust problem associated with the refinery has been removed the group will start to work on the restoration of vegetation at Hummock Hill. The group is also keeping an eye on Carrion Flower.

6.2 Marine related issues

6.2.1 Dolphin interpretive signage at Whyalla Marina

The Committee heard that dolphins are regularly seen at the Whyalla Marina and sharks have also been observed. After people started feeding the dolphins a few years ago a badly injured young dolphin was found in the marina. The injuries were consistent with propeller damage rather than a shark attack. The Fisheries Department and some people from the Whyalla Rescue Boat Club caught the dolphin and treated its injuries. Because of the feeding the dolphin continued to return. A campaign was initiated to warn people of the dangers of feeding dolphins, tied into the more general warnings about dumping waste including plastic bags that adversely affects marine life.

Members heard that keeping the message alive is a major challenge for the NRM Board. Interpretative signage has been installed at the boat ramp (Figure 45). Since the campaign was initiated and feeding the dolphins stopped they have not returned to the marina as regularly or moved in close proximity to boats.

Figure 45: *Interpretive signage at Whyalla Marina warning of the dangers of feeding dolphins as well as the general problems caused by marine litter*

6.2.2 Point Lowly and Australian giant cuttlefish demise

When meeting with the Whyalla Council earlier in the day the Committee heard that Giant Australian Cuttlefish numbers at Point Lowly are down to only 10% of what they were at the height of the breeding season a few years ago. So far, State Government research (SARDI/EPA) has not been able to establish the reasons for this. Predation by seals is considered to be part of the reason for their decline.

Another view, advised by Committee member Dan van Holst Pellekaan MP, was that the Port Augusta power station had to be shut down during the winter of 2011 and warm water that is normally released at that time of the year did not occur. The cuttlefish may have been attracted to the warmer water in large numbers and returned each year at the same time.

6.2.3 Hummock Hill and the Whyalla Beach sand replenishment program

As previous observed when visiting the Whyalla foreshore with the Council, Members noted that the marina is overlooked by Hummock Hill. They heard that defensive structures dating from World War II have been preserved hill and fenced off to reduce vandalism (Figure 46). Carrion Flower was flourishing on the hill but the NRM Board volunteers have reduced its extent by around 80%. Iggy Honan also mentioned the Whyalla Council revamp of the foreshore area and proposed walking trail from the hill down to the foreshore.

The NRM Board strongly supports the efforts of the Council in redeveloping the foreshore, but Mr Honan agreed with the Council that the project is challenged by the fact that past practices such as the construction of roads, car parks and other artificial structures have impacted on the natural movement of the beach. Considerable funds were spent on the beach renewal project and to the Council's credit, the project was well implemented. The problem is that, like similar programs in other parts of South Australia (e.g. the Adelaide sand replenishment program) the process will need to be continued into perpetuity if a sandy beach is to be maintained.

Figure 46: *Defensive structures from WWII on Hummock Hill. The Council is about to commence a landscaping project including a walking trail and interpretive signage linking the hill to the foreshore.*

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8 Abbreviations

BHP	Broken Hill Proprietary Co. Ltd
CP	Conservation Park
DEWNR	Department for Environment, Water and Natural Resources (formerly DENR and DFW – merged in 2012)
DMITRE	Department for Manufacturing, Innovation, Trade, Resources and Energy, formerly PIRSA
EP	Eyre Peninsula
EPA	Environment Protection Authority
FIFO	Fly in / fly out
ha	hectares
MLC	Member of the Legislative Council
MP	Member of Parliament
NRM	Natural Resources Management
NRM Act	Natural Resources Management Act 2004
NRM Board	Natural Resources Management Board
PEPR	Program for Environmental Protection and Rehabilitation
PIRSA	(Department of) Primary Industries and Regions South Australia (now DMITRE)
REX	Regional Express Airlines
SEB	Significant Environmental Benefit
SMR	South Middleback Ranges

APPENDIX 1: LICENCE CONDITIONS FOR IRON DUKE MINE

Attachment (24) pg 2

Government of South Australia
Primary Industries and Resources SA

Our Ref: T02884
Contact: Tracy Carpentieri
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Minerals and Energy Division
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Tel 08 8463 3103
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8 September 2011

AM, MD, KI, JS and NJ Turnbull
PO BOX 170
CLEVE SA 5640

Dear Mr Sampson

Notification of Grant of Miscellaneous Purposes Licence

In response to your submission of 11 July 2011 please be advised that on 28 July 2011, the Director of Minerals, in accordance with his delegated Ministerial powers and functions approved a proposal to grant a Miscellaneous Purposes Licence to OneSteel Manufacturing Pty Ltd of Level 40, 259 George Street, Sydney NSW 2000.

The licence has been approved over an area of 177.50 hectares for a term of 17 years 314 days. It authorises the operations specified in the First Schedule and is also subject to the *Mining Act 1971* (the Act), the Regulations thereunder and the special conditions set out in the Second Schedule.

The First and Second Schedules of the licence are enclosed for your information. A copy of the licence document may be obtained once available by download free of charge from the PIRSA website at www.pir.sa.gov.au/minerals.

If you have any questions regarding this matter, please contact Tracy Carpentieri, Tenements Officer, on 08 8463 3462 or via email at tracy.carpentieri@sa.gov.au.

Yours sincerely

Junesse Martin
MINING REGISTRAR

Enc

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FIRST SCHEDULE

1. The Miscellaneous Purposes Licence (MPL) is granted for the purpose of a waste rock dump directly related to the mining operation known as (South SMR Mining Area) authorised under mining tenement(s) ML 4772, ML 2715, ML 2653, ML 2682, ML 2718, ML 2729, ML 4716, ML 4724, ML 4739, ML 4741, ML 4746, ML 4774, ML 4735, ML 4770, ML 4723, ML 2704, ML 2707, ML 4719, ML 2656, ML 2658, ML 2663, ML 2677, ML 4727, ML 4734, ML 4738, ML 4747, ML 6167, ML 2720, ML 4715, ML 4717, ML 4721, ML 2659, ML 2683, ML 4722, ML 4736, ML 2706, ML 4728, ML 4744, ML 2651, ML 2654, ML 2701, ML 2710, ML 4729, ML 4771, ML 6055, ML 4733, ML 4740, ML 2717, ML 4720, ML 2668, ML 2652, ML 2669, ML 2709, ML 2711, ML 4730, ML 4761, ML 4775, ML 2730, ML 2712, ML 2650, ML 2714, ML 4726, ML 4732, ML 4745, ML 4773, ML 2708, ML 4725, ML 2649, ML 2657, ML 2648, ML 4743, ML 2705, ML 2660, ML 4737, ML 4742, ML 4714, ML 2662, ML 2716, ML 2719, ML 4718, ML 4731 in accordance with the miscellaneous purposes licence proposal document dated May 2011 (WPC-060 Rev C). 37 MLs

2. In accordance with Regulation 86(1)(a) the Licensee must provide a Compliance report every year, within 2 months after the anniversary of the date the Licence was granted, or at some other time agreed with the Minister.

3. In accordance with Regulation 90(1) the Licensee must, prior to commencing operations under this Licence and for the duration of the Licence maintain public liability insurance to cover all operations under the Licence (including sudden and accidental pollution) in the name of the Licensee for a sum not less than $50 million or such greater sum as specified by the Minister, and make such amendments to the terms and conditions of the insurance as the Minister may require.

4. In requesting a review of the bond required under the *Mining Act 1971* the Minister may request that written quotes from an independent third party approved by the Minister are obtained by the Licensee for the cost of rehabilitating the site to the requirements specified in the approved Program under Regulation 65(2).

5. The Licensee must meet all the charges and costs in obtaining and maintaining the Bond.

SECOND SCHEDULE

Environmental Outcomes

Visual Amenity

1. The Licensee must, in constructing and operating the Licence ensure that the form and contrasting and reflective aspects of waste rock dumps are visually softened to blend in with the surrounding landscape.

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Unauthorised Access

2. The Licensee must, in constructing and operating the Licence ensure that there are no public injuries and or deaths resulting from unauthorised entry to the site that could have been reasonably prevented.

Adjacent land use

3. The Licensee must, in constructing and operating the Licence, ensure that there are no adverse impacts to adjacent land use.

Protection of third party property

4. The Licensee must, in constructing and operating the Licence, ensure that there is no unauthorised damage (including that caused by fire) to adjacent public or private property and infrastructure.

Aboriginal and European Heritage

5. The Licensee must, in constructing and operating the Licence, ensure that there is no disturbance to Aboriginal or European artefacts or sites of significance unless prior approval under the relevant legislation is obtained.

Native Vegetation

6. The Licensee must, in constructing and operating the Licence ensure no loss of abundance or diversity of native vegetation on or off the Licence through:

a. clearance,
b. dust/contaminant deposition,
c. fire, or
d. other damage

unless prior approval under the relevant legislation is obtained.

Weeds and Pests (feral animals)

7. The Licensee must, in constructing and operating the Licence ensure no introduction of new species of weeds, plant pathogens or pests (including feral animals), nor sustained increase in abundance of existing weed or pest species in the Licence area compared to adjoining land.

Weeds are defined in this condition as any invasive plant that threatens native vegetation in the local area or any species recognised as invasive in South Australia.

Soil

8. The Licensee must, in constructing and operating the Licence ensure that the existing soil quality and quantity is maintained.

Stormwater

9. The Licensee must, in constructing and operating the Licence ensure no water contaminated as a result of mining operations leaves the Licence area or results in loss of or contamination of soil on or off the Licence.

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Acid Mine Drainage (AMD)

10. The Licensee must, in constructing and operating the Licence ensure that no contamination of natural water drainage systems, streams and rivers, groundwater, land and soils occurs either on or off site resulting from permanent disposal or temporary storage of mine or waste material.

Mine Closure

11. The Licensee must demonstrate to the satisfaction of the Director of Mines that the following mine closure outcomes (in so far as they may be affected by mining operations) are expected to be achieved and sustained after mine closure:

- Integrate and harmonise final landforms and vegetation with the surrounding landscape.
- The risks to the health and safety of the public and fauna are as low as reasonably practical.
- Where practical, re-establishment of the pre-mining ecosystem and landscape function.
- The site is physically stable.
- No compromise of the quality and quantity of ground and or surface water to existing users and water dependent ecosystems.
- All mine waste materials left onsite are chemically and physically stable.
- No industrial or domestic waste left onsite.

OTHER ENVIRONMENTAL CONDITIONS

Public Complaints

12. The Licensee will be responsible for recording and addressing in manner and form (to the satisfaction of the Director of Mines) any complaints received from the public.

Landholder liaison

13. The Licensee must ensure that the occupier of the land is fully advised of their program of activities, particularly in regard to the impact of operations on the land and rehabilitation progress.

Progressive Rehabilitation

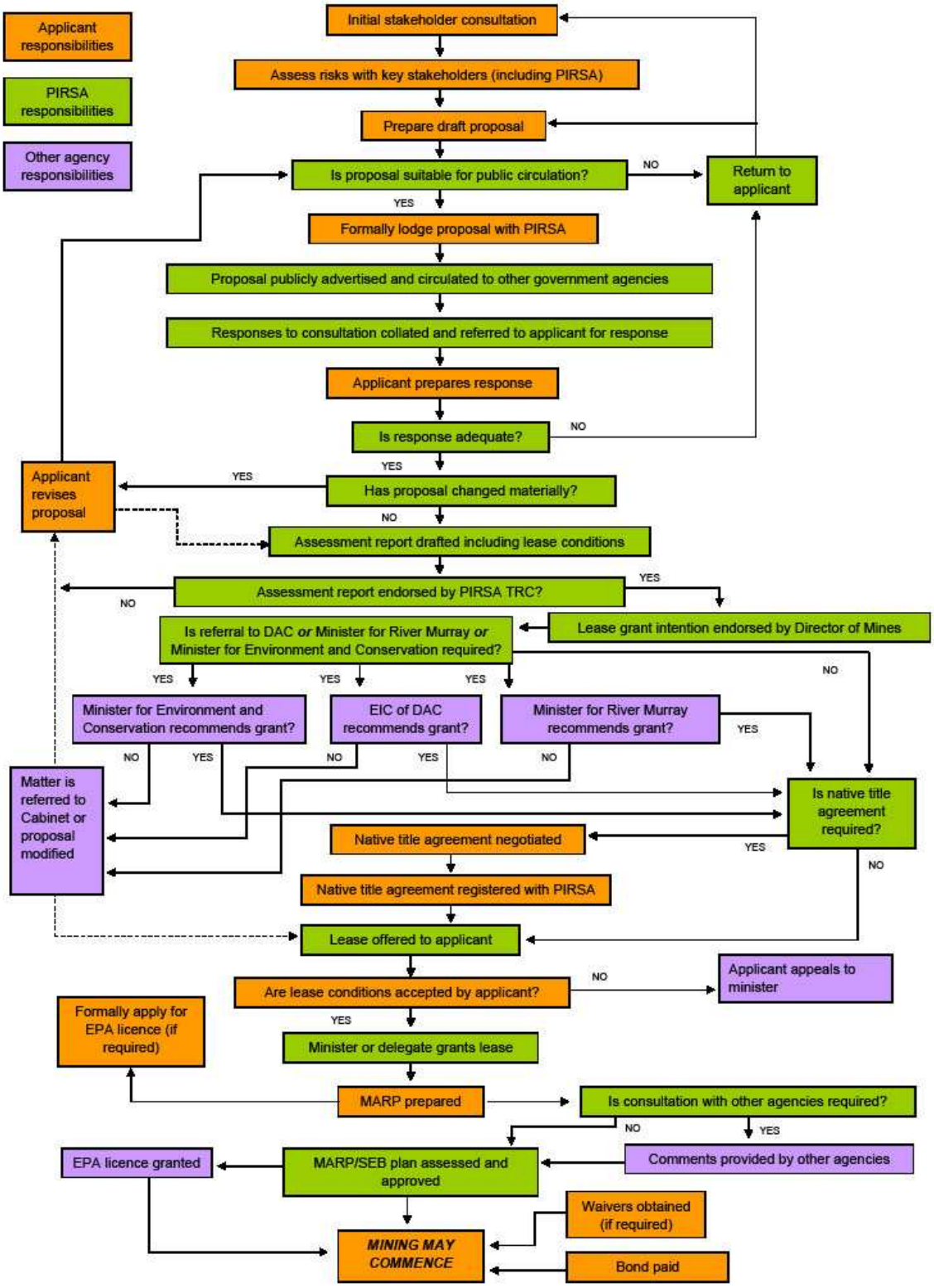
14. The Licensee must undertake rehabilitation of mining operations in accordance with an integrated mining and rehabilitation plan as approved in the PEPR.

Other Legislation

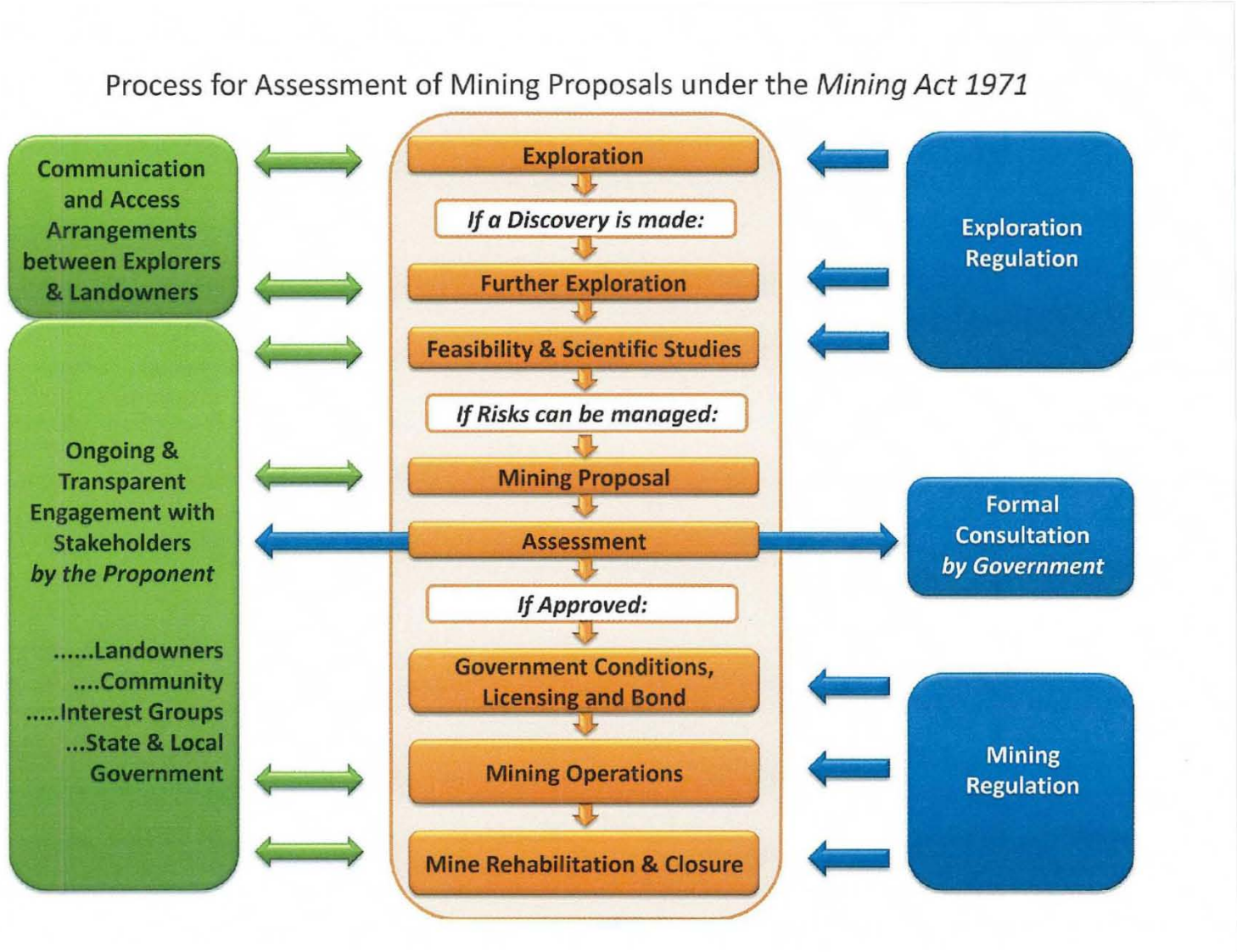
15. The above environmental outcomes do not derogate from the operation of any other Acts that may be applicable to this operation including (but not limited to):

- *Aboriginal Heritage Act 1988*
- *Environment Protection Act 1993*

APPENDIX 2: PROCESS FOR ASSESSMENT OF MINING PROPOSALS UNDER THE MINING ACT 1971



Process as shown in DMITRE website but reportedly under review (see: http://www.pir.sa.gov.au/minerals/licensing_and_regulation/mining_operations/flowchart_of_mining_proposal_approval_processes



Process tabled at NRC meeting 7 June 2013 (Lock 2013, p253).

APPENDIX 3: DMITRE LANDHOLDERS' RIGHTS DOCUMENT

Mineral Exploration in South Australia

You have rights as a landowner – explorers must respect those rights

What you need to know

Mineral exploration, like agriculture, has been an important part of the South Australian economy since the 1830s. Both industries have a history of successful coexistence in South Australia, based on effective regulation, sound environmental practices, and respectful working relationships between explorers and landowners.

Landowners should expect that if a company is considering exploring on their property, the company will communicate with them at the earliest opportunity (via telephone, in person, email). This means well ahead of any intended activities, not the day before an activity is planned.

- To access your land to undertake any form of exploration, an explorer **MUST** either:
  - Issue you with a form called a *'Notice of Entry'*, and then wait 21 days before entering your land; or
  - Negotiate an agreement with you that includes the conditions of entry.
- If the explorer intends to use equipment such as earthmoving and drilling equipment, the explorer must also issue you with a *'Notice of use of Declared Equipment'* form or negotiate an agreement.
- In either case, you should expect that the explorer will provide you with detail about their company, the work they intend to do, the timing and location of that work and any associated impacts.
- As a landowner, you can request additional information from the explorer about their plans.
- Some areas, called 'exempt land' — including cropping land or land close to a residence — are treated differently. Explorers cannot access exempt land unless both parties reach agreement.

DMITRE is always available to provide information and assistance to landowners via our website <www.minerals.dmitre.sa.gov.au> or phone Customer Services on 08 8463 3000

What is exploration?

In SA minerals are not owned by landowners, but are vested in the Crown. Mineral exploration licences are granted to allow the search for mineral deposits. Every new mine has its beginnings as an exploration project; however, most exploration projects do not advance to become mines.

Exploration can take many forms, from a prospector walking through the bush mapping rock types and collecting rock or soil samples by hand, to drilling and complex geoscientific activities.

Government of South Australia

Department for Manufacturing, Innovation, Trade, Resources and Energy

What you should know as a landowner

Best-practice exploration is built on respectful working relationships between explorers and landowners

- Whether negotiated at the first stage of exploration or at some later time if exploration continues on your property, formal agreements between landowners and explorers should include conditions and timing of access (including working around lambing or harvest periods for example), preferred communication methods and appropriate compensation.
- You may be entitled to compensation for exploration that occurs on your property. Compensation should be negotiated in good faith and set at a level that recognises the impact of the exploration activities on the landholder.
- You may also be entitled to compensation for legal costs. Compensation for your legal fees may form part of any agreement you negotiate with the explorer.

As a landowner you have a say in what happens on your land

- As a freehold or perpetual landowner, if you don't object to a '*Notice of Entry*', the explorer can enter your land after 21 days. You have up to 3 months after receiving the '*Notice of Entry*' to formally object to the explorer entering your land.
- As any type of landowner, if you don't object to a '*Notice of use of Declared Equipment*' form, the explorer can use such equipment on your land after 21 days. You have up to 3 months after receiving the '*Notice of use of Declared Equipment*' to formally object to the explorer using declared equipment on your land.
- Ultimately, if you object, or an agreement between you and the explorer cannot be reached:
  - as a freehold or perpetual landowner you have the right to object in court to an explorer accessing your land
  - explorers may also seek permission from the court to access the land.
- In either case, the court will take the concerns of all parties into consideration.

As a landowner you have time to consider any proposal to explore on your land

- You should expect that explorers will continually communicate with you throughout the duration of their work, regardless of whether or not it proceeds to a mining operation.

For further information please refer to the *MG4 Guidelines: landowner rights and access arrangements* <**www.minerals.dmitre.sa.gov.au**>. (Go to Forms and Guidelines, Minerals Regulatory Guidelines)
For advice and hardcopies of the guidelines please contact DMITRE staff on 08 8463 3000.

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