



Australian Government
**Department of Industry,
Innovation and Science**

National Radioactive Waste Management Facility (NRWMF)

Phase 1 Summary Report

April 2016

Preface from The Hon Josh Frydenberg MP

The Government is currently undertaking a process to establish a national radioactive waste management facility.

After receiving 28 voluntary landholder nominations, a shortlist of six sites was identified in November last year. A period of 120 days of extensive consultation followed this announcement, with my Department undertaking more than 180 face-to-face meetings with stakeholders.

This process was very constructive and I'd like to thank the landholders and all the members of the shortlisted communities for their active participation.

It is important to remember that one in two Australians will require potentially lifesaving nuclear medicine during their lives, with the Australian Nuclear Science and Technology Organisation delivering around 10,000 patient doses of such medicine each week. The Government is committed to safely and responsibly managing the by-products from these processes and Australia's important research program by establishing a single, national radioactive waste management facility.

This report provides a consolidated summary of the information used to determine that Barndioota in South Australia should progress to the next phase of this project. While encouraging levels of support were identified across a number of the shortlisted sites, Barndioota has displayed a broad level of community support for moving to the next phase.

The next phase will include further consultation with the local community and detailed design, safety, environmental and technical assessment. To facilitate this, my Department will establish an office in Barndioota.

As part of this next phase, an independent Indigenous heritage assessment will be undertaken in consultation with traditional owners to identify the full extent of heritage cover and ensure it is protected. The Government will also work with local Indigenous stakeholders to explore eco-tourism opportunities in the area.

Throughout this process a number of people have expressed interest in nominating alternative sites which they believe to be technically suitable to host this facility. In accordance with relevant legislation, the Government remains open to considering new expressions of interest for additional facility sites or locations. To facilitate this, I have asked my Department to work with any individuals or organisations who would like to bring forward a nomination, noting that community support is a prerequisite.

Importantly, Barndioota's shortlisting does not represent a final decision to locate the facility, but rather, it presents an opportunity to continue consultation and development with the community to ensure information is provided and any outstanding questions are answered.

Once again, thank you to everyone who nominated their land for this important national project and who actively participated in the consultation process to date.

The Hon Josh Frydenberg MP

Minister for Resources, Energy and Northern Australia

Preface from the Independent Advisory Panel

In February 2015, the former Department of Industry and Science (now the Department of Industry Innovation and Science) established an Independent Advisory Panel (IAP) to provide advice on technical and community engagement considerations associated with the establishment of a National Radioactive Waste Management Facility in Australia.

This includes the development and implementation of a site identification framework that reflects stakeholder and community values.

To date the IAP has met and provided input on the following:

- Development of a multi-criteria site analysis (MCSA) and site selection framework;
- Prioritisation of a broad range of factors (technical, economic, social and environmental) and how these should be weighted and assessed in the framework;
- Preliminary assessment of the nominations and considerations to be taken into account by the Department in its finalisation of the technical assessment;
- Discussion on the feedback from communities during and after the 120 day consultation period; and
- Discussion on ongoing activities of the Department during any Phase 2 activities if site(s) are shortlisted.

The work of the IAP has contributed to the development of the outcomes identified in this report.

We believe the work completed by the Department represents a robust, equitable and defensible process to identify potentially suitable sites and is consistent with the guiding principles set out in the *National Radioactive Waste Management Facility: Site Selection Framework*.

The IAP provides advice to the Department and is not a representative or decision-making body. As such, it is noted that the IAP have not been involved in the decision to shortlist any sites.



Mr David Klingberg AO FTSE DUniSA
Chair, Technical Sub-Group



Adjunct Associate Professor Peta Ashworth
Chair, Socioeconomic Sub-Group

Glossary

Definitions and abbreviations	
ANSTO	Australian Nuclear Science and Technology Organisation
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
DBC	Detailed Business Case
Department	Department of Industry, Innovation and Science
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EPBC	Environmental Protection and Biodiversity Conservation
GA	Geoscience Australia
HIFAR	High Flux Australia Reactor
IAEA	International Atomic Energy Agency
IAP	Independent Advisory Panel
IBC	Initial Business Case
ILW	Intermediate Level Waste
LLW	Low Level Waste
MCSA	Multi-Criteria Site Analysis
NRWM Act	National Radioactive Waste Management Act, 2012
NRWMF	National Radioactive Waste Management Facility

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1 Executive Summary

The Australian Government is committed to identifying a voluntary community to host a national purpose built facility to dispose of Australia's low level radioactive waste and provide an interim store for Australia's intermediate level radioactive waste.

The Government has stated that it will not impose a repository on an unwilling community, noting no individual or group has a right of veto.

The site selection process

Following a public call for nominations, 28 applications were received from interested landowners. These were evaluated using a framework to assess initial technical potential against a range of economic, environmental and other criteria. From this, the top six nominations, which were all deemed technically suitable to host the facility, were chosen to undergo a 120 day consultation process to assess the level of community support for continuing in the site selection process. The locations of the six nominations are illustrated below.



During the 120 day consultation period, the Department undertook the following engagement activities across all sites:

- approximately 180 face to face meetings, visiting each site at least three times;
- 10 town hall meetings with approximately 1,900 overall attendees;
- delivery of around 35,000 information packs to communities; and
- responding to approximately 300 hotline calls from the general public.

The Department received approximately 1,700 individual and group submissions and three petitions.

Key findings

The 120 day community consultation process has allowed communities to develop an awareness of the project and understand the need for a national radioactive waste management facility.

Based on the range of feedback received through the consultation period, a sufficient base of support to consider proceeding to the next phase of the site selection process was evident in four of the five communities.

The nomination at Barndioota in South Australia demonstrated strong overall support (65 per cent of those surveyed) for moving ahead to Phase 2. Residents and businesses around the towns of Hawker and Quorn were particularly supportive.

However, the Barndioota nomination was opposed by Indigenous stakeholders who were concerned at possible impacts on cultural heritage present at the site. There was opposition from a majority of the surrounding landowners, conversely over 90 per cent of local businesses were supportive of moving forward in the process.

Support in the other three communities (Kimba in South Australia, Oman Ama in Queensland and Hale/Alice Springs in the Northern Territory) was more evenly balanced (51, 49 and 47 per cent respectively) which was encouraging, given the relatively short consultation period and the sensitive nature of the issue.

Further engagement on these nominations in the next phase of the process would need to build on this support base for a final siting decision to be made. However, the Department formed the view that many of those opposed to the sites nominated near Kimba, Oman Ama and Hale were entrenched in their views of not moving forward into Phase 2.

It is also evident from the consultations that there were a range of common concerns across all communities. These concerns included the fear that a proposed facility could impact tourism, agricultural reputations and property values.

In responding to these concerns the Department consulted with a range of banking and financial institutions along with key agricultural associations and traders. The Department also highlighted a range of comparable international case studies which suggested that such concerns were very unlikely to be realised. Nonetheless, the Department acknowledges that perceived risks are difficult to address and further work on these issues is required.

Qualification on findings

In taking forward any of these nominations, it is clear that further work and engagement is required to address the concerns raised in each community. In many cases these concerns related to perceptions (such as possible damage to the area's 'clean and green' reputation) rather than substantive physical risks.

In particular, there would need to be a comprehensive independent assessment of Indigenous heritage at the Barndioota site to fully identify the areas of cultural significance and establish whether it is possible to co-locate the facility without impacting identified areas. This could also form the basis for ongoing work to protect and promote traditional heritage and knowledge in the area and build its eco-tourism potential. The Department would work closely with the local Indigenous community to ensure its needs are met through this process.

Further work is also required to demonstrate a risk and safety case for the proposed facility and to explore opportunities to mitigate perceived risks around land values or other issues.

Finally, it should be noted that any decision to take a nomination forward into the next stage does not constitute a decision by the Government to proceed with the nomination beyond that stage. Further community consultation and broad support across the community is a fundamental ongoing requirement consistent with the Government's commitments.

2 Introduction

2.1 The need for a national facility

Australia has been using nuclear technology for over 60 years for a range of crucial applications in research, medicine and industry. As a result of these activities, Australia has generated and now currently stores approximately 4,250 metres cubed (m³) of low level waste (LLW) and 656m³ of intermediate level waste (ILW). Around 65m³ of waste residues from the reprocessing of spent fuel from Australia's nuclear research reactors returned to Australia at the end of 2015, with another shipment from the UK expected by the end of the decade.

In the future, Australia is projected to generate relatively small amounts of low level waste (40m³ per year) and intermediate level waste (5m³ per year). The majority of our future waste (in volume terms) will come from the operation of the OPAL reactor at Lucas Heights although there are other industrial and medical sources. The majority of current and future low level and intermediate waste streams are associated with the production of nuclear medicines and scientific research which directly or indirectly benefits all Australians.

A national facility will provide a long-term centrally managed and secure management solution for 60 years of waste currently stored in over 100 facilities around Australia such as Lucas Heights, the Commonwealth Science and Industrial Research Organisation (CSIRO) legacy waste at Woomera as well as at a large number of civilian/research sites or medical facilities. Few of these facilities have been constructed for long-term storage of waste and none are equipped to deal with permanent disposal.

International best practice, as established by the International Atomic Energy Agency (IAEA), is that the on-site storage period at facilities that are not purpose built for such activities should be kept as short as practicable to ensure the long-term safety of the waste.

A purpose built ILW storage and permanent LLW disposal facility will enable Australia to meet its obligations under the joint convention agreement with the IAEA and ensure the ongoing viability of Australia's nuclear science and medicine sectors.

It is important to note that Australia has no high-level radioactive waste and as a result, the facility will explicitly exclude such use.

2.2 The project

The Australian Government is seeking a community willing to host Australia's national radioactive waste management facility to manage Australia's low and intermediate radioactive waste.

The National Radioactive Waste Management Facility will be an above-ground facility for the disposal of LLW and the possible interim storage of ILW, based on similar facilities around the world. The facility will have a footprint of approximately 40 hectares and will operate for 100 years with a further 300 years of monitoring. Only solid, immobilised, non-corrosive and non-organic materials will be accepted at the facility.

Australia has adopted a voluntary nomination process under the *National Radioactive Waste Management Act, 2012* with the Government seeking broad community consent for participating in the process of site selection. The Government has stated it will not impose the facility on an unwilling community, noting no individual or group has a right of veto.

In Phase 1, the Government sought voluntary nominations from landowners and undertook an initial technical and social assessment for suitability and acceptance, before shortlisting a small number of sites for further consideration for the next phase of the project.

The table below provides further information on the phases of the project.

Phase	Technical	Indicative Timeline	Community Activity
Phase 1	Nominations, site assessment and shortlist identification	2015-16	Seek voluntary nominations, provide communities project information, seek willingness to continue in process.
Phase 2	Site characterisation studies and preferred site identification	2016-17	Establish Regional Consultative Committee with broad based local participation. Establish local engagement officer. The community will provide input into design including infrastructure requirements, risk and safety cases local business and employment opportunities and community benefits measures. The Government will then seek broad community support for hosting facility.
Phase 3	Site selection, facility design and licensing	2017-18	Development of Detailed Business Case with final engineering and other technical design and costings. The Government submits proposals for environmental and radiation regulatory approvals. Establishment of a Facility Management Committee with community representation. Ongoing community engagement on benefits measures and capacity building for businesses and employees.
Phase 4	Construction	2018-20	Construction undertaken consistent with community requirements.
Operation	Operation for 100 years and monitoring for 200–300 years	2020+	Facility Management Committee with community representation to oversee facility. Monitoring of facility published and provided publicly. Facility and employees to be active members of community.

2.2 Purpose of this report

This report presents an aggregated summary of the outcomes of Phase 1. While there was a considerable amount of valuable information gathered during the process, in particular during visits to each community, the Government is bound to maintain the confidentiality of inputs and so the views of individuals or organisations have been omitted. However, these views were provided to the Minister and taken into account.

While the Department does not necessarily agree with all concerns raised, the key issues have been identified in this report as a reflection of stakeholder views throughout the consultation period. The report does not examine the merit of each concern or respond to the validity of the concerns.

2.3 Role of Independent Advisory Panel (IAP)

The Department established an Independent Advisory Panel to provide advice to the Department as it implements the Government's policy to establish a national radioactive waste management facility in accordance with:

- International best practice for long-term radioactive waste management;
- Australia's international legal obligations;
- the *National Radioactive Waste Management Act, 2012* (NRWM Act); and
- Australia's radiation and environmental protection regulatory regimes.

The IAP provides independent technical and project implementation advice on identifying a site and establishing a national facility including developing a site identification methodology that best reflects stakeholder and community values.

This included assisting the Department to develop a site selection framework to assess the suitability of volunteered sites. Sites are assessed against a broad range of factors including technical, economic, social and environmental factors. The IAP has also provided advice on engagement with communities in which shortlisted sites are located.

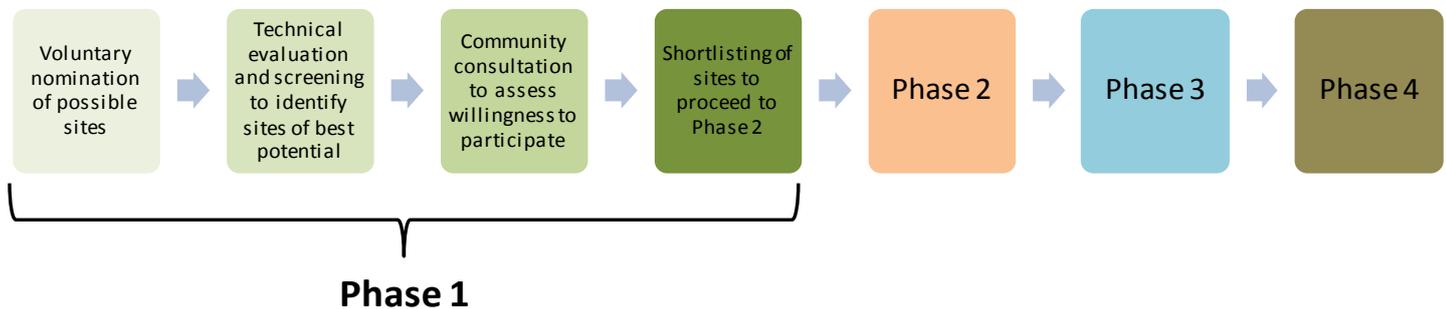
The IAP provides advice to the Department and is not a representative or decision making body.

For further information on the IAP see <http://www.radioactivewaste.gov.au/project/independent-advisory-panel>

3 Site Selection (Phase 1)

Key site selection activities completed during Phase 1 include:

- On 2 March 2015, the Hon Ian Macfarlane MP, former Minister for Industry and Science, announced the opening of a process for voluntary site nominations, in accordance with the *National Radioactive Waste Management Act, 2012* (NRWM Act). The requirements for site nomination included a freehold interest in the land with an area to be greater than 100 hectares.
- The Department (with input from the IAP) developed a Site Selection Framework to select suitable nominated sites, which the Minister may shortlist to proceed to in Phase 2.
- The voluntary nomination process closed on 5 May 2015 with 28 nominations received. Three of these did not meet the nomination criteria, which resulted in 25 compliant nominations.
- After initial analysis and risk assessment using information and data already available to the Government, the Minister for Resources, Energy and Northern Australia, the Hon Josh Frydenberg MP, announced a shortlist of six potential sites to obtain community views on 13 November 2015.
- The Department then completed a 120 day consultation period with communities, which ended on 11 March 2016.



3.1 Site Selection Framework

The process of identifying and selecting potentially suitable sites in Phase 1 of the project is set out in the *Site Selection Framework* (Framework) which was developed in conjunction with the consultancy firm GHD.

This Framework sets out the process that the Department used to assess nominations against technical, economic, social and environmental criteria. This process was based on a multi-criteria site assessment (MCSA) developed by the Department, GHD, Geoscience Australia (GA) and the IAP.

The MCSA involved an evaluation of the voluntary nominations against pre-determined objectives, criteria and weightings. The criteria included Health, Safety and Security; Environmental Protection; Community Wellbeing; Equity; Economic Viability; and, Stable Environment.

All of the criteria except Community Wellbeing were assessed using publicly available data. Community Wellbeing was assessed separately through public consultations supported by a range of independent surveys and a public submission process.

Further detail on the site selection framework and public consultation process is available on the project website www.radioactivewaste.gov.au

3.2 Nomination assessment

The Minister received 28 nominations, of which three were found to be non-compliant.

The MCSA was used to produce an initial ranking of sites from the remaining 25 nominations which was then overlaid with a risk assessment by the Department to provide a final list of six sites with the best technical potential.

As noted above, community acceptance was separately determined through a 120 day consultation process undertaken in the communities around the top six potential sites. The results of the technical and social assessments have been compiled into this final report.

Three sites out of the 28 nominations received withdrew from the process after completion of the assessment.

3.3 Shortlist of sites

As a result of the MCSA process, risk assessment and withdrawals, six sites were shortlisted as shown below.

Rank	Short-listed sites for community consultation	State / Territory	Total Score
1	Oman Ama – Cunningham Highway, Gore	QLD	85%
2	Barndioota – 377 Wallerberdina Road, Barndioota	SA	84%
3	Pinkawillinie – 762 Peella Road, Pinkawillinie	SA	82%
4	Cortlinye – 2051 Buckleboo Hundred Line Road, Cortlinye	SA	82%
5	Hale – Lot 1933 Old South Road, Hale	NT	80%
6	Sallys Flat – 2641 Hill End Road, Hill End	NSW	77%

3.4 Community consultation

The purpose of the consultation process in communities around the six nominated sites was to explain the need for a radioactive waste management facility in Australia and provide information about the proposed facility and the process of site selection. It allowed the Department to capture community concerns and respond with additional information where relevant.

Ultimately the consultation period provided communities the opportunity to express their willingness to further participate in the site selection process.

Having a willing host community not only follows best practice for siting a facility in terms of the siting process for a facility but also reflects the Government's view that, regardless of legislative authority:

'The facility will not be imposed on an unwilling community; however this commitment does not provide an individual or group with an automatic veto over a nominated site.'

The Department implemented a multifaceted approach to collect information on community sentiment, which is measured through feedback from the community in a variety of ways. As defining community sentiment is a complex task, it is important that each facet of the feedback received is considered in light of the context and the locale.

3.5 Consultation process and key activities

The 120 day community consultation period was initiated on 13 November 2015 to inform communities of the project, understand community views and ultimately measure the willingness of communities to progress to the next phase of the project.

A public notice was published in national and relevant regional newspapers, and online, inviting 'comments from nominators, persons with a right or interest in the nominated land and other interested persons' to provide input to the process.

The initial consultation was led by the Department and supported by representatives from ANSTO and GA. The Department also sought to provide stakeholders access to independent experts where requested.

The consultation period encompassed a broad effort by the Department to engage with the relevant communities in a variety of ways including:

- Visits to each site - each site was visited a minimum of three times throughout the consultation process;
- Approximately 180 face to face meetings with key stakeholders including the local community, Indigenous groups, surrounding landowners, council members, and state agencies;
- 10 town hall meetings with approximately 1,900 overall attendees;
- Meetings with a range of other groups including financial and agricultural organisations;
- Delivery of around 35,000 [information packs](#) to the communities. Packs contained a booklet outlining the process the Government was following, and general information about radioactive waste in Australia; and
- Responses to approximately 300 hotline calls from the general public.

The Department received approximately 1,700 submissions and three petitions with over 1,500 signatures. While there were common elements, the community sentiment for the six sites participating in community consultation differed and is discussed on a site by site basis in the following sections.

An independent survey was also carried out at each of the six sites. Further details of these results are provided below.

3.6 Defining 'community'

Fundamental to the consultation process, and determining community sentiment, was defining the community around each site. The Department understood that each site would have a different community because of the size of the surrounding population, the geographic spread and socio-economic interactions between townships. In meeting with each of the communities, the Department explored how the population would like to define the extent of their community.

The process was deliberately structured with stakeholders around each nominated site asked to provide feedback on which definition of community should be used in their area, for the purpose of this process.

There was a consistent view that the community should be limited to those in close proximity to the nominated site, and those that are likely to be directly affected by the proposal. This included nearby townships which would provide an economic or social base for the facility and its workers.

From this engagement, the Department was able to determine a community boundary used to differentiate between 'local community', whose view should be given a higher level of consideration and the broader community (including the national and international community).

A community boundary was defined for each community as follows:

Community	Local Community Definition	Residential Dwellings	Adult Population
Barndioota, SA	50km radius plus remainder of the Local Government Area of the Flinders Ranges Council	727	1,331
Hale, NT	75km radius of the site plus Alice Springs	10,179	19,764
Kimba, SA*	50km radius of both sites plus rest of the Local Government Area of the DC of Kimba	327	883
Oman Ama, QLD	50km radius of the site	1,422	2,845
Sallys Flat, NSW	40km radius of the site plus the two service towns of Bathurst and Mudgee	19,407	35,714
Totals		32,062	60,537

*Note that the close proximity of the Cortlinye and Pinkawillinie sites resulted in one community being defined for both sites.

Within each community, feedback was received from different sources including:

- State and local governments;
- Local community, groups and individuals;
- Traditional Owners and affected Indigenous stakeholders;
- Rest of the state/territory; and
- General public (including national and international bodies).

3.7 Surveys

The final aspect of community consultation was an independent survey conducted by ORIMA Research. This involved undertaking a broad-based survey in each relevant community complemented by targeted surveys of key stakeholder groups (neighbours, Indigenous, and businesses). The surveys measured the range of opinions across each community using best-practice random sampling techniques.

The surveys contained questions relating to how individuals felt they had been informed or received information throughout the process, their awareness of the proposal and issues relating to it, their sentiment and general demographics of the respondents. The research was conducted in accordance with the Australian Market and Social Research Society's Code of Professional Behavior and the Australian Privacy Legislation.

Individuals' survey responses will remain anonymous and be treated as confidential. Aggregated findings from the surveys are provided in this report. The survey was used along with other feedback from key groups in the community and public submissions to provide the Minister with a robust and comprehensive picture of the communities' views.

A copy of the survey questionnaire used by ORIMA across survey groups is available at www.radioactivewaste.gov.au

4 Site Analysis

4.1 Barndioota, South Australia

4.1.1 Summary

The nominated land is large (6,300 hectares) with a number of technical strengths (relatively flat, dry, significant distance from nearest residence but in good proximity to a supporting township) as well as challenges (intersects with identified Indigenous heritage sites and water course, occasional flooding, poor road and other infrastructure) which would need to be addressed.

The Department's engagements across the consultation period suggest that overall there is broad community support, particularly in the townships of Hawker and Quorn, for moving into the next stage of the process. This was reflected in the general community survey which estimated that around 65 per cent of those surveyed did not oppose moving to Phase 2.

However, there is general opposition from nearby landholders who are predominantly concerned about water and agricultural issues (export accreditation, reputation and land/crop prices). There is also opposition from Indigenous groups including the Adnyamathanha people due to the Indigenous heritage in and around the nominated land.

Many of the issues raised can be addressed through rigorous site selection and design processes as well as working with stakeholders to identify additional measures that could provide win-win outcomes. Concerns over possible impact on export accreditation for producers in the region were dispelled through consultation with relevant accrediting agencies which indicated that this was highly unlikely to be a serious issue.

A comprehensive heritage survey will need to be undertaken to understand Indigenous heritage and cultural sensitivity on the nominated land. This should be undertaken in full consultation with traditional custodians and nearby property owners. Overlay of water mapping and known heritage sites suggests good potential remains for a suitable 100 hectare site to be identified (subject to detailed engineering and other studies).

4.1.2 Technical assessment

The Barndioota site at Wallerberdina Station is located close to the foothills of the Flinders Ranges, approximately 30km north-west of Hawker and 130km from Port Augusta. Wallerberdina and the surrounding stations are semi-arid agricultural land primarily used for grazing cattle or sheep.

The site scored well in the initial assessment process and was the second highest scoring site from the six shortlisted sites with an overall score of 84 per cent. The site scored very highly in four of the six criteria (Health, Safety and Security; Environmental Protection; Community Wellbeing; Economic Viability). It scored highly for Stable Environment and moderately for Equity.

The nominated area (around 6,300 hectares) is on relatively flat land which at times receives floodwater through an identified channel from the surrounding ranges. As freehold land, the site is not subject to native title claim although it contains known Indigenous heritage sites with the suggestion by local Indigenous stakeholders of additional heritage being present on the land.

After overlaying known Indigenous heritage and flood mapping, it was considered possible to identify a viable 100 hectare parcel for the facility. However, the general lack of road and other infrastructure means that significant upgrades to the site would be required.

The closest town is Hawker with an approximate population of 200 people. The area's primary economic activities are agriculture (sheep and cattle) and tourism due to its location to the Flinders Ranges. The town would be unlikely to provide all the necessary services required for

construction and operation of the facility due to its size.

The next nearest service town of Quorn (approximately 66km from Hawker) is larger with a population of around 1,000 people. As a larger and more centrally located township, Quorn has a more diversified business base than Hawker and could complement Hawker in meeting the necessary service needs of the facility.

The Flinders Ranges area is more seismically active than other areas of South Australia. However, the largest recorded earthquake (around 5.5) is well below safety and engineering tolerances required for the facility.

4.1.3 General community sentiment

The Department has been actively engaged in the Hawker/Quorn communities throughout the 120 day consultation period, holding face-to-face meetings, a drop-in information centre in both towns in December, and town hall meetings in both towns in February.

From the consultations, it was evident that there is strong support for the project, particularly in the town of Hawker and to a lesser extent Quorn, largely due to the economic stimulus benefits the facility would provide to the town. Businesses contacted (through face to face and survey) were generally also strongly supportive.

Some potential benefits for the community which were suggested included:

- Improved emergency services such as police and medical services;
- Opportunities to develop a regional strategy for tourism; and
- Upgrades to retirement facilities.

Property owners near to the site have stated concerns over possible impacts on water resources (which feed through a spring at Wallerberdina) and possible impacts on the region's tourism and agricultural reputation.

The Adnyamathanha people are opposed to the development of the facility at this location due to their cultural connection to the land and the presence of sites of cultural heritage significance.

4.1.4 Survey results

Barndioota has the strongest general community support of all six sites, with the community sentiment survey indicating 65 per cent of those surveyed were willing to continue to the next phase of the project. Of this proportion, 50 per cent either support or strongly support continuing with the process to the detailed planning stage.

Of the general community, over half of those surveyed did not have any personal concerns they believed would directly affect them if the community hosted a national radioactive waste management facility. A small percentage of the community mentioned impacts on tourism and property prices as personal concerns.

While a high percentage of those surveyed did not think there were personal benefits that would arise from a facility, nearly half of the population surveyed believed that additional jobs and a stimulus to the local economy would benefit the whole community.

There was overwhelming support from the businesses in the local area, with only a small fraction (seven per cent) opposed to moving into the next phase of the project. Fifty percent of businesses surveyed were strongly supportive.

The most significant opposition in the area is from the Indigenous population and farmers near to the nominated property. Almost all Indigenous community members surveyed are strongly opposed to the site continuing. Of the nearby properties surveyed, one-third were willing to proceed to the next phase.

4.1.5 Submission results

There were a total of 36 submissions received regarding the Barndioota site. Of this total, 31 per cent were in support of the proposal.

The formal submission process indicated that impacts to cultural heritage and potential impacts to tourism are the most significant concerns of the local community. This is a reflection of the strong Indigenous heritage in the area, as well as the site being located in close proximity to the Flinders Ranges, which is highly valued by the local community and a significant tourism draw card to the region.

A number of respondents also indicated they were concerned the facility could impact their agricultural, environmental or tourism reputations. Environmental issues were raised by a number of respondents, including issues of water quality and general environmental damage. These concerns relate largely to the potential for flooding and groundwater contamination from the facility and can be addressed in the next phase of the process.

4.1.6 Key findings

- The Department believes that the community consultation process demonstrated unambiguous overall general community support for moving forward in the process. In particular, local businesses were extremely supportive. The community benefit funding that will be available to communities that proceed to Phase 2 would be able to assist the Hawker community with important community projects in the next phase of the project (e.g. aged care and healthcare, regional tourism opportunities)
- The nominated block is relatively remote with nearby residences far away in comparison to other sites, yet is close enough to Hawker to provide for economic and social support. Some services required for the operation and construction of the facility would likely need to come from Quorn or Port Augusta.
- Indigenous opposition is largely focused on the potential impact on cultural heritage on the site although there is also a broader concern related to promoting the health of the land. If this site moved forward into the next phase, the Department would commission an independent heritage survey to identify the full extent of heritage cover and contribute to the development of a Heritage Management Plan. This would be done in cooperation with the local Indigenous stakeholders.
- Many of the farming properties near to the site are concerned about potential impacts on water resources. If this site moved forward to the next phase, the Department would aim to demonstrate through site characterisation studies that the natural resources such as water would remain protected.

4.2 Cortlinye and Pinkawillinie, South Australia

4.2.1 Summary

The Cortlinye and Pinkawillinie sites are both located close to the township of Kimba on the Eyre Peninsula in South Australia, and therefore they have been assessed together with the exception of the technical site assessment process and the survey of surrounding landowners.

Both sites have a number of key strengths: flat, dry land with no native title or other third party interests with good road and other infrastructure. There are few technical challenges on either site other than the potential need for upgrades to the communications network. The township of Kimba would provide a strong social and economic support base for a facility.

Over the period of consultation there has been an observable growth in support for the project moving forward to the next stage. This was evident around the town of Kimba and in areas to the south of the sites where many individuals are keen to capture the potential benefits for the district. However, it was clear that strong opposition is also being maintained, particularly from landowners and residents around the sites who indicated concern at perceived risks to land values and agricultural prices or reputation.

This assessment was supported by survey results which showed an encouraging level of support (around 51 per cent of those surveyed) given the relatively short period of consultation and a relatively low base at the start. Good support was also registered from businesses in and around the Kimba district. There is no ongoing Indigenous presence in the Kimba area so no views were registered from this group.

While it would be feasible to take forward one or both sites to the next stage, the high level of people who hold strong views against the project suggests that it is questionable as to how much additional support could be gained through further engagement. Much of the opposition appears connected to the siting of the facility on active farmland and the perception that this could create a marketing risk for local farmers.

It may be that an alternative site, not on farmland, may attract a broader base of support in the community while addressing the some of the key concerns of those currently opposed.

4.2.2 Technical assessment

Both Cortlinye and Pinkawillinie sites are located in close proximity to Kimba in South Australia, Cortlinye being approximately 20km from the town, and Pinkawillinie approximately 32km from the town.

Both sites scored well at 82 per cent in the MCSA process but with some differences across the criteria. Pinkawillinie scored marginally higher than Cortlinye for Health Safety and Security and Economic Viability, while Cortlinye scored higher for Community Wellbeing.

The Cortlinye site is a 1,300 hectare parcel of land on agricultural land primarily used for dryland grain farming and some sheep farming. There is a slight slope to the north of the site and it has easy access from the main road out of the Kimba Township (Buckleboo Road).

The Pinkawillinie site has a nominated area of 1,917 hectares and is on marginal agricultural land, mainly used for cropping. The site is more isolated than Cortlinye and borders the Pinkawillinie Conservation Park on the western side.

Both sites are located in a low rainfall and geologically stable area with little evidence of intersecting water tables. Neither site is prone to flooding.

The township of Kimba is approximately 120km from Whyalla on the Eyre Peninsula with a population of around 650 people. The primary occupation for residents in the Kimba area is agriculture and many residents live out of town on farms (an additional 550 people within the Kimba District Council area). Many of the local businesses in the town would be capable of providing services for the construction and operation of the facility, including engineering and concreting.

Kimba has been impacted by demographic and economic change in recent years which is partially due to a decrease in population and the consolidation of farms around the town. The Eyre Peninsula remains relatively under serviced in terms of infrastructure (e.g. poor phone coverage).

4.2.3 General community sentiment

Discussions about the project first occurred in the town as early as April 2015 when the Federal Member raised the possibility of a local nomination for the project. This resulted in both

nominations but also the early formation of opposition groups.

The Department has been actively engaged in the Kimba community, meeting with a wide range of stakeholders including surrounding landowners and residents, Kimba District Council, Kimba Community Development Group, agricultural groups, business houses, community groups such as Lions and APEX, and members of the Kimba community. The Department has also had a drop-in information centre available and held a town hall meeting.

This engagement did generate a late shift in momentum for the project particularly around the township and the residents to the south of the sites, although overall sentiment remains finely balanced. Businesses around Kimba were generally very supportive of the project moving to the next stage while surrounding landowners are generally not supportive of the project moving forward.

Some suggested potential benefits for the community identified through the consultation process include:

- opportunities to improve community services (including medical services and telecommunications)
- development of new business opportunities such as a multiuser agricultural storage facility and/or pelletising plant and the employment of a business development officer
- development of conservation parks with a focus on tourism

Feedback also suggested that concerns over health, environment and safety had been largely addressed although concerns relating to potential impacts on land value and marketing of agricultural products remained in those opposed to project.

There has been a mix of views from community groups in the area reflecting the generally split view across the community.

4.2.4 Survey results

The general community sentiment survey indicated just over half (51 per cent) of the population is willing to see the sites continue to the next phase of the project. Of those opposed in the survey, the majority are strongly opposed.

While many did not cite any benefits they would personally receive from the proposed facility, a strong proportion of supporters identified community benefits such as construction jobs and ongoing employment, potential upgrades for local facilities and financial benefits including a boost to the local economy.

Nearly half of those surveyed did not have specific concerns, although around 40 per cent have mentioned that impacts on community cohesion are a significant concern along with a mix of concerns over land values and possible risks to agricultural prices or reputation.

It was apparent from the nearby property survey that Pinkawillinie has a somewhat greater mixture of views with around 40 per cent of those surveyed willing to continue to the next phase. This is compared with Cortlinye where only 17 per cent were willing to moving forward. Both sites had over 50 percent who were strongly opposed.

From the business survey, nearly 60 per cent were willing to proceed into the next phase.

4.2.5 Submission results

The sites received 582 submissions throughout the consultation period, of which 67 per cent were a standardised letter stating opposition to the nominations. Of the total number of submissions, only around 20 per cent were supportive of the proposal.

The diverse views in the submissions largely reflected the views expressed in the community consultation processes.

A petition was received regarding the Cortlinye and Pinkawillinie nominations with 880 signatures opposing the facility.

4.2.6 Key findings

- For both sites, there is an encouraging base of support for moving forward to the next stage (around 51 per cent).
- The Kimba area would be capable of providing a range of services for the construction and operation of the facility, including engineering and concreting.
- The sites have substantial support from local businesses (57 per cent willing to proceed) in the township of Kimba.
- Both the sites are on relatively flat land, with low rainfall and no known geological or water table constraints.
- However, a substantial proportion of the community (42 per cent) is strongly opposed.
- Opposition to the project appears to be concentrated in the farming community around the nominated sites with a formal opposition group targeting concerns around land values and risks to agricultural prices and/or reputation.
- There is good potential for additional measures to improve farm productivity and provide broader community benefit. However given the level of strongly held opposition, it remains an open question as to how much additional support could be garnered through further engagement.

4.3 Oman Ama, Queensland

4.3.1 Summary

The site has a number of technical strengths (moderate rainfall, not prone to flooding, proximity to infrastructure, good proximity to a servicing town) with few evident challenges.

The Department's engagements across the consultation period suggested an even mix of support and opposition to the project. This was reflected in the responses to the general community survey which showed a very encouraging base of support (around 49 per cent) for moving forward.

This site also recorded the strongest support from nearby landowners, many of whom were positive about the potential benefits from the project and the community support package. Local businesses were also very supportive given their potential to benefit from the facility.

Opposition to the project was less geographically focused than at other sites with concerns expressed over possible impacts on property values and health and safety/environmental issues. The site also recorded around 40 per cent of those surveyed indicating they remain strongly opposed to it proceeding.

The Queensland Government also expressed strong opposition to the facility being located in the State.

While many of the issues raised can be addressed through rigorous site selection and design processes as well as working with stakeholders to identify additional measures that could provide win-win outcomes, it remains an open question as to how much further support can be built through additional engagement.

Should the nomination be taken forward, further work would be needed with the community to address perceived risks around property values and environmental risks. However, consultation undertaken by the Department with key financial and agricultural groups in the course of

Phase 1 suggested little basis to believe these concerns were likely to arise in practice.

4.3.2 Technical assessment

The Oman Ama site is located on the Cunningham Highway approximately 30km east of Inglewood, 70km west of Warwick and 100km south of Toowoomba. Oman Ama is a small farming hamlet centered around a siding with a truck stop rather than an identifiable township.

The Oman Ama site scored the highest of the six shortlisted sites in the MCSA process, with a total score of 85 per cent. The nomination scored particularly well for Health, Safety and Security, Environmental Protection, Community Wellbeing and Economic Viability, but less highly for the other criteria.

The site is located on 'traprock' country, meaning the topsoil is shallow and generally low in fertility with a high content of rock. The front half of the site is a gentle slope rising to a hilly back end with a high proportion of unproductive bushland. It is currently used for grazing a small number of cattle. It was previously used to farm sheep, however the feral dog problem endemic to the area has made this a nonviable operation north of the Cunningham Highway.

Inglewood is relatively small with a population of approximately 1,000 people. Local businesses clearly have the capacity to meet a range of construction and operational needs for the facility although some capacity would be provided by larger companies from Brisbane and other centres.

4.3.3 General community sentiment

During the 120 day consultation period the Department actively engaged across the community travelling to the area five times and holding stakeholder meetings with nearby property owners, leaders from the agriculture and business community, professional and social organisations, and the local community of Oman Ama and Inglewood. The Department also met with local Indigenous representatives.

The Department has also held two town hall meetings in Inglewood and presented at town hall meetings in Stanthorpe and Warwick.

Despite initial concerns around the impacts on human health and environment and safety concerns, many of those who engaged in meetings appeared to be increasingly comfortable with the information provided. However, it was noted that a large proportion (estimated around 70 per cent) of the community did not engage throughout the consultation period.

Some suggested potential benefits for the community identified through the consultation process included:

- Pest eradication program
- Funding for community programs
- Upgrades to local infrastructure
- Local jobs (from the construction phase through to the full time running of the site)

During the consultation period, the Queensland Government indicated that it opposed the siting of a radioactive waste facility in Queensland.

The traditional owners of the land around Oman Ama do not have strong ongoing presence in the community with many having relocated to Brisbane or other townships. However, in the discussions held, concerns were raised regarding the possibility of contaminating the local river systems.

4.3.4 Survey results

The general community survey indicated that 49 per cent of those surveyed were willing to proceed to the next phase of the project. However, around 44 per cent of those that are not willing to proceed are strongly opposed to the nomination.

The nomination has strong support for proceeding to the next phase from the business community with close to 70 per cent support.

Construction jobs and ongoing employment were cited as a key benefit for the community, however, a large proportion of the community did not believe there would be particular benefits for themselves from the project.

Health and safety was noted by 17 per cent of the population as the single greatest concern, followed by property prices; although 38 per cent of the community did not have any material concerns.

Over half of the farming community near to the site did not want to see the nomination progress to the next stage of the project.

4.3.5 Submission results

The Department received 145 submissions during the consultation period at Oman Ama, with 90 per cent of these expressing their opposition to the site progressing to the next stage of the process.

Issues raised included concern at the risk of environmental impacts including water quality and general environmental contamination. The history of primary production in the area was closely linked to other common responses, including concerns regarding the potential negative impacts on local produce quality, property prices, livelihood and tourism.

A smaller number of submissions expressed support for the project and noted that the economic benefits that could accrue to the community could address some of the economic challenges faced by the township of Inglewood.

A petition opposing the Oman Ama nomination was also received with 18 signatures.

4.3.6 Key findings

- The community consultation process around Oman Ama demonstrated that an encouraging level of community support was generated over a relatively short consultation period.
- A large percentage of those surveyed who are opposed to moving forward held this view strongly and it is unclear how much additional support for the project could be gained from further engagement.
- However, there is good potential for targeted additional measures to address concerns around land values in nearby properties and to provide broader community benefit for the township of Inglewood.
- There is also a large disengaged segment of the community who opposed the facility via the survey. The provision of further information and ongoing engagement has the potential to address their concerns and generate greater levels of support.
- The township of Inglewood appears to have the capacity to be the servicing town for the operation of the facility and the project appeared to enjoy good levels of support from local businesses and community groups.
- The site has a formal opposition group which represents a mix of civic, farming and

environmental interests. Their key concerns are reputational risk, particularly to land values, impact on lifestyle and water contamination.

- The Queensland Government opposes the siting of a radioactive waste facility in Queensland. The Queensland Nuclear Prohibition Act requires a plebiscite in the event the Commonwealth proposes to build a facility in Queensland. If this site was to progress to the next phase of the project, significant consultation would need to occur with the Queensland Government.

4.4 Hale, Northern Territory

4.4.1 Summary

The nominated site at Hale has some clear technical strengths (remote location, low rainfall, geologically stable) as well as challenges (need for road upgrade and distance from nearest supporting township).

Overall the consultation process suggested that there was both strong support and opposition for the nomination proceeding further. This was reflected in the overall community survey which showed near even levels of support (47 per cent) and opposition (53 per cent).

The consultation process has indicated potential support within the Alice Springs community, but very strong opposition from Indigenous communities neighboring the site.

The site is fairly isolated and would require significant road and other infrastructure investments to be viable. While there are some small Indigenous communities near the site, the nearest town that could provide the necessary business and social support for the facility is Alice Springs.

The Alice Springs Town Council recently reaffirmed a previous resolution made in 2005 to oppose establishment of a radioactive waste management facility in the Northern Territory.

Overall it was felt that while there was a solid base of support for the site proceeding, this was not enough to support a final siting decision and it was unclear from the large proportion of strongly opposed whether it would be possible to secure a significant shift in views during the second phase.

4.4.2 Technical assessment

The Hale site on Aridgold Farm is approximately 120 hectares and is located approximately 80km south of Alice Springs along Maryvale Road (also known as the Old South Road).

The site achieved a score of 80 per cent in the MCSA process and scored very highly across most criteria. It scored slightly less for Economic Viability and moderately for Equity.

The site was used as a railway siding for the Adelaide to Darwin (Ghan) rail line until the route was realigned to the west in 1980. The current owner acquired freehold rights to the site in the early 1980s following the departure of the railway. The site was established as a date and fig farm with the assistance of a Northern Territory Government grant.

The general area around the nominated site consists primarily of pastoral stations used to graze cattle. The closest communities are the Indigenous communities of Oak Valley (12km), Titjikala (30km) and Santa Teresa (40km). The closest major centre is Alice Springs (80km).

Access to the site from Alice Springs involves around 70km of unsealed road that would require significant upgrades if the site was progressed, noting a potential access route to the site could be a road connection east from the Stuart Highway. The site is fairly isolated with the closest servicing town being Alice Springs.

The site itself is fairly flat, with a gentle slope to the south, and is surrounded by hills to the north,

east and west. It is located within the Alice Springs Water Control District boundary however, advice from GA is that the site is not overlying the aquifer.

4.4.3 General community sentiment

The Department made four visits to the Hale region during the consultation process, meeting with stakeholders including properties around the site, the MacDonnell Regional Council, the Alice Springs Town Council, Central Land Council and a range of community groups and individual community members. Community meetings were also held in Santa Teresa, Titjikala, Oak Valley and Alice Springs.

From the consultations, it is evident that support and opposition is fairly evenly balanced across the community. The meetings held with Indigenous communities around the site were well attended but with strong opposition to the proposal. The main issues raised by these communities centred on cultural grounds, environmental risks and health and safety.

The local Councils have remained neutral or opposed to the nomination. MacDonnell Regional Council chose to not hold a position on the matter, and Alice Springs Town Council has reaffirmed a 2005 resolution to oppose the establishment of a radioactive waste management facility in the Northern Territory.

Some suggested potential benefits for the community identified through the consultation process included:

- Provide funding to support the maintenance of campgrounds to support ongoing regional tourism activities
- Improve water infrastructure to support community wellbeing
- Upgrade of Old South Road to improve access for pastoralists and tourism operators in the area

4.4.4 Survey results

There was a fairly even split of views from the broader community survey, with around 47 per cent of those surveyed willing to move forward into the next phase of the project.

Despite a large proportion of the community unable to see any personal benefits from the project, around one-third believed that economic stimulus and additional jobs would be beneficial for the whole community. Around 60 per cent of businesses surveyed were willing to progress to the next stage.

Nearly half of those surveyed did not have any personal concerns with the proposal, while the next largest personal concerns for the community were health and safety risks and water quality.

All the properties near to the site that participated in the survey are opposed to the site continuing into the next phase of the project. The site has low support from the Indigenous community, with just over one-quarter of local Indigenous people supporting the community moving to the next phase of the project.

4.4.5 Submission results

The majority of the 140 submissions received through the consultation period were in opposition to the site continuing to the next phase of the project.

The sentiment that the facility was incompatible with Indigenous cultural values was the most significant issue raised through the formal submissions process. The facility was perceived to cause damage to 'Country' - the Indigenous people's intrinsic connection to the land and their strong beliefs relating to their role as custodians of the land.

A petition was received regarding the Hale nomination with 605 signatures opposing the facility.

4.4.6 Key findings

- The site has positive technical characteristics such as very low rainfall and highly stable geology.
- Nearly half of the general community who were surveyed are willing to move forward into the next phase of the project.
- Around 40 per cent of those surveyed are strongly opposed to the project moving forward.
- There is strong Indigenous opposition in the area and strong neighbour opposition.
- The Alice Springs Town Council is opposed to the project.
- There would be significant infrastructure upgrades required for this site, including upgrading around 70km of access roads from Alice Springs. However, upgrading this road could provide an economic benefit to pastoralists and tourism operators in the area.
- Alice Springs would be capable of providing many of the required services for the operation and construction of a facility.

4.5 Sallys Flat, New South Wales

4.5.1 Summary

The Sallys Flat site has a number of technical strengths (geologically stable, relatively low rainfall and flood risk) as well as challenges (sloping block, winding roads with poor quality bridges) which would need to be addressed.

Overall, the Department's engagements across the consultation period suggested that while there are strong pockets of support for the project, there was overall less support for continuing in the process than at other communities which was reflected in the relatively low level of positive response in the general community survey. In particular, the Department registered strong opposition from local farmers, the local Hill End township, both Bathurst Regional and Mid-Western Regional councils, and some community groups.

These groups expressed a range of concerns around possible impacts on agricultural and tourism as well as transport and water issues.

While many of these concerns can be addressed through site design and other measures, the Department does not believe that sufficient support exists now for continuing this site in the process and with little further prospect of securing a significant shift in views during the next phase.

4.5.2 Technical assessment

The nominated site is approximately 10km away from the former gold mining and heritage town of Hill End in New South Wales.

The site has a total overall score of 77 per cent from the initial assessment. The site scored very highly for Health, Safety and Security, Community Wellbeing, and Economic Wellbeing. The site is in a relatively low rainfall, is not prone to flooding and the area is geologically stable. The site is close to Lucas Heights.

The nominated area is around 1,400 hectares set within hilly terrain with a number of access roads and bridges that would likely require upgrades. Surrounding farms largely run sheep and goats with a number of farms focusing on fine wool production.

Hill End (population approximately 200) is 75km (by road) north west of Bathurst and 75km south of Mudgee in the Central West region of New South Wales. The town is classified as a

historical site and local buildings are managed by the National Parks and Wildlife Service (NPWS). The primary focus of the town is on tourism due to the gold mining history.

4.5.3 General community sentiment

During the consultation process the Department engaged with farmers around the proposed site, residents of Hill End, local councils, Aboriginal Land Councils, community groups, and the No Central West Nuclear Waste Dump committee, an action group against the proposed nomination.

From the consultations, it was evident from an early stage that many in the immediate community are opposed to the site moving forward in the process. However, the Department did receive a number of very supportive communications from several nearby residents/farmers and in the broader community.

Some suggested potential benefits for the community identified through the consultation process included:

- Upgrades/preservation of local buildings
- Road and bridge upgrades around Hill End
- Wild animal and weed eradication programs which could add value to the local farming community

There was significantly less contact from residents in Bathurst and Mudgee who seemed generally disengaged in the consultation process.

4.5.4 Survey results

The Sallys Flat site had the least amount of support from the survey, with only 34 per cent of the general community surveyed willing to continue to the next phase of the project. Over half of the general population surveyed is strongly opposed to the nomination.

While nearly half of those surveyed do not have any personal concerns with the proposal, the majority do not believe there are any personal or community benefits although one-quarter of respondents did indicate they believed that additional ongoing jobs could benefit the community.

Almost all of the properties near the site who responded to the survey were opposed to moving to the next phase of the project. Of local businesses surveyed, 45 percent were willing to continue to the next phase of the project.

4.5.5 Submission results

A total of 503 submissions were received regarding the Sallys Flat nomination, of which over 70 per cent were a standardised letter stating opposition to the nomination. The majority of the total submissions (97 per cent) were in opposition to the site progressing to the next stage of the process.

Through the formal submissions received, the most significant issues raised included the perceived negative impact on tourism and the agricultural industry, which was seen as integral to the community. Key issues regarding transport were also raised, including the safety of transport routes, and concerns with the use of road transport for radioactive waste in particular through local hills.

4.5.6 Key findings

- The site is relatively close to Lucas Heights and two major towns (Bathurst and Mudgee) which could service the operation and construction needs of the facility.
- The opposition to the site from all sectors of the community surveyed was greater than 50 percent. This opposition may shift slightly over time, however, it is unlikely that it would shift

enough to demonstrate a willing community.

- The proposal has also been officially opposed by the relevant local council (Bathurst Regional Council) and other councils such as Mid-Western Regional Council and Lithgow City Council.