

Friends of Mound Springs

ISSUE 7 JULY 2008

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DATES OF INTEREST:

- **Brushmen of the Bush exhibition, Winton QLD 14 July –5 September 2008**
- **SAAL NRM Board meeting SA 6-7 August 2008**
- **Henley on Todd Regatta, Alice Springs NT 30 August 2008**
- **Birdsville Races QLD 5-6 September 2008**
- **Australian Rangelands Society Conference, Charters Towers QLD 28 September –2 October 2008**
- **GABCC meeting, Adelaide SA 13 October 2008**
- **National Water Week 19-25 October 2008**
- **Royal Geographical Society Lecture "Afghan Camel Men in Australia" Adelaide, SA 30 October 2008**
- **Next FOMS Meeting and AGM, Adelaide SA to be advised**

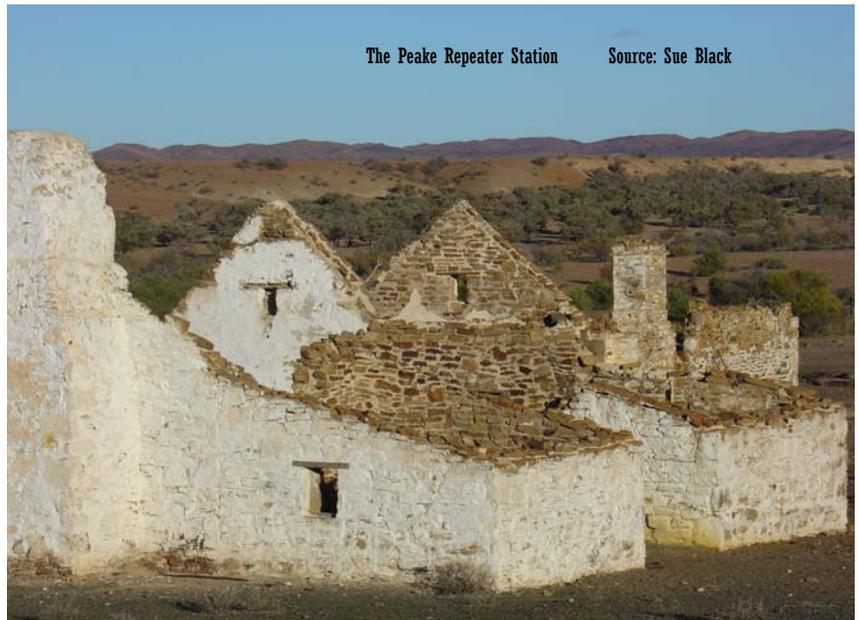
President's Message

Since our previous Newsletter was issued FOMS has undertaken its annual trip north to the mound springs country (21-28 June 2008). Simon Lewis has reported on the trip elsewhere in this Newsletter and there is no doubt that it was a most successful venture: perfect weather, agreeable company and all the work done within the time available.

The on-ground conservation work carried out at the old Peake Overland Telegraph (OT) Repeater Station, in particular, demonstrated the useful outcomes that can result from FOMS forging partnerships with other interested parties. In this case, FOMS worked with two State Government agencies – the Heritage Branch of the Department for Environment and Heritage and the Pastoral Programme of the Department of Water, Land and Biodiversity Conservation (DWLBC) – and the pastoral lessees, S Kidman & Co. The wording for the signage that FOMS erected at the end of the Public Access Route to the Peake was drafted by FOMS in consultation with the government agencies and the cost of the sign was met by the Pastoral Programme of DWLBC, the latter having responsibility for the establishment and management of Public Access Routes within the pastoral areas of the State. Jim Lomas, Kidman & Co's Manager of the Peake Station, provided the sleepers that were subsequently sawn to size and erected as bollards around the car parking area, as well as other useful logistical support.

Kidman & Co will provide further support shortly, Jim Lomas having undertaken to sink mechanically the postholes needed for the installation of 12 building identifier signs at the Peake. The signs, which are of the same size and design as those installed at Strangways Springs OT Repeater Station last year, are – again – the result of collaboration. FOMS proposed the signs after its visit to the Peake last year, carried out the research for them and the Heritage Branch funded them. A small number of FOMS members will return to the site in mid August and work with Jim Lomas to install them. FOMS is also discussing with Kidman & Co and the relevant government agencies the need for wider visitor management measures at the Peake. FOMS is most grateful for the ready support that has been provided by its partners in this work, believing that it provides something of a model for how these things can be done: whilst FOMS has little capital to inject into on-ground works it can act as a catalyst for action and provide, through its membership, expertise in a number of fields and a pool of voluntary labour.

On the broader front, FOMS has recently received very good publicity through a four page full colour article which has appeared in the Winter 2008 issue of the national magazine *Wildlife Australia* (v. 45 [2] pp 20-23). Written by our Vice President Travis Gotch and myself, the article provides an introduction to the springs and utilizes a number of photos taken in the course of FOMS 2007 visit to the region. FOMS is given appropriate recognition at the close of the article and we are expecting some interstate interest to result from its publication. Membership continues to grow, with our two most recent members – Lois Litchfield and Anne Callis from Quorn – being present on our recent field trip and participating most enthusiastically in the hard work that was involved in sinking the holes for the bollards. With FOMS having now been in existence for two years it is timely to think about the various office-holder positions. We need to consider some form of succession and Anne Pye, our redoubtable Newsletter Editor, has already signalled that this will be her last edition. Anne has been in the role from day 1 and has done a wonderful job: the seven Newsletters she has produced have been of the highest standard, attracting much favourable comment from within and outside of FOMS. Our sincere thanks to you Anne – we hope you continue your involvement with FOMS and we wish you well with your professional career.



Colin Harris, President, Friends of Mound Springs

FOMS Field Tour June 2008

Following the general reconnaissance focus of the 2007 FOMS field trip, it was time for FOMS members to roll up the sleeves and do a little work in the June 2008 trip. Eight members participated (Colin Harris and Elaine Smyth, Bruce and Sherrie Gotch, Travis Gotch, Lois Litchfield, Ann Callis and Simon Lewis pictured by Simon below). It was a pleasure to meet new members Lois and Ann and to learn a little about their respective life-times of experiences in the Far North. We were also joined for a day or so through the week by Kelli-Jo Kovac and Tash Bevan from BHP Billiton and new DEH Regional Ecologist Alex Clarke.

Following a mid-afternoon rendezvous at Roxby Downs on Saturday 21 June, we convoyed up the Borefield Road to a camp-site on the Gregory (same site as last year). On Sunday we moved on to Elizabeth Springs, in Wabma Kadarbu Mound Springs Conservation Park, where we donned gloves and collected rubbish at an old musterers' camp. Then on to a camp-site in the dunes near Strangways Springs.

On Monday 23 and Tuesday morning we were joined by Kelli-Jo and Tash as Travis took charge of a survey of those springs at Strangways that still support wetland vegetation. In all we covered some 80 or 90 spring vents, leaving only a few for Travis to finish off at a later date.

On Tuesday afternoon we continued north through William Creek, dropping in to see Sarah Amey at the new Peake. Sarah's partner Jim Lomas generously provided a trailer load of sleepers for us to use in constructing a vehicle barrier at the Peake Repeater Station at Freeling Springs. Travis somewhat bravely towed the trailer (with no spare tyre) up to the old Peake, losing only a few sleepers along the way and also managing to puncture a tyre.

On Wednesday and Thursday it was time to bend the backs and develop a few blisters with the installation of about 16 bollards (ie half sleepers) at the car park at the Peake ruins. The going was quite tough but everyone contributed personfully and the job was completed

on schedule. Bruce was able to put his recently honed chainsaw skills into action with some precision sleeper cutting while Sherrie and Travis excelled in the synchronised crow-bar event. We also erected a sign organised by the Pastoral Branch of DWLBC. Alex Clarke showed impeccable timing, arriving just as we finished the job.

There are other concerns at the old Peake regarding uncontrolled vehicle access and camping and we spent some time looking at a strategy to address this. This will be the subject of further discussion with the pastoral lessees, DWLBC and others.

Friday 27 June was our last full day in the field and we had a more relaxed time looking at a number of springs, including Hawker, Levi, Milne, Outside, Twelve Mile and the Fountain. The changes at Twelve Mile, particularly with proliferation of *Phragmites*, were quite remarkable. A final camp on George's Creek near Old Umbum and we then headed for home. A highly successful week, a very companionable group and fantastic weather. Many thanks to all concerned.



Photo and written by Simon Lewis

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The Peake Overland Telegraph Repeater Station:

A brief history

The Peake Overland Telegraph Repeater Station is a major heritage site located on Freeling Springs in the Far North of South Australia. Listed on both the State and National heritage registers, it is a site which has strong Indigenous connections and a European cultural heritage legacy which includes early exploration, the Overland Telegraph (OT), pastoralism and mining.

Indigenous connections: Freeling Springs, like other mound springs of the Great Artesian Basin, represented a source of potable and permanent water in what would otherwise be some of the harshest desert country in Australia. The amount of occupational debris strewn around the springs – stone tools, flakes and portions of grinding stones especially – attests to their importance to Indigenous people such as the Arabana. Along with the nearby Peake Creek, Freeling Springs was a major mythological site and linguist and FOMS member, Luise Hercus, has recorded important Dreaming stories for the area, including the Two Snakes, the Old Man and the Rain History.

European exploration: European contact with the area first came in June 1859 with the northern explorations of John McDouall Stuart. Probing for a way into the centre of the continent Stuart wrote, "At four miles and a half struck a large broad valley in which there are the largest springs I have yet seen. The flow of water from them is immense coming in numerous streams and the country around is beautiful. I have named these 'The Freeling Springs' after the honourable Major Freeling M.L.C." It is a matter of history that Stuart eventually found his way to the centre and from there to the northern coast of Australia, establishing in the process a route for a transport and communication corridor that would become of national importance.



Overland Telegraph: Indeed, less than a decade after Stuart's successful crossing, the South Australian Government had committed itself to the construction of an overland telegraph along his route, an immensely important technological development which would revolutionize business and social communication between Australia and the rest of the world.

Before its construction all news travelled by sea, taking from three to four months and making timely personal and business decisions almost impossible. With the completion of the 3178 km line in 1872 telegraphic signals could travel between Australia and Great Britain in a matter of hours. The Peake was one of 11 repeater stations constructed along the line, the technology of the day requiring a repeat of the Morse code signal at approximately three hundred kilometre intervals. Like other OT stations, the Peake became an important settlement in its own right, acting as a springboard for much of the last wave of European exploration in central Australia. It was closed only when the opening of the narrow gauge railway to Oodnadatta in 1891 resulted in a rationalization of telegraphic infrastructure in the area.

The Peake : Photos by Simon Lewis



Bollards and sign now in the parking area at the Peake

Pastoralism : Prior to construction of the Repeater Station, the site had been used as a base for pastoral activities in the region and several of the buildings in the complex date from the mid to late 1860s. Pastoral activities had initially been located on Umbum Waterhole south east of the Peake, but were removed to Freeling Springs after the drought of 1864-65 had decimated the livestock belonging to Philip Levi, first pastoral lessee in the area. Levi was bankrupted by the drought and his affairs managed for some years by a group of trustees including H Ayers, EM Bagot and E Kempe. Control then passed to S Kidman & E Kempe, with S Kidman assuming sole control when Kempe died in 1908. The Kidman company has held the Peake pastoral lease continuously since that time, although the Peake has mostly operated as an outstation of the much larger Anna Creek to the south. Late in Kempe's time operations were moved to the Wood Duck locality and later still to the present station homestead site east of the old Warrina Railway Siding.

Mining: Some years after the Peake closed as a Repeater Station the site saw renewed activity through mining. Copper ore had been located in the nearby Ranges and from 1900 to 1904 ore was raised and smelted at an elaborate (and expensive) treatment works near the OT Station. High hopes were held for the mine and much capital (mostly from Victoria) invested in what ultimately proved to be a failure, the quantity and quality of the ore being well below what would have been needed to produce an economic return in such a remote location. The elaborate, tiered smelt works are well preserved in a gully less than a kilometre from the OT Station and some of the machinery from the plant can still be seen at the old Warrina Railway Siding. Miners and workers at the smelt facility occupied the old OT buildings for the duration of the mine's (short) life, adding additional rooms to the OT buildings – readily visible to the present because of their relatively crude construction.

Tourism: Indigenous people continued to live around the complex until the 1930s, but with little passing traffic (the main Oodnadatta Track having been relocated 15 km to the west) it gradually died away. Rarely visited from that time until the rise of outback tourism from the 1970s onwards, the complex is now signposted from the Oodnadatta Track and receives many visits, so much so that visitor management measures are now urgently needed, prompting the work carried out by FOMS this year and reported elsewhere in this newsletter.

Colin Harris, 15 July 2008

A traditional tale of *Yardiya* (Freeling Springs)



Freeling Spring Source: Sue Black

This story was taken from SA Dept of Environment & Planning(1986) **Heritage of the Mound Springs: The assessment of Aboriginal Cultural Significance of Mound Springs in South Australia** prepared by Dr Luise Hercus & Dr Peter Sutton.

The two springs closest to the Peake are called *Yardiya Parnda* and *Yardiya Kupa*, meaning big and little spindle. The two ancestral snakes *Yurkunangku* the red bellied black snake and *Kurkari* the green snake camped at *Yardiya* “and spent a lot of time just sitting there and making hair string with a spindle. To stop the wind blowing away the bits of hair they were using, they built a wind-break of rocks which are still there. Finally when they had finished they walked on up into the range on their way south. “



Spindle Source: http://www.treehugger.com/files/2007/06/beanie_festival.php

Press release! SAAL NRM Board recently launched the “Allocating water and maintaining springs in the GAB” project with \$14 million funding, half coming from the Australian Government Water Fund,. The project is designed to improve capacity for sustainable water allocations, investigate recharge and assist in the management and protection of the mound springs. Source: http://www.nwc.gov.au/PUBLICATIONS/newsletter/nwc_newsletter_29.html

Tektites



Source: <http://www.australites.com/>

Tektites are small, pebble-like glassy objects of Earth material that have been melted by meteorite impact, splashed up into our atmosphere, and fallen to Earth again under gravity. Tektites are categorised by their shape and are referred to as cores, buttons, boats, lenses, dumb-bells, discs, teardrops and fragments. They are shaped by their passage through the atmosphere when they were formed and it is the length of this passage through the atmosphere which largely determines their shape and size.

Tektites are found in Australia, usually in concentrated bands across semi-arid regions. It has been suggested that these originate from an impact crater somewhere in Asia. They have been found in such sites as Lake Torrens and Charlotte Waters (north of Dalhousie Springs), and are called Australites .

Australites are often smaller than those tektites found overseas as a result of having undergone secondary melting.

Tektites are geologically young, with a range of about 300,000 years to 35 million years. Many Australites are 610,000 to 750,000 years old . Australites are usually black or dark brown. Their chemical compositions are similar to both granite and impure sandstone (greywacke), being high in silica (68-82%) with 10-14% alumina and lesser amounts of iron, magnesium, calcium, potassium and titanium. These components did not have time to combine and form crystals, but cooled quickly to form a glass.

Source: <http://www.amonline.net.au/geoscience/tektites/>, <http://earthsc.org/fossils/space/tektites/tektites.html>

Peake Creek was named by McDouall Stuart in 1859 after the son-in-law of John Chambers, who was one of Stuarts private sponsors at the time.

Outback Sentinels



Wherever you go in Mound Spring country, there are bound to be some cairns on the higher ground. They are usually made of local stone or rock arrangements or of mulga logs laid in a square. In 1858 and 1859 the noted explorer John McDouall Stuart built some low stone cairns as surveying marks in the Mound Springs region west of Lake Eyre, which he called Cones of Stone. Some of Stuart's Cones of Stone can be seen at Hermit Hill, on Mt Margaret in the Davenport Range, and at Spring Hill. These cairns are marks left by Europeans as they traversed the countryside. If the cairns are associated with surveying they are likely to be reference points; points at which observations were taken. Many such cairns have a wooden post to which was fastened a disc for easier sighting from a distance. Mostly these discs are long gone, but on some cairns

the centre fixing pole remains. It is possible that some cairns were built with no specific purpose in mind – just as something for a lonely shepherd to do when minding a flock of sheep or herd of cattle. Survey monuments in other regions may include blazed trees, wooden posts, rock markings, stone and earth mounds, a steel structure set in concrete poured into a drum, or maybe a prefabricated steel structure with legs in concrete footings.

There are many other visible cairns in the Mound Spring region along the Oodnadatta Track of South Australia. Perhaps the most easily seen cairn is at Mt Hamilton, on the large, high, extinct mound spring adjacent to The Bubbler and Blanche Cup in the Wabma Kadarbu Mound Springs Conservation Park. It was built in 1858 by Major Peter Egerton-Warburton, who as Police Commissioner was in the field to sack BH Babbage, the leader of a government exploration party. Stuart rebuilt the cairn later that year as it had fallen down. Other examples of cairns abound – for example the small cairn, builder unknown, at Jersey Spring, in the Wabma Kadarbu Mound Springs Conservation Park. It would be easy to miss seeing such a small sized cairn. Building large cairns took energy, and early cairn makers, explorers and surveyors were wise enough to conserve their energies for the work ahead, rather than construct large monuments.

Another cairn (pictured above) is located in the region of the Freeling complex of Mound Springs, behind the ruins of The Peake Overland Telegraph Repeater Station, not far from the defunct copper mine to the south of the ruins. Was this cairn built by bored workers on the Overland Telegraph Line, was it built by those at the copper mine, or was it built later by stockmen? We don't currently know the answer to that question. However, in these hills known



as the Denison Range, there are three other cairns. One was built by Stuart on Mt Younghusband, one built by Governor MacDonnell on Bull Hill, and one built by assistant Surveyor General GW Goyder. In summary, although cairns are just one of the ways white fellas have altered the environment of the mound springs region, they are local features with a story of endeavour to tell.

Cairn at Mt Hamilton

Photos and written by Rick Moore

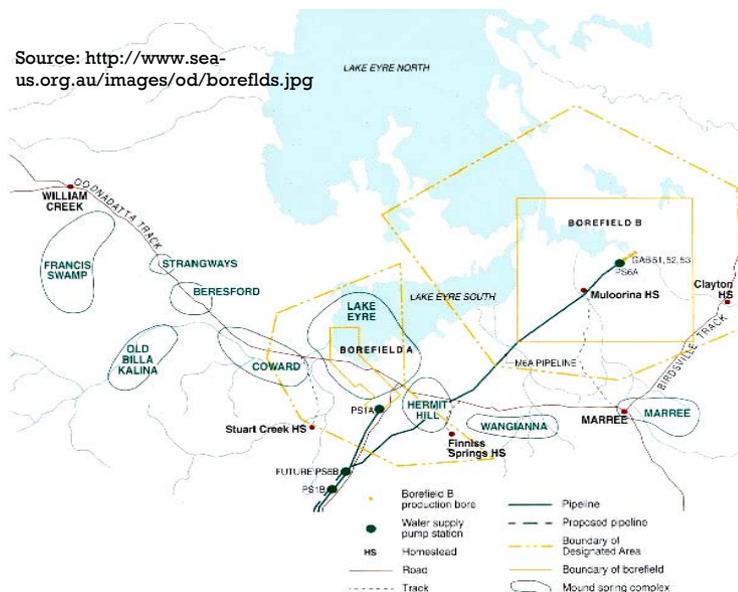
CURRENT REGULATION OF WATER USE BY THE OLYMPIC DAM MINE

The Roxby Downs/Olympic Dam mine (Roxby) is the world's largest uranium deposit and the fourth largest remaining copper deposit. It is Australia's largest underground mine, employing nearly 3000 people. (BHP, 2005) If the proposed expansion proceeds it may be the world's largest open-cut mine. It also produces silver and gold. The orebody was discovered in 1975 and went into production in 1988.

Roxby operates under the *Roxby Downs (Indenture Ratification) Act 1982*. The Act conferred continuing mining rights for the deposit's expected life by granting a Special Mining Lease on 17,788 ha for 50 years with an option for a further 50 years. It initially permitted annual production of 150,000 tonnes of copper, (which was amended in 1996 up to 350,000 tonnes), and conferred the right to draw free water. (Power, 2002, <http://www.gabcc.org.au/public/content/ViewCategory.aspx?id=37>) Section 13(8)(ii) of the Act provides for the specification of a "Designated Area" in which borefields can be situated. The area is one in which it is reasonably expected that water extraction will not reduce the potentiometric pressure by more than an agreed amount (5m) at the boundary of that area for a 30 year period. The Act also issues a Special Water License. The Special Water License granted in s.13(8), which is to be coterminous with the Special Mining Lease granted under the Act, gives Roxby the right to 'develop and draw....free of charge underground water...to satisfy...the mine water requirements.' The mine operator is required by s.13 to annually provide a ten year schedule of its best estimates of the operation's annual average daily water requirements for the subsequent ten years. It is also required to provide an annual report which should include results from monitoring aquifer response to extraction, as well as impacts on mound spring flows. Possibly as a result of this requirement Roxby has developed new techniques for using remote sensing data on vegetation associated with spring vents to give a satisfactory indication of drawdown impacts upon spring flows. The Indenture reserves emergency powers for the Minister of Water Resources to limit extraction or require the establishment of another borefield if the Minister considers continued extraction will be detrimental to the water resource or result in loss of water supply. (Power, 2002)

Roxby currently extracts water from Borefield A (within the Southwest Springs Zone) and Borefield B (within the Central Zone of the GAB Strategic Management Plan). The first bore in Borefield A commenced extraction in 1983. Average extraction in Borefield A reached a maximum of 15 ML/d before Borefield B was opened in 1996. Borefield B is located deeper in the GAB and it has been argued that the application of the principle of harvesting vertical leakage otherwise lost to surface evaporation is inappropriate because this only occurs where the water tables are shallow. (Mudd, 2000) Although Borefield A was thought to be hydraulically separated from the Lake Eyre mound springs, the demise of some springs and a decline in the spring flows of others resulted. Extraction from Borefield A after Borefield B was opened was reduced to 6 ML/d which has seen a recovery of nearby potentiometric pressure levels with the slower recovery of mound spring flows yet to be confirmed. (Power, 2002) Roxby has subsidised some landholder financial contributions to the GABSI (see last newsletter for more explanation of the scheme), committing \$2.2 million since 1997, and bore rehabilitation has also seen an improvement in some springflows. (AAWCMB, 2005) The replacement of 92 boredrains and rehabilitation of 10 bores is estimated to have saved 23,800 ML/y, which is double the industrial water requirements of Roxby in 2003, (BHP, 2005) - but only half of projected water requirements under the proposed expansion. In February 2005 Roxby achieved ISO 14001 certification for environmental aspects of the mine operations, including the borefields.

Source: <http://www.sea-us.org.au/images/od/boreflds.jpg>



On 19 August 2005 BHP Billiton, the new owner of Roxby, announced it had begun the environmental assessment for a proposed \$5 billion expansion. (As of July 2008 the final Environmental Assessment for the expansion project has still not been finalized, although guidelines have been released). The total area of the proposed expansion of the expanded Special Mining Lease is 41,000 ha. A fourfold increase in production is proposed with the scheduled timeframe for the start of mining in 2010. It is anticipated that the tailings storage area would be expanded from 750ha to 1,850ha. (Tailings can contain 80% of the radioactivity of the original ore). The Referral made in 2005 under the EPBCA noted that Roxby then used 26 ML/d (up to 35 ML/d in 2008) under a license for 42 ML/d from the GAB. It estimated that an additional 120 ML/d would be required for the expansion. (DEH, 2005) Water source options cited at the time included another GAB borefield, a local or regional aquifer borefield, seawater desalination at Whyalla (which would be piped to the site) and further on-site water recycling. Announcements made since then would indicate that if the mine expansion does proceed a large increase in extraction from the GAB is unlikely and that a desalination plant may be the most feasible option - although this also raises issues under the EPBCA because of impacts on threatened marine species by the brinewater discharge into the Upper Spencer Gulf from such a plant.

On 14 September 2005 the SA government declared that the mine expansion, anticipated to add an extra \$1.4 billion at that time to the SA economy, would be treated as a major development under the *Development Act 1993*. The implications for the Special Water Licence of the decision to declare the expansion a 'major development' are not obvious at this stage. Under s.13(29) of the Indenture Roxby does not have to comply with any applicable water plan. Section 13(28) also makes express provision for a continued water license where the mine is expanded under the Indenture. It would seem that because of the sensitive nature of the expansion that agreements on environmental requirements to be placed on the mine will be subject to intense negotiation between the mine and the SA government prior to any public announcements being made. Further information on the expansion can be found at http://www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=referral_detail&proposal_id=2270, <http://www.planning.sa.gov.au/go/olympic-dam> or <http://www.olympicdameis.com/eis/index.htm> Anne Pye

Friends of Mound Springs

If you wish to become a member, please send \$10 together with your name, phone number, postal and email addresses to Tony Latz, Treasurer of FOMS, 10 Waratah Way, Stonyfell SA 5066. Membership runs with the financial year.

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