

working TOGETHER

Brukunga and the Dawesley Creek Catchment Area

november 2011

MINISTER'S VISIT

On 30 August 2011 the Hon Tom Koutsantonis MP, Minister for Mineral Resources Development, visited the Brukunga Mine site and treatment plant. The new Minister met members of the Brukunga Mine Site Remediation Board and was briefed by PIRSA staff and the board on current site remediation investigations and site operations (Fig. 1). ■



Figure 1 Hon Tom Koutsantonis MP (second from left) at the Brukunga Mine site. (Photo 409691)

DET CRC ACTIVITIES AT BRUKUNGA MINE

The Deep Exploration Technologies Cooperative Research Centre (DET CRC) has been created to deliver research programs in more successful, more cost-effective, safer and more environment-friendly ways to target, drill and analyse deep mineral deposits. One of its projects has been to establish a Drilling Research & Training Facility at the Brukunga Country Fire Service (CFS) Training Centre and former mine site for field research into new drilling and logging technologies and for vocational training in modern drilling processes. Boart Longyear and CSIRO are project participants. The Brukunga Mine site is ideal as it is conveniently located, avoids the costly interruptions and safety and logistical issues associated with testing in an operating mine site, and the presence of sulfides in the host rocks makes it suitable for research on drillhole logging equipment designed to detect sulfide ores.

DET CRC activities at Brukunga to date have mainly focused on establishing the environmental conditions under which they will operate at the mine site. This has included:

- development of an Operations and Risk Management Plan in consultation with PIRSA
- selection of the first drillhole site and its approval by PIRSA.

The Premier Jay Weatherill will officially launch the Drilling Research & Training Facility on 21 November.

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Boart Longyear has their newest rig, the 4200, on site to carry out the drilling (Fig. 2). Several downhole drilling technologies will be trialled on the first hole including:

- seismic-while-drilling for imaging rock sequences downhole and single-point resistance testing that monitors electrical resistance downhole
- sampling of drill cuttings and fluids will be taken and chemically analysed as well as constant real-time measurement of pH and EC.

The DET CRC will meet and report quarterly to PIRSA on activities undertaken and proposed activities at Brukunga, and a written report will be submitted to the Brukunga Mine Site Remediation Board. Furthermore,

weekly toolbox meetings take place to provide regular operational updates and coordination.

Training courses are being held at the adjacent Country Fire Service (CFS) training facility which provides meeting rooms, full communications, accommodation and meals. Three pilot courses were run from February – May 2011, providing 24 young trainees with training in the latest drill equipment and safety requirements. The courses were a collaboration between DET CRC, project manager Resources and Engineering Skills Alliance (RESA) and trainers (DrillSkill). The majority of these trainees have already obtained employment in the drilling industry. ■



Figure 2 Boart Longyear 4200 drilling rig on site at the Brukunga Mine. (Photo 409690)

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COLUMN LEACH TRIALS

Commencing in mid 2010 and continuing throughout 2011, PIRSA has been conducting extensive geochemical studies at the Brukunga treatment plant to provide key technical information that is needed for planning and designing remediation of the mine.

Following a number of preliminary trials, a total of 22 x 1 m and 4 x 2 m acrylic tubes filled with samples of mine waste rock and tailings were constructed and irrigated with water. The quality of the water passing through the columns has been extensively monitored (Fig. 3).

These 'column leach trials' are designed to test variables relating to the geochemical aspects of remediation. ■



Figure 3 Column leach trials at the Brukunga Mine site used to test variables relating to the geochemical aspects of remediation. (Photo 409689)

2009–10 WATER QUALITY AND FLOWS

The 2009 Water Quality Monitoring Report was submitted to the Environment Protection Authority (SA) (EPA) in mid 2010 and is available on the [PIRSA Minerals website](#). Go to Mines & Developing Projects, Former Mines, Brukunga Mine Site, Water Monitoring Reports. The 2010 Report is currently being finalised prior to submitting to the EPA.

A total of 669 mm of rain was recorded at Brukunga in 2010 compared with the long-term average of 573 mm. In 2010 the Brukunga Mine site experienced five small overflows of mine water from the on-site catchment system to Dawesley Creek as a result of heavy rains or temporary power outages (1 and 15 August, 10 and 14 September, and 7 December).

Larger overflows of mine water resulting from significant localised flooding were experienced on 24–27 August and 3–5 September 2010.

The on-site catchment system incorporates the majority of runoff onto and from within the mine site, including the original bed of Dawesley Creek and its local tributaries. In most instances overflows were due to local high flows, however on two occasions overflows were recorded which exceeded the capacity of the Dawesley Creek diversion system. Peak operating capacity of the acid treatment plant is maintained during these times.

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During all overflow events PIRSA staff take measurements of the water quality downstream of the mine site and notify the EPA. All overflow events are managed in accordance with the EPA approved contingency plan to minimise the impacts on Dawesley Creek. ■

FURTHER INFORMATION

Further information on Brukunga, including photos, monitoring reports and past issues of *Working Together*, can be found on the [PIRSA Minerals website](http://www.minerals.pir.sa.gov.au) <www.minerals.pir.sa.gov.au>. Go to Mines & Developing Projects, Former Mines, Brukunga Mine Site.



Brukunga Mine site, 30 August 2011. (Photo 409692)