



CADIA VALLEY OPERATIONS
Newcrest Mining Limited

Blayney Copper Mine Rehabilitation

Blayney Copper Mine was inherited by Newcrest from BHP Gold Mines when the company was formed in the early 1990s. Upon becoming aware of the property, Newcrest commissioned a study in May 2004 to prepare a final rehabilitation plan for the site.

The primary objective is to remediate the site to a level suitable for livestock grazing. Initially, Newcrest considered remediation of the site to a level suitable for residential land-use, given the proximity of the site to the town of Blayney. However, the higher level of investigation and remediation required to achieve residential standards would be cost prohibitive. Parks and Open Space remediation criteria were subsequently adopted, ensuring that the site would be safe for occasional use by the local community and grazing livestock.

A scope of work was developed which had four aspects:

1. Conduct detailed site contamination assessment to determine the type and extent of contamination
2. Devise a suitable remedial action plan that would ensure the site would be suitable for livestock grazing
3. Remediate the site in accordance with the remedial action plan
4. Conduct detailed sampling (as required) to validate that site remediation has been completed to the thresholds specified in the plan.

The mine is situated on a hill west of Blayney, overlooking the surrounding valley. It is easily identified, with a large scar of red soil clearly visible from a distance. The south end of the site contains three open shafts (which have been

secured), a large open cut area and mullock heaps. To the north and down slope of this area exists a deep u-shaped cut, believed to be the location of a former rail siding, which led down to the railway at the north end of the site. At the south and west end of the cut is an area with broken bricks and a slag pile, believed to be the location of the former smelter and chimney.



Secured shafts at Blayney Copper Mine

The site was initially mined for iron oxide by the Lithgow Iron and Smelting Works prior to 1881. Approximately 2,000 tonnes of ore was taken until that year, when the presence of copper made the ore unworkable.

Mining of copper at the site occurred sporadically between 1881 and 1922. In 1899, it was reported that as many as 280 men were employed at the site, working several underground shafts and operating water jacket furnaces, smelters, reverberatory furnaces and a smelter. In 1907, the operators flooded the mine when it was discovered that mine water was heavily charged with copper. From that point on, copper was processed by precipitating it from mine water. Copper yields

were as high as 43.5 pounds copper per 1,000L of water. Custom smelting began in 1907, with ore imported from other regional mine sites for smelting.

Surface infrastructure was expanded to meet the demand. Operations prospered and ceased cyclically through to 1922, changing ownership several times. Most of the infrastructure had been removed by the 1930s. Several attempts to renew interest in mining at the site were made between 1955 and 1970 but with little success.

Detailed investigations in July 2004 and March 2005 found several areas had been contaminated as a result of historic mining activity. Heavy metals, in particular arsenic, copper and lead, were present across the site in concentrations exceeding the adopted remediation threshold. However, the contamination was found to be limited to mining materials (ie. gangue and slag material) and had not migrated into adjacent and underlying natural materials. This was supported by leaching tests, which indicated a low potential for leaching of metals from the waste mining materials.

Heritage issues associated with the former mine workings created additional challenges for the site investigations and will remain a challenge in site management and rehabilitation. An Excavation permit (Heritage Council of NSW) was required for

test pit work, and as a condition of the permit, Newcrest was responsible for the safe keeping of any artefacts recovered from the site. The excavations were supervised by a Heritage Council accredited archaeologist to ensure that any artefacts of significance would be collected, catalogued and preserved.

From a number of remediation options identified during the study phase, the following two are being investigated in more detail:

1. Off-site removal of contaminated materials followed by reinstatement with clean imported fill
2. Soil treatment of scalded areas to stabilise the soil and encapsulation of waste stockpiles, followed by establishment of vegetation across the area.

These options present varying degrees of site usability and future liability, which are generally offset by inversely proportional implementation costs.

A risk assessment of the two options, and detailed costings associated with each method, are being prepared to assist Newcrest in selecting a remediation method that will best meet the needs of all stakeholders. Once an option has been selected, work will begin on the detailed remedial action plan.

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