

FINAL REPORT ON AN 457

From 2007 to August 2010

Title Holder: Mt Isa Mines Ltd

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1.0 INTRODUCTION

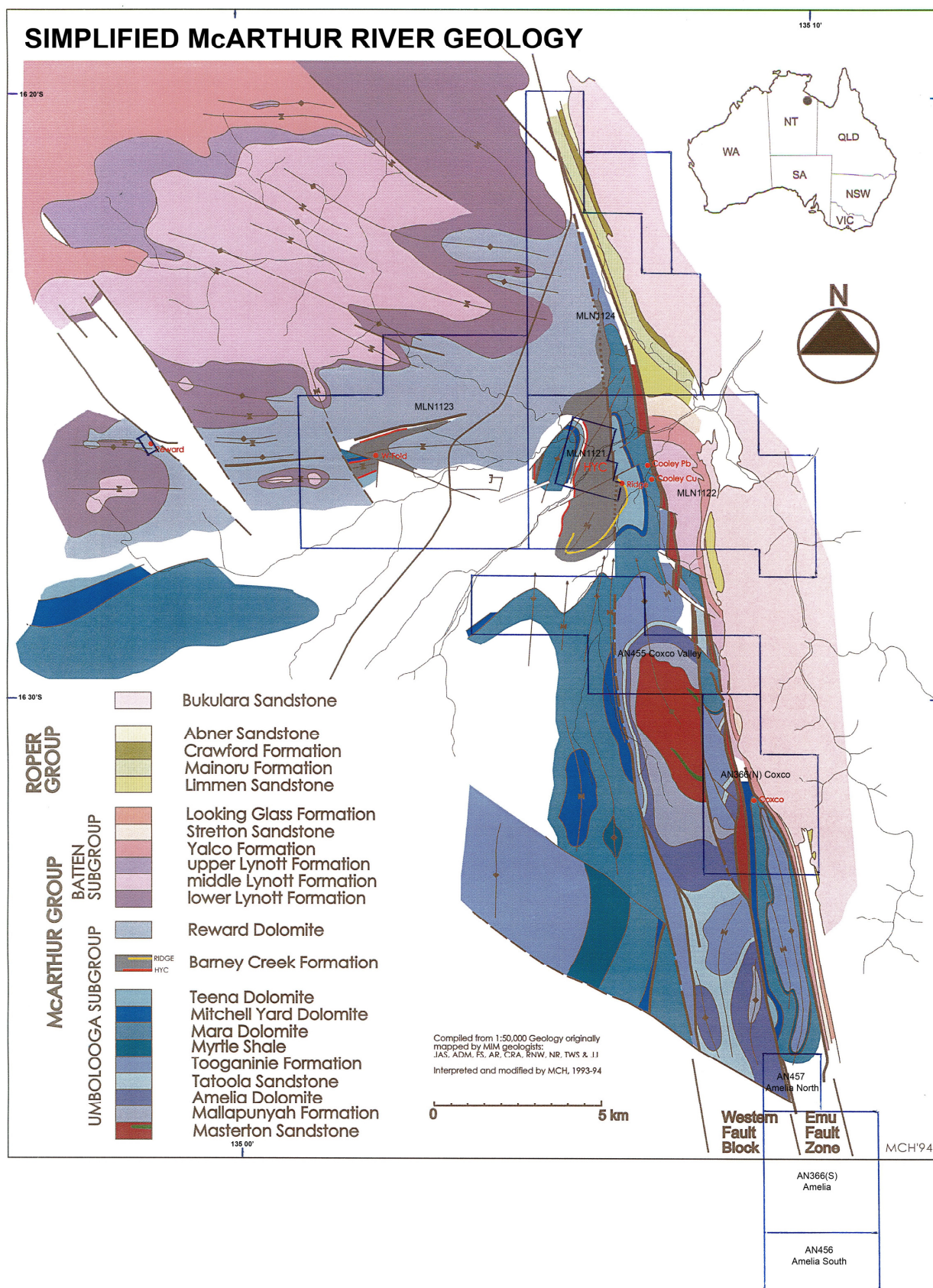
AN457 is situated within the highly prospective Proterozoic McArthur Basin, just to the south of the world class McArthur River (HYC) zinc-lead-silver deposit.

The applications for AN457 along with AN 455 and 456 were submitted by Mount Isa Mines Ltd in mid 1996 over ground previously held and explored by the Carpentaria Exploration Company (1960s-70s, 1991) and Mount Isa Mines Exploration (1991-1993). The application for AN's 455-457 in 1996 was driven by statutory relinquishment requirements on the previous Mount Isa Mines Exploration tenement AN 366. After a 10 year moratorium, AN's 455-457 were unexpectedly granted on 21st August, 2006.

AN 457 has been held by Mt Isa Mines for a period of 4 years commencing in 2007 and expiring in August 2010.

AN 455 'Coxco Valley' comprises 6 graticule blocks (19.74 sq km) and is located approximately 5km south of the current McArthur River Mine. AN 456 'Amelia South' and AN 457 'Amelia North' lie approximately 10km south of the current McArthur River Mine and comprise 2 (5.58 sq km) and 1 (3.29 sq km) graticule block respectively. They cover north and south extensions of AN 366 (South) centred on the Amelia Prospect.

Figure 1: Simplified Geology of the McArthur River region showing AN's 455-457 with respect to the McArthur River Mine MLN's (approximately located)



2.0 GEOLOGICAL EVALUATION

Figure 1 shows a simplified geological map of the McArthur River region and the location of AN's 455-457 with respect to the McArthur River Mining MLN's and the remaining AN366 tenements centred on the Coxco and Amelia Prospects.

Studies in the early to mid-1990s suggested that significant inversion accompanied HYC-McArthur River ore formation at Barney Creek-time (1640Ma) in the McArthur River region. During this 1640Ma Barney-time inversion, different domains, in particular along and adjacent to the Emu Fault Zone, were variably (a) downwarped to form Barney Creek depocentres (or 'sub-basins') which accumulated the thick sedimentary successions that host the HYC deposit, or (b) upwarped to erode, karstify and shed (largely) dolomitic detritus into adjacent downwarps. (Hinman, 1994, 1995; Logan, 1979; Neudert, 1998).

The map pattern presented in Figure 1 attests to the tectonic importance of Barney Creek-time by the simple observation that all units older than Barney Creek (outcropping predominantly south of HYC) show approx N-S fold patterns with axes sub-parallel to the Emu Fault Zone, while successions younger than Barney Creek (Batten Subgroup; outcropping north of HYC) show more E-W trending fold patterns. This contrast in fold patterns in successions deposited within a short period of time is incompatible with the N-S trending fold pattern being developed during a major E-W shortening event ('Isan D2') nearly 90Ma after Batten Subgroup deposition, as has been previously argued. Those that argued for this late folding event have also suggested this timing for the formation of the mineralisation at Coxco and Amelia.

Much evidence along the lines of that outlined above suggests that the accumulation of Barney Creek Formation, which hosts the giant HYC-McArthur River Zn-Pb-Ag Mine, is very irregular and tectonically controlled. Recent work at Coxco (Selley, 1999; Hinman, 1999, 2000) suggests that significant tectonic disruption of the pre-Barney dolomitic successions (Teena Dolomite and stratigraphically earlier) was accompanied by mineralising fluid flow. This Barney-time (1640Ma) fluid flow, rather than a much later (Isan D2; 1550Ma) fluid flow event associated with E-W shortening, formed both the fracture and breccia-hosted mineralisation at Coxco as well as the minor sedimentary breccia and shale-hosted stratiform mineralisation. The equivalence of the Pb isotopic signatures of Coxco and HYC mineralisation (Walker et al., 1983) argue against the hypothesis that the mineralised Coxco sedimentary breccias were of Caranbirini depositional age as has also been previously suggested. Fluids with HYC Pb (isotopic composition) ages had ceased flowing well before Caranbirini time.

South of Coxco in the Amelia Prospect area (and surrounds) detailed mapping by CEC and MIM Exploration in the 1960s-70s described a very limited and modified stratigraphic succession in the Barney Creek stratigraphic position. The successions at Coxco and Amelia were both described as passing from Mara Dolomite up through a 'Coxco Dolomite' unit comprising chaotically brecciated and disrupted massive dolomite (commonly deeply karst) upwards into a heterogeneous, commonly thin, 'Reward' Dolomite unit comprising lenticular, irregularly-bedded dolomitic sediments varying through sedimentary breccias, grits and sands, through cherts and chert breccias to carbonaceous shales. This heterogeneous unit was commonly mapped to pass upward into regionally recognisable Lynott Formation.

At HYC, the 'Cooley Breccia' unit in the Western Fault Block immediately adjacent to HYC-McArthur River (see Figure 3) has been shown to be a normal Mara-Mitchell Yard-

Teena (-W-Fold Shale) sequence folded and strongly tectonised during the Barney-time inversion (Hinman, 1994, 1995). At Coxco, mapping by Selley (1999) has suggested similar tectonic disruption of the Mara to Teena Dolomite units. It seems feasible that Barney-time tectonism significantly disrupted the recently accumulated dolomitic sequences, most especially along the active Emu Fault Zone, to form so-called 'Cooley Breccias' and 'Coxco Dolomites' comprising folded, faulted, brecciated and generally disrupted Mara to Teena Dolomite stratigraphy.

It is argued here that at Barney Creek-time while HYC was forming in the north, to the south along the Emu Fault Zone, a number of things happened concurrently: (1) some fairly limited fluid flow occurred along the southern Emu Fault Zone and associated structures, (2) the pre-Barney dolomitic sequences were deformed, faulted and brecciated; locally uplifted and karst, and were locally mineralised, and (3) a highly variable package of sediments locally accumulated, some of which were also infiltrated by hydrothermal fluids and were mineralised.

It is unsurprising that the best demonstrated stratiform mineralisation in the southern Emu Fault Zone at the Coxco Prospect sits immediately adjacent and above well developed fracture and breccia-hosted mineralisation. In addition, in the broader Coxco and Amelia region, it has been commonly observed that it is precisely the 'Coxco Dolomite' to 'Reward' Dolomite part of the stratigraphy that returned anomalous Zn-Pb stream, soil and rock chip geochemistry. This is hardly surprising if (1) the dolomite tectonic disruption was associated with Barney-time tectonism, (2) the 'Reward' sedimentation was in part at least Barney Creek equivalent accumulation and (3) some fluid access was provided by the adjacent active Emu Fault Zone and linked structures.

3.0 WORK COMPLETED

Please find below an outline of work completed on AN 457 over the 4 year period from 2007 to 20120. Please note due to AN 455, 456 and 457 being held and reported on together the expenditure includes work completed on all three Authorisations Northern.

3.1 WORK COMPLETED IN 2006/2007

A summary of the work completed on AN 455, 456 and 457 is given below.

<i>Activity</i>	<i>Cost (\$)</i>
Tenement review and literature research	5000
Field reconnaissance	2500
<i>Total</i>	7500

Table 1: Summary of activities and associated expenses accrued for AN 455, 456 and 457 during the first year of tenure.

3.1.1 Literature Research

A review of the MRM near mine exploration archive revealed a lack of data relating to the ground covered by AN 455, 456 and 457, ground formerly covered as part of AN

366. This prompted a search of the Minerals and Energy Information Centre (MEIC) archive, which revealed a large amount of historical exploration data covering the Amelia and Coxco Valley areas, dating back to 1957. The last significant reports accessed from the MEIC archive dated to the mid 1970's, meaning that known Mount Isa Mining Exploration (MIMEX) division reports from the early 1990's still had to be located.

3.1.2 Field reconnaissance

One complete day of field reconnaissance was completed for each of the three tenement areas. The physiographic features of AN 457 were found to be markedly different from AN455, as it covers ground along the Emu Fault Zone. The EFZ is marked by a prominent uplifted scarp of tectonised basal dolomite with interbedded dolosiltstone lithologies.

3.2 WORK COMPLETED IN 2007/2008

Expenditure commitments on the AN's were not met in 2007 and 2008 due to critical McArthur River Mining technical staff shortages during the main expansion phases of the McArthur River Mine from the previous underground operation to the current open pit operation. Recruitment for suitably qualified personnel continued throughout the 2008 field season without success, unfortunately this meant that the scope of intended exploration during the 2008 field season was never realised.

<i>Activity</i>	<i>Cost (\$)</i>
Lease boundary establishment	2,500
Administration	2,000
<i>Total</i>	4,500

Table 2: Summary of activities and associated expenses accrued for AN 455, 456 and 457 during the second year of tenure.

3.2.1 Lease Boundary Establishment/Field Reconnaissance

A day as spent with a hand held GPS in establishing the corner lease boundaries of all three AN's and an overview of the work required for 2009 was undertaken.

3.2.2 Administration

Lease administration activities included the payment of licence fees, report writing and additional literature research/topographic and geological base map purchases.

3.3 WORK COMPLETED IN 2008/2009

The ongoing critical shortages of Geoscientific staff throughout 2008 prevented the realisation of the proposed 2008 exploration programme. The additional obstacles of the sudden downturn in commodity prices in late November (which alone threatened to close the mine and which radically reduced 2009 budget expenditure across the site) and the temporary closure of the mine from 17th December to 20th February due to the Federal High Court's decision to uphold the Northern Land Council's claim against the project expansion, have continued to impact on MRM's ability to meet expenditure commitments outside of exploration work conducted on AN366 during 2009.

Ongoing critical technical staff shortages, exacerbated by the current economic downturn, have meant that expenditure commitments on the AN's were not met.

Activity	Cost (\$)
Report Writing	5,000
Administration	2,000
Total	7,000

Table 3: Summary of activities and associated expenses accrued for AN 455, 456 and 457 during the third year of tenure.

3.4 WORK COMPLETED IN 2009/2010

A continuation of lack of resources from critical technical staff have unfortunately resulted in no expenditure on AN's 455, 456 and 457 over the 2009/2010 reporting period, resulting in a nil report.

4.0 SUMMARY

The expiry of AN457 was an oversight by McArthur River Mine. We are currently in the process of completing a Application of Authority Form to re-apply for the title.