Technical Report
No. 3710

Exploration Permit for Minerals No. 13027
'Police Creek West', Queensland
Partial Relinquishment Report
For the Period Ended 29 March 2009

XSTRATA COPPER EXPLORATION PTY LTD

TECHNICAL REPORT
No. 3710

TITLE:	EXPLORATION PERMIT FOR MINERALS NO. 13027 'POLICE CREEK WEST', QUEENSLAND PARTIAL RELINQUISHMENT REPORT FOR THE PERIOD ENDED 29 MARCH 2009
HOLDER:	MOUNT ISA MINES LIMITED
OPERATOR:	XSTRATA COPPER EXPLORATION PTY LTD
1:250,000 SHEET:	SE54-13 'CAMOOWEAL'
1:100,000 SHEET:	6659 'RIVERSLEIGH' 6759 'MOUNT OXIDE'
INVESTIGATIONS CONDUCTED BY:	XSTRATA COPPER EXPLORATION PTY LTD
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DATE:	FEBRUARY 2009
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SUMMARY

Aim of Project
The Police Creek West tenement was acquired to undertake exploration for Mount Isa-style copper systems.

Object of Report
To report the exploration activities completed over relinquished sub-blocks of exploration permit for minerals (EPM) 13027.

Location
The tenement is centred approximately 160 km north-northwest of Mount Isa and may be accessed from the Camooweal-Burketown road.

Tenure
EPM 13027 'Police Creek West' was granted to Mount Isa Mines Limited over an area of 18 sub-blocks for a period of five years from 30 March 2005. A 50% relinquishment in March 2007 reduced the tenement to nine sub-blocks. The relinquishment this period is for six sub-blocks.

Summary of Work
Work completed in the relinquished sub-blocks has consisted of geological mapping and soil sampling in 2007 and data review in 2008 and 2009.

Conclusions and Recommendations
Geological mapping and soil sampling over parts of the relinquished sub-blocks has failed to detect any targets for further exploration. Exploration targets are also not apparent from examination of results of previous work.

1. INTRODUCTION

The Police Creek West tenement is part of the Seymour project area which covers a north-south zone 40 km long and 10 km wide along the eastern flank of the Cambrian Georgina basin to the north-northwest of Mount Isa. The area hosts a large package of the mid Proterozoic McNamara Group sediments which were transected by north-south, northeast-southwest, and northwest-southeast faults and is considered prospective for Isa-style copper mineralisation.

2. LOCATION AND ACCESS

The tenement area is centred approximately 160 km north-northwest of Mount Isa. Access is by way of station tracks leading eastward from the Camooweal – Burketown gravel road which joins the Barkly Highway about 80 km to the south. The area is relatively flat but deeply incised creeks make access during the wet season difficult.

The tenement is located within the Mount Oxide (6759) and Riversleigh (6659) 1:100,000, and Camooweal (SE54-13) 1:250,000 sheet areas and is centred approximately on 139°''E and 19°5''S. Location of the exploration permit for Minerals (EPM) is shown on Drawing No. 44990.

3. TENURE

EPM 13027 'Police Creek West' was granted to Mount Isa Mines Limited (MIM) on 30 March 2005 for a period of five years and originally comprised 18 sub-blocks. A relinquishment of 50% of the sub-blocks on 29 March 2007 reduced the tenement to nine sub-blocks.

This relinquishment is for six sub-blocks, leaving a residual three sub-blocks (Drawing No. 44958):

BIM	**Block**	**Sub Blocks**
NORM	2605	a, b
NORM	2676	u
NORM	2677	a, l, q
Total		**6 Relinquished Sub Blocks**

BIM	**Block**	**Sub Blocks**
NORM	2676	k, p
NORM	2677	f
Total		**3 Retained Sub Blocks**

4. PREVIOUS EXPLORATION

The Seymour Project area has been the scene of continuous and sometimes intensive prospecting activity since Carpentaria started prospecting for phosphate in the late 1960's. Others, notably Queensland Phosphate, continued to prospect for phosphate while recording any base metal or sulphide intersections.

More relevant prospecting campaigns targeting base metals were later carried out by a number of prominent mining companies and are indicated in Table 1.

International Nickel was involved in a comprehensive program of prospecting for base metals, primarily copper, in the area from 1974 to 1978. Regional geological mapping and stream sediment sampling over the target McNamara Group produced nine targets which were followed up with detailed geological mapping, soil and rock chip sampling. One of these was further explored by magnetic, electro magnetic (EM) and induced polarisation (IP) surveys. A coincident IP and geochemical copper anomaly within the EPM 11714 'Seymour' was tested by diamond drilling, intersecting a sequence of dolomitic siltstones with chert and sandy bands, and with disseminated pyrite present throughout. A few blebs of chalcopyrite were recorded without any significant concentration. Another diamond hole drilled on a geochemical target within the 'Police Creek West' tenement also failed to intersect any ore grade mineralisation; this was not within the area to be relinquished.

Shell (Billiton Australia) was engaged in a number of prospecting programs in the area from 1981 to 1986 over stratigraphic (McNamara Group) and structurally controlled targets. Initially, geological mapping and geochemical sampling followed by dipole-dipole IP surveying were employed over stratigraphic targets without success.

Later prospecting was aimed at epigenetic copper mineralisation in a structurally controlled environment. This involved airborne geophysics (magnetics and radiometrics), regional and detailed geological mapping, geochemical sampling (stream sediment, soil and rock chip), ground IP surveying and diamond drilling. Three diamond holes drilled on the Top Design Prospect within the 'Police Creek West' tenement (not in the area to be relinquished), intersected 70m of silica-dolomite alteration, including 6.5m@2.6% copper.

Aberfoyle Resources were active in the area with various partners, including Ashton Mining and Kennecott from 1984. They initially took out a large regional area to prospect for diamonds and gold. In 1991, this was reduced significantly to concentrate on prospecting for base metals.

The program involved a search for stratiform SEDEX lead-zinc and structurally controlled copper deposits within the McNamara Group using airborne EM (Geotem) followed up by geological mapping, geochemical sampling, ground EM, drilling and downhole geophysics.

Some of the main exploration is summarised in Table 1.

EPM No. and Name	Company Report No	Date	Company	Rationale	Activities
A-P 969M 970,971, 980,1139M	4554,5593 5646,5953 15312	1971-1985	Queensland Phosphate	Phosphate in Cambrian, Stratiform base metals within and below Cambrian	Soil sampling, geophysics (IP)Percussion and diamond drilling; located P deposits- Lady Annie and Lady Jane; some abundant pyrite in Cambrian ,only traces base metals in Cambrian and pre-Cambrian
A-P 1406M Wangundu (Police Creek)	5480	1974-1975	Occidental Minerals	Stratiform base metals	Semi-regional to detailed geological mapping, rock chip sampling; IP; results negative; outcrop Fe breccia with barite, Pb-Zn (the 'Barite blow')
A-P 1582M, 2106 Yellowwood Creek	7156, 6081	1975-1978	International Nickel	Primarily Cu but also Pb-Zn in Paradise Creek sediments	Regional and detailed geological mapping; Drainage, soil and rock chip sampling; 2 anomalies -0.33%Cu in Festone and 0.32%Pb 0.53%Zn in weathered pyritic shale; IP and one DD Hole; Showed minor pyrite and traces of chalcopyrite
EPM 2106M Carrier EPM 2503M Carrier	15516 16813	1979-1985 1986	Shell/Billiton	Stratiform Pb-Zn Similar to that in Lady Loretta, Structurally controlled Cu-Mt Isa type	Airborne geophysics (Input, Magnetics, radiometrics) Ground IP and EM; Geochemistry-drainage, soil and rock sampling; Diamond and percussion drilling-results negative
A-P 2106M Carrier Area	13555 14017	1983 1984	Shell/Billiton	Stratiform Pb-Zn Mt Isa style Cu	Aeromag, IP, rock chip, rotary drilling, mapping, trenching plus 5 DD holes and 15 shallow RC holes. EM, and DD drilling of 3 holes with best intersection of 6.5m@2.6% Cu in hole CRD-6.
EPM 5761	32183	1989 – 2000	Hunter Resources, Aberfoyle, MIM	Isa style copper mineralisation	Mapping, sampling, drilling, geophysics
EPM7651 Police Creek EPM7704 Brenda Cr. EPM7705 Thornton R. EPM9474. The Desert	30870 29925 29331 26622	1991-1998	Aberfoyle Resources	Stratiform SEDEX Pb-Zn and structurally controlled Cu deposits in McNamara Group sediments	Airborne geophysics (Geotem) geological mapping, geochemistry (stream sediment, soil and rock chip sampling) ground EM

Table 1: Seymour Project Areas - Previous Exploration

During 1992-93, the project area was covered as part of a regional aeromagnetic/radiometric survey carried out by MIM Exploration (MIMEX) over the entire Isa Inlier, along flight lines 200m apart at an altitude of 60 to 80m. The geophysical maps derived from the data were used for geological and structural interpretation and the selection of model-based prospecting targets.

5. REGIONAL GEOLOGY

The Seymour Project area straddles the Mount Oxide (6759) and the Riversleigh (6659) 1:100,000 Geological Sheets which were jointly mapped by the Bureau of Mineral Resources (BMR) and the Geological Survey of Queensland (GSQ) with a first edition of the maps released in 1984.

The regional Seymour Project area lies within the zone of Mid-Proterozoic rocks located in the western part of the Western Fold Belt of the Mount Isa Inlier, and overlies the Lawn Hill Platform. Lithological units mapped in this area represent the entire succession from the Haslingden Group sediments exposed on the southwest flank of the Fiery Creek Dome in the east, through the Fiery Creek Volcanics and the McNamara Group, to the overlying Cambrian Thorntonia Limestone. Some Mesozoic remnants are recorded over parts of the McNamara Group (Drawing No. 44953a).

The regional structure is marked by prominent north-south, north east-south west and north west-south east trending faults and the development of interference features which give rise to the Fiery Creek Dome, as well as numerous associated minor faults. The major features include the Kennedy Structure (a D_2 high strain zone representing a northern extension of the Mount Isa Fault zone) which passes through several of the tenements in the south, the Termite Range Faults and associated splays developed in the northern part of the project area.

The regional sedimentary sequence is dominated by clastics and dolomites of the Proterozoic McNamara Group in the central zone, which is flanked by the Haslingden Group and Surprise Creek Formation arenites in the east and the Cambrian Thorntonia limestone in the west, with overlying Mesozoic remnants forming low hills and Tertiary-Quarternary sediments filling up gullies.

The structural fabric of the area is dominated by the north-south trending faults, shear zones, foliation and related folds. These structural elements could well be resulted from the east-west directed regional D_2 compressional event.

6. WORK COMPLETED BY MIM EXPLORATION PTY LTD

Exploration in the Seymour Project area was designed primarily to locate significant tonnage high grade Isa-style and/or less importantly Mt Gordon-style copper deposits. The area has been targeted by Xstrata Copper Exploration Pty Ltd as prospective for base metal mineralisation following a copper target generation program.

Seymour Project area covers the prospective McNamara Group units of Paradise Creek, Esperanza and Lady Loretta Formation dolomitic rocks, Surprise Creek Formation sandstone and siltstone and the Haslingden Group (Myally Subgroup) unit of Whitworth Quartzite feldspathic sandstones which are transected by northwest, northeast and north-south trending faults. The northeast and northwest trending structures may be growth faults active during basin formation and are considered prospective for lead-zinc mineralisation. North-south faults may have been active during D3 deformation and the structures are coincident with large (areal extent) stream sediment copper anomalies.

Work in the area to be relinquished was completed in 2007 reporting period and consisted of limited geological mapping (1:5,000) and soil sampling in the southern area of sub-blocks.

6.1 Geological Mapping

Mapping was focused on an area where elevated copper geochemistry was reported in both soil and stream sediments through compilations of the open file database. The sedimentary sequence (from bottom to top) evident from the exposed rocks in the Police Creek West tenement represents the upper part of the McNamara Group and consists of:

Proterozoic McNamara Group:
Lady Loretta Formation Member 1: *Pml_1*
Laminated stromatolitic and intraclastic dolomites.

Lady Loretta Formation Member 2: *Pml_2*
Dolomitic siltstone and shale, stromatolitic chert and dolomite, siliceous siltstone, sandstone and pyritic chert.

Shady Bore Quarztite: *Pms*
White flaggy or massive medium othoquartzite interbedded with fine sandstone and siltstone.

Riversleigh Siltstone: *Pmr*
White flaggy or massive medium othoquartzite interbedded with fine sandstone and siltstone.

Mesozoic cover: *M*
Quartzose sandstone.

The Lower Unit of the Lady Loretta Formation rocks are generally recorded in the northern part of the mapping area. They are overlain by the Upper Unit of the Lady Loretta Formation rocks to the south. Sporadic outcrops of the Shady Bore Quartzite and Riversleigh Siltstone are located in the southwestern corner of the mapping area.

The mapping indicated that the Police Creek West area is regionally located on the western limb of a large open north-south trending anticline to the east. This interpretation is supported by the moderate west dip of bedding and consistent subvertical S_2 foliation across the mapping area. Small scale parasitic folds were also documented in the northeast and central part of the mapping area.

The major structure is the Termite Range Fault in the southwestern corner of the area where intense carbonate and quartz veining along with drag folding was developed in the dolomitic siltstone of the upper Lady Loretta Formation. Other important structures include the north-south, northeast and northwest striking faults, of which the northeast trending faults could be splays off the major Termite Range Fault.

6.2 Soil Geochemistry

The soil geochemical survey at Police Creek West was conducted mainly over the northeast-trending splay off the northwest-trending Termite Range Fault running through the southwest corner of the surveyed area. The survey was designed to extend the existing geochemical anomalies along strike. Samples were collected along east-west oriented lines at intervals of 25 to 50m with line spacing of 200m. In order to keep the results comparable and consistent with those reported before, a fraction size of -80 mesh was employed for the sampling in the northern part of the survey area while a fraction size of -20 mesh was used for the sampling in the southern part of the area.

In total 602 soil samples were collected from Police Creek West, 62 of these within the area to be relinquished. Standards and duplicates were included with each batch of samples submitted for analysis for QA/QC purpose. Details of sample locations and assay results are presented in Appendix 1 and Drawing No. 62036.

No significant copper values were obtained from soil samples from within the area to be relinquished, only five samples assayed >100ppm with a maximum of 148ppm copper. Maximum gold assay was 0.003g/t, lead and zinc values were very low.

7. CONCLUSIONS

No indications of significant mineralisation were found in the geological mapping and soil sampling completed over the area to be relinquished. Examination of previous company's exploration reports and of available geology and geophysical maps has also failed to define any exploration targets in this area.

DRAWINGS

APPENDIX ONE
Geochemical Assay Data