



Zenith
Minerals
Limited

ABN 96 119 397 938

QUARTERLY ACTIVITY REPORT FOR THE PERIOD ENDING 31 DECEMBER 2014

HIGHLIGHTS

ASX CODE: ZNC

Activities

Exploration /Development

- Develin Creek Copper-Zinc-Gold
- Kavaklitepe Gold
- Mt Minnie Gold
- Earahedy Manganese
- Mt Alexander Magnetite Iron

Details as at 31st Dec 2014

Issued Shares	124.4 m
Unlisted options	1.1 m
Mkt. Cap. (\$0.06)	A\$7.5m
Cash as at 30 th Sep	A\$1.2m
Debt	Nil

Directors

Michael Clifford	Managing Director
Mike Joyce	Non Exec Chairman
Stan Macdonald	Non Exec Director
Julian Goldsworthy	Non Exec Director

Major Shareholders

HSBC Custody, Nom.	8.5%
GDR PL	5.0%
Miquilini	4.8%
Nada Granich	4.4%
Citicorp Nom Ltd	4.1%

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Exploration and Development

- **Develin Creek Copper-Zinc-Gold-Silver Massive Sulphide Project, Queensland** (51% with right to acquire 100%):
 - Zenith drilling completed during the quarter confirmed high-grade resource extensions to Sulphide City Deposit. Massive sulphide results included:
 - **5m @ 2.45% copper, 2.14% zinc, 0.4 g/t gold and 30.7 g/t silver (3.72% CuEq*)**
 - **3m @ 2.63% copper, 0.88% zinc, 0.5 g/t gold and 36.7 g/t silver (3.58% CuEq)**
 - Drilling at the Window Deposit returned thick sub-horizontal near surface high-grade copper zone. Results included:
 - **37m @ 0.98% copper, including 13m @ 1.21% copper from 45m depth.**
 - Resource update incorporating new Zenith drill results in progress with potential upside to overall resource grades indicated by Zenith RC hole twins that returned significantly higher copper, zinc, gold and silver grades than historic drill holes assays.
 - Systematic evaluation of the many high-priority regional targets commenced with 5,000 soil samples collected in an initial systematic geochemical program.
 - Detailed review completed of historic geophysical datasets.
 - Initial metallurgical testwork in progress.
- **Kavaklitepe Gold Project Turkey** (earning 70%) – During the quarter Columbus Copper Corporation (CCU: TSX-V) announced the sale of its Bursa and Kavaklitepe properties in Turkey for total consideration of US\$1 million. The purchaser is the Teck Resources Limited group of companies. Zenith welcomes Teck's involvement in Kavaklitepe and will discuss with Teck's Turkish management team options to accelerate field work on the project.
- **Earahedy Manganese Project WA** (100%) – Zenith is a successful applicant in Round 10 of the WA Government Co-funded Exploration Incentive Scheme, under which Zenith plans to drill test 7 high-priority manganese targets in 2015 including two new prospects Bluegrass and Blue Elbow where outcropping high-grade manganese returned assays up to 48.1% manganese.
- **Mt Minnie Gold Project WA** (100%) – during the quarter initial field reconnaissance surface rock chip sampling returned up to 17.65 g/t gold, 13.15 g/t gold and 11.45g/t gold.

Corporate

An annual general meeting of Zenith shareholders was convened on the 21st November 2014 at which all resolutions put to shareholders were unanimously agreed to.



ZENITH'S EXPLORATION PROJECTS

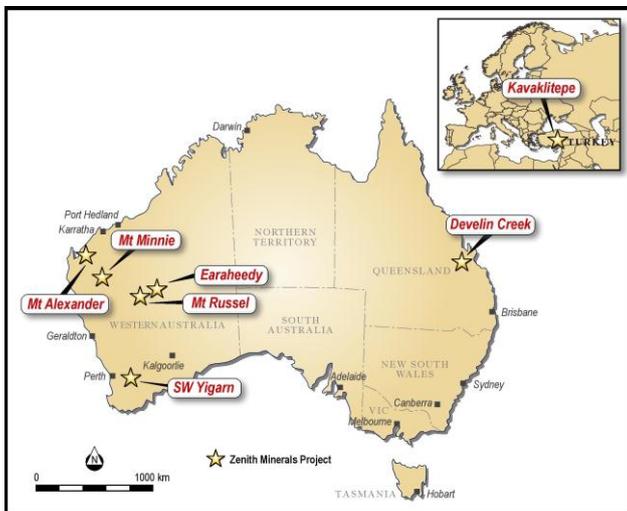


Figure 1: Zenith Project Locations



Drilling during the Quarter at Develin Creek

DEVELIN CREEK COPPER-ZINC-GOLD-SILVER PROJECT – QUEENSLAND

(Zenith 51% right to acquire 100%)

- Zenith drilling completed during the quarter confirmed high-grade resource extensions to Sulphide City Deposit. Massive sulphide results included:
 - **5m @ 2.45% copper, 2.14% zinc, 0.4 g/t gold and 30.7 g/t silver (3.72% CuEq*)**
 - **3m @ 2.63% copper, 0.88% zinc, 0.5 g/t gold and 36.7 g/t silver (3.58% CuEq)**
- Drilling at the Window Deposit returned thick sub-horizontal near surface high-grade copper zone. Results included:
 - **37m @ 0.98% copper, including 13m @ 1.21% copper from 45m depth.**
- Resource update incorporating new Zenith drill results in progress with potential upside to overall resource grades indicated by Zenith RC hole twins that returned significantly higher copper, zinc, gold and silver grades.
- Systematic evaluation of the many high-priority regional targets commenced with 5,000 soil samples collected in an initial systematic geochemical program.
- Detailed review completed of historic geophysical datasets.
- Initial metallurgical testwork in progress.

Activities During the Quarter

During the quarter the Company announced (ASX Release 27th November 2014) results from an 8 hole reverse circulation (RC) drilling program at its Develin Creek Copper-Zinc-Gold-Silver Project located in Queensland (Zenith 51%, right to acquire 100% from ASX:FRY). The drilling was the first in 20 years at the Scorpion and Window deposits and aimed to extend the known deposits as well as provide material for initial sighter metallurgical testwork.

Sulphide City Deposit

Drilling by Zenith confirmed that the high-grade core of the Sulphide City deposit extends a further 140m south of the existing JORC resource. The results from Zenith drill holes ZDCRC0006 (5m @ 2.45% copper, 2.14% zinc, 0.4 g/t gold and 30.7 g/t silver) and ZDCRC0007 (3m @ 2.63% copper, 0.88% zinc, 0.5 g/t gold and 36.7 g/t silver) support



results from a diamond drill hole completed in 2011 that returned an intersection of 13.2 metres @ 3.3% copper, 4.0% zinc and 0.4g/t gold outside the current resource (Figure 1).

Of special note, Zenith RC hole ZDCRC0006 twinned a 1993 percussion drill hole PD-088 (new RC hole drilled parallel to and within 9m of the older percussion hole) as the older hole appeared to have anomalously low copper-zinc-gold and silver results compared to the more recent diamond drill hole and other older 1993 diamond drill hole results further to the north. The older percussion hole was sampled on 3m composite intervals from the collar, whereas Zenith's hole was drilled using a modern face sampling reverse circulation downhole hammer and was sampled on 1m intervals. Zenith's hole returned significantly higher copper, zinc, gold and silver grades (3x copper, 5x zinc, 5x gold and 7x silver) for the equivalent drilled interval.

Drill hole ZDCRC0006, with more robust sampling techniques will replace PD-088 in the revised resource estimate (in progress), allowing a zone of continuous high-grade copper to be defined through the core of the new Sulphide City deposit southern extension (refer to Figure 1 above). The Company will in conjunction with the competent person responsible for the resource estimate assess if further twinning of older percussion drill holes is warranted.

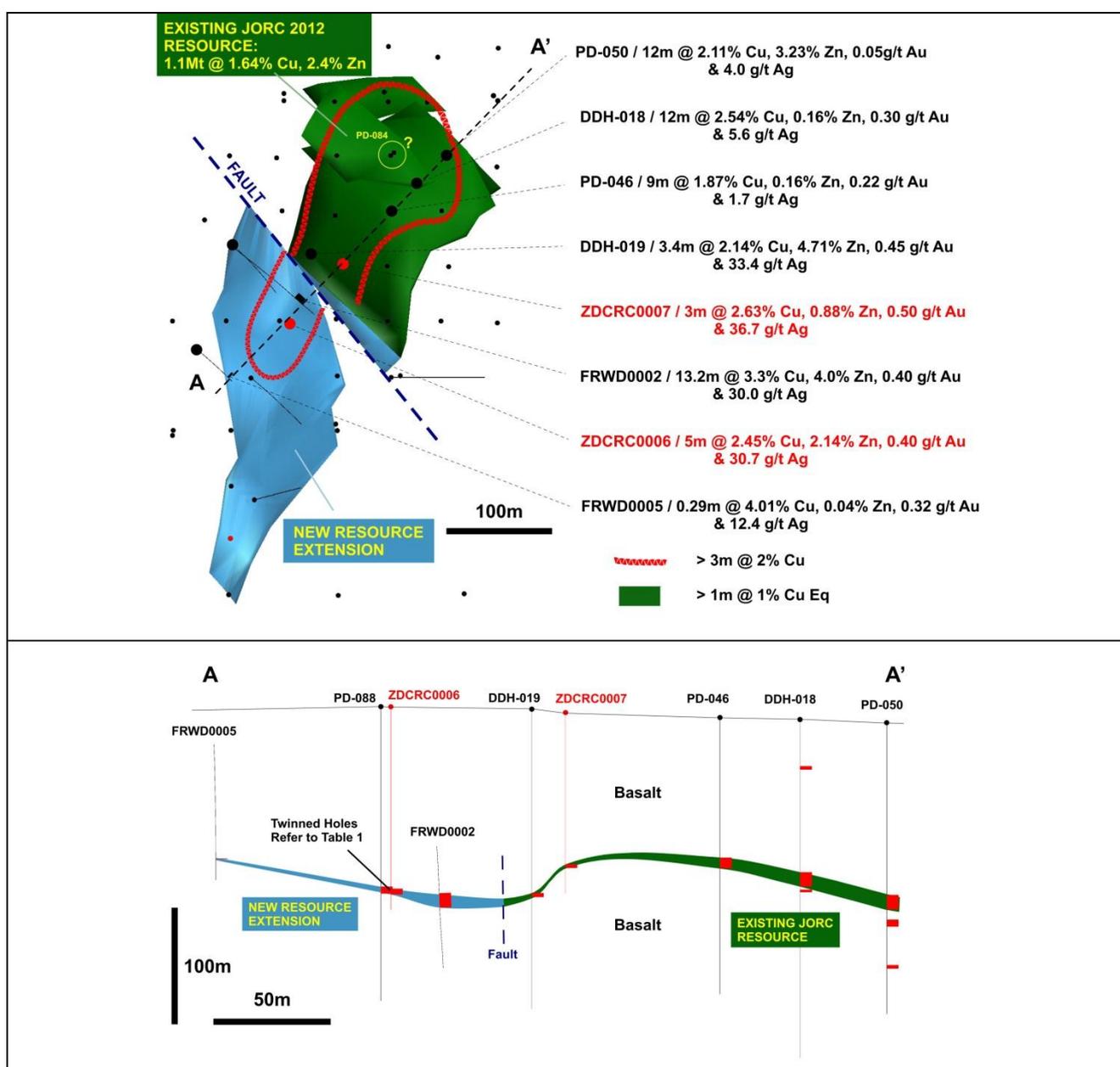


Figure 1: Plan View and Long Section of the Sulphide City Deposit



Of note, drill hole PD-084 drilled by percussion methods in 1993 at the northern end of Sulphide City deposit (Figure 1) also has anomalously low results compared with surrounding drill holes and Zenith will consider twinning that hole in follow-up drill programs.

In addition, hole ZDCRC0007, drilled in a 70m gap between existing holes in the southern portion of the existing resource, confirmed continuity of high-grade copper mineralisation, returning 3m @ 2.63% copper, 0.88% zinc, 0.5 g/t gold and 36.7 g/t silver.

Window Deposit

Zenith drilling at Window during the quarter indicates that this copper deposit is a thick zone of flat-lying chalcocite dominant (copper sulphide) mineralisation. Hole ZDCRC0003 extended mineralisation a further 40m north of the existing resource wireframe with a broad intersection of 37m @ 0.98% copper including 13m @ 1.21% copper from 45m depth. Drill holes ZDCRC0004 and 0005 drilled west and east of the existing Window resource wireframe close off mineralisation in those respective directions but will have no impact on the existing resource.

Scorpion Deposit

Drilling at the Scorpion Deposit during the quarter intersected the ore position with hole ZDCRC0002 intersecting a 2m wide zone of sphalerite (zinc sulphide) rich mineralisation returning 2m @ 1.59% zinc, 0.2% copper, 0.21 g/t gold and 16.4 g/t silver, however this did not confirm Zenith's interpretation of a continuous high-grade down plunge target. Holes ZDCRC0001 and ZDCRC0002 will not have any impact on the existing Scorpion resource. Both drill holes have been cased and will provide platforms for downhole EM surveying to be conducted in 2015. Massive bedded copper-zinc sulphide mineralisation remains open at depth beyond the main Scorpion deposit to the north and north-east.

Resource Update

Zenith has commissioned a resource estimate update incorporating the new Zenith drill results. There is potential upside to the overall resource grades indicated by Zenith RC drill hole twins that returned significantly higher copper, zinc, gold and silver grades.

Metallurgy

Initial sighter metallurgical testwork commenced on recent Develin Creek drill samples. Composite samples prepared from both the Window and Sulphide City drill samples have been submitted for flotation recovery testwork. Drilling at the Scorpion Deposit did not return a sample of suitable quality to allow metallurgical testwork to be completed on the Scorpion copper-zinc massive sulphides.

Regional Targets

Evaluation of the many high-priority regional targets commenced with an initial 5,000 soil samples collected during the quarter in a systematic geochemical surveying program. Historically there has been little to no systematic geochemical soil sampling over much of the prospective target horizons, so the Zenith program will be the first to provide effective regional geochemical coverage.

A detailed review of historic geophysical programs was completed during the quarter. Previous electrical geophysical surveys were mostly completed 20 years ago. The review involved re-processing the historic geophysical data using modern computer techniques. The review confirmed that induced polarisation (IP) geophysical surveying can detect the pyrite rich stringer zone underlying the massive copper-zinc sulphides at Develin Creek however, the work also showed that previous airborne and ground based electromagnetic (EM) surveys were not optimally designed to directly detect the massive copper-zinc sulphides, providing only weak ambiguous responses.

Planned Activities

- The updated resource estimate is expected to be completed by late January - early February 2015.
- Analysis of the 5000 soil samples has commenced with results expected in late February 2015.
- Zenith is in the progress of integrating the reprocessed Develin Creek geophysical datasets along with historic prospect scale mapping and furthermore plans to incorporate the new geochemical data into the Company's three dimensional exploration target model.

Background on Develin Creek Project

Located 70km north-west of Rockhampton in Central Queensland, the Develin Creek base metals project hosts several copper-zinc-gold-silver volcanic hosted massive sulphide (VHMS) deposits and covers an extensive belt of underexplored prospective volcanic rocks. Mineralisation comprises massive sulphide, stringer and breccia style copper-zinc-gold-silver deposits, hosted by basalts.



The Develin Creek deposits are of a style similar to those currently being mined by Sandfire Resources NL at DeGrussa and Independence Group NL at Jaguar-Bentley - both of those deposits are located in Western Australia. These types of deposits typically occur in clusters making them attractive exploration targets.

The **Sulphide City** mineralisation consists of stockwork, disseminated and massive sulphide mineralisation. The main Sulphide City lens, outlined with a 1% copper equivalent cut-off, has a horizontal projection of about 300m x 150m. The lens varies from 2.5m to 29m in thickness, generally dips 25-30° west-northwest and has been intersected at depths between 80m and 200m. Better historic drill intersections (previously reported by Fitzroy Resources Limited to the ASX, 14th Oct 2010, 11th May 2011 and 28th Oct 2011) include:

- **DDH-016 14.5m @ 0.6% Cu and 4.3% Zn (includes 2.5m @ 12.0% Zn)**
- **DDH-044 11.3m @ 2.1% Cu, 5.9% Zn, 16g/t Ag & 1.21g/t Au**
- **PD-052 15.0m @ 3.1% Cu, 2.3% Zn and**

The **Scorpion deposit**, 500m south-west of the Sulphide City deposit occurs in a 400m x 200m zone in altered volcanic rocks, the sulphide body, 2.5m – 9.5m thick consists of brecciated massive sulphides and grades up to 6% Cu, 9% Zn, 43g/t Ag and 1g/t Au. Better historic drill results (previously reported by Fitzroy Resources Limited to the ASX, 14th Oct 2010 and 11th May 2011) include:

- **DDH-001 21.6m @ 2.5% Cu, 1.5% Zn, 13g/t Ag & 0.5g/t Au, (includes 16.2m @ 3.2% Cu, 1.6% Zn)**
- **DDH-002 31.6m @ 1.5% Cu, 1.5% Zn, 15g/t Ag & 0.3g/t Au (includes 16.7m @ 2.1% Cu, 2.0% Zn)**
- **PD-007 44.0m @ 1.6% Cu, 1.0% Zn, 8g/t Ag & 0.3g/t Au, (includes 25.0m @ 2.6% Cu, 1.2% Zn, 10g/t Ag)**

The highly weathered **Window** mineralisation consists of steeply dipping chalcopyrite rich massive sulphides and sulphidic breccias with a 2m thick supergene blanket of covellite-chalcocite at 50m depth within a wider zone of stringer style mineralisation. The location and style of mineralisation indicates that the Window Deposit may be the partially eroded footwall stringer zone to the nearby Scorpion massive sulphide lenses. Better historic drilling results from Window (previously reported by Fitzroy Resources Limited to the ASX, 14th Oct 2010) include:

- **PD-012 84.0m @ 0.8% Cu (includes 48.0m @ 1.2%)**

The current Inferred Resources (JORC Code 2012, update in progress) for the 3 known mineralised bodies (Sulphide City, Scorpion and Window) at Develin Creek total: **1.76Mt @ 1.71% copper, 2.05% zinc, 8.5g/t silver and 0.24g/t gold**, at a 1% Cu equivalent cut-off (ASX Release-ZNC Qly Report June 2014).

Deposit	Tonnes	Cu% Grade	Zn% Grade	Ag g/t Grade	Au g/t Grade
SULPHIDE CITY	1,114,784	1.64	2.41	7.2	0.20
SCORPION	485,100	1.98	1.87	13.9	0.39
WINDOW	156,960	1.45	-	1.0	0.02
TOTAL	1,756,844	1.71	2.05	8.5	0.24

Refer to Competent Person sign-off at the end of this Quarterly Report.

Note that drilling in late 2011 by Fitzroy Resources and in the recent quarter by Zenith extended mineralisation at the Sulphide City deposit by 200m to the south, this mineralisation is not included in the resource estimate reported above. Better intersections from drilling (previously reported by Fitzroy -ASX Releases 28th July 2011, 28th Oct 2011 and 30th Jan 2012) which extends high-grade copper-zinc mineralisation to the north and south (refer to Figure 1) that are not included in the resource estimate include:

- **FRWD0002 13.2m @ 3.3% Cu, 4.0% Zn & 0.4g/t gold (40m south of existing resource)**
- **FRWD0004 1.1m @ 3.5% Cu, 1.7% Zn & 0.6g/t gold (140m south of existing resource)**
- **FRWD0001 0.7m @ 4.4% Cu, 1.6% Zn & 0.8g/t gold (50m north of existing resource)**
- **FRWC007 2.0m @ 0.23% Cu, 2.41% Zn & 2.51g/t silver (200m south of existing resource)**

Whilst new Zenith drill results include:

- **ZDCRC0006 5m @ 2.45% Cu, 2.14% Zn, 0.4 g/t Au & 30.7 g/t Ag**
- **ZDCRC0007 3m @ 2.63% Cu, 0.88% Zn, 0.5 g/t Au & 36.7 g/t Ag**

Significant potential exists to extend the currently defined copper-zinc-gold-silver deposits of Sulphide City, Scorpion and Window and to discover new mineralisation lenses in higher or lower stratigraphic positions.

Elsewhere within the project area, there is good potential to discover previously undetected VHMS mineralisation, in the extensive landholdings totalling 300km². Zenith now controls over 50km of strike length of prospective volcanic



host rock sequence. The application of modern geophysical exploration technology offers an improved ability to see through areas of surficial cover to define new drilling targets. IP geophysical coverage is limited to the area surrounding the known deposits whilst the project wide HeliTEM survey has identified over 66 EM targets of which only a few have had cursory follow-up ground work.

KAVAKLITEPE GOLD PROJECT – TURKEY (Zenith earning up to 70%)

- **Two coherent plus 800 metre long, high order gold in soil anomalies, with peak soil sample values over 1 g/t gold,**
- **Continuous rock chip traverse of 54.0 metres grading 3.33 g/t gold, including 21.5 metres grading 7.2 g/t gold within the northwest soil anomaly (Kuzey Zone),**
- **Continuous rock chip traverse of 21 metres grading 2.67 g/t gold at the Discovery Zone,**
- **Strong chargeable IP geophysical anomaly identified directly beneath high-grade surface rock chip samples (7.68, 22.7 g/t gold) and gold in soil (up to 6.05 g/t gold) at the Kuzey Zone,**
- **Kavaklitepe has yet to be drilled (only discovered in early 2013).**

Activities During the Quarter

During the quarter Columbus Copper Corporation (CCU: TSX-V) announced the sale of its Bursa and Kavaklitepe properties in Turkey for total consideration of US\$1 million. The purchaser is the Teck Resources Limited group of companies. Zenith welcomes Teck's involvement in Kavaklitepe and will discuss with Teck's Turkish management team options to accelerate field work on the project. The next step in evaluation will include trenching to expose the rock beneath the surface soil cover, followed by drilling. The Company continued to pursue forestry permits required to allow this next phase of follow-up work.

Background on Kavaklitepe Project

Zenith's wholly owned subsidiary S2M2 Coal Pty Ltd has an exclusive option to earn up to a 70% interest in Canadian TSX-V listed Columbus Copper's (now Teck Resources Limited) Kavaklitepe Gold Project located in western Turkey. Columbus Copper reported the discovery of gold mineralization at Kavaklitepe in a TSX-V release on January 17, 2013. The original discovery was made by following up a stream sediment anomaly with 5.2 grams per tonne ("g/t") gold returned from a rock chip composite in a stream bed outcrop. A small trench in an adjacent road cut was opened up perpendicular to the observed mineralization strike and returned 2.67 g/t gold over 21 metres of exposure. About 1.4 kilometres northwest from the discovery outcrop follow up on a soil sample anomaly, peaking at 6.05 g/t gold, led to identification of a brecciated zone striking north east. Four rock samples collected there returned 28.2 g/t, 21.7 g/t, 6.7 g/t and 3.66 g/t gold respectively (Columbus TSX-V release March 1, 2013). Further rock sampling along a road bank in this zone confirmed the presence of high-grade gold mineralization returning 54.0 metres of continuous rock chips with an average grade of 3.33 g/t gold, including 21.5 metres grading 7.2 g/t gold.

Columbus Copper also collected a total of 2,127 soil samples on the project in 50 metre x 50 metre and 100 metre x 100 metre grids covering an area of approximately 11 square kilometres, of which 176 samples returned gold grades higher than 50 ppb, 112 - higher than 100 ppb and 40 - higher than 250 ppb with 9 of these samples containing more than 1000 ppb (1 g/t) gold. The soil sampling outlined a potentially mineralized zone measuring 850 metres by 250 metres and continuing for another 800 metres to the southwest and possibly displaced by a northwest southeast trending fault at its southern margin. There are strong, coincident arsenic and antimony anomalies.

Successful IP geophysical survey trials by Zenith over two of the major gold in soil anomalies (Güney and Kuzey) at the Kavaklitepe JV project identified strong chargeability anomalies beneath the high-grade gold in soil anomalies. Two survey configurations were tested (gradient array – grid area and pole-dipole - single lines) both returning strong to moderate chargeable responses (>20Mv/v). Beneath the Kuzey zone a strong chargeable IP geophysical anomaly was identified directly beneath high-grade surface rock chip samples (7.68, 22.7 g/t gold) and gold in soil (up to 6.05 g/t gold), whilst a second strong chargeable IP geophysical anomaly was identified beneath the Güney Zone, potentially associated with cross faulting (Figure 2).

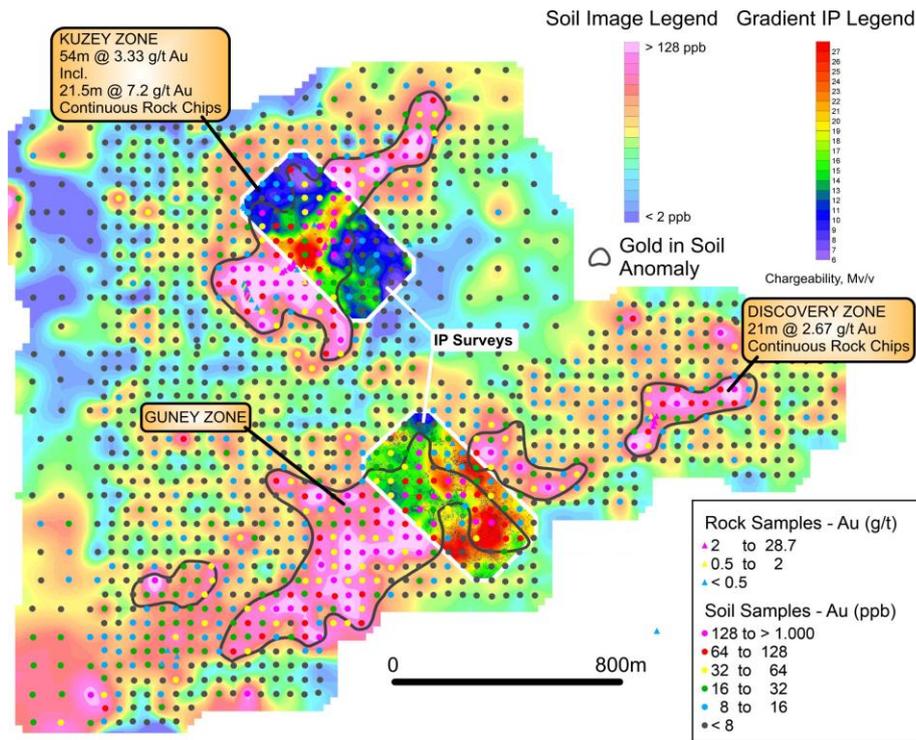


Figure 2: Plan Showing Kavaklitepe Project IP Geophysical Surveys (Images of chargeability at 25m below surface) overlying Gold in Soil Geochemical Anomaly with Rock Chip Sample Locations

At Kuzey the chargeability anomaly lies directly beneath the 900m long (50ppb Au) high-grade gold in soil anomaly (maximum 6050ppb Au, 6.05 g/t Au) and can be detected in the survey data to a depth of at least 100m (Figure 3).

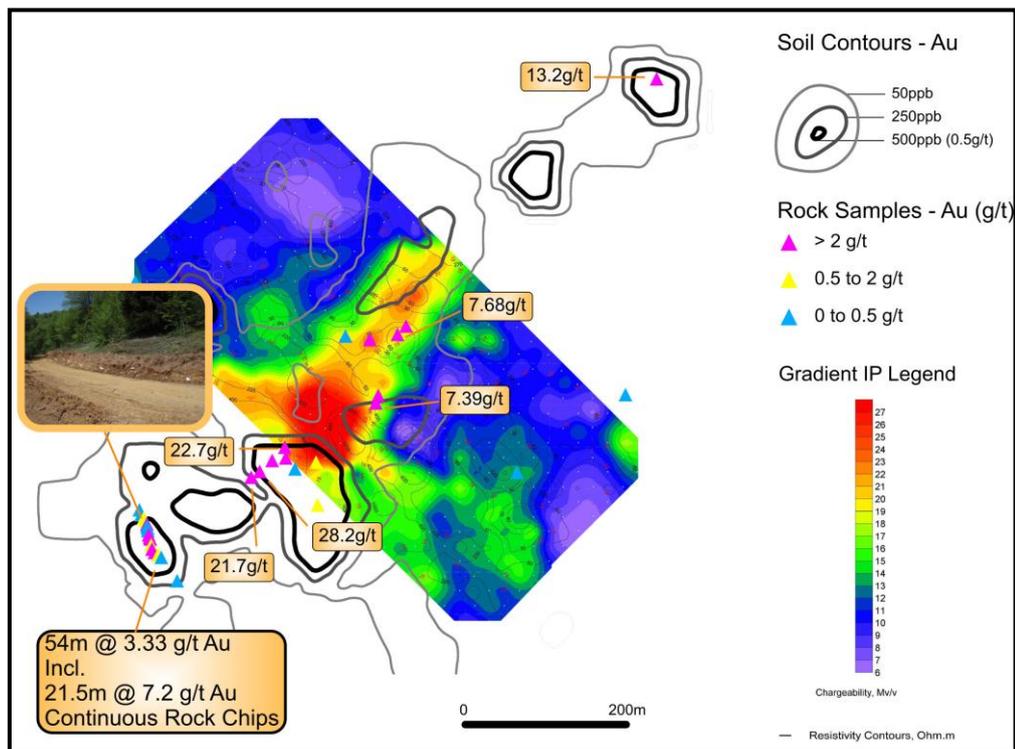


Figure 3: Plan Showing Kuzey Zone Gold in Soil Geochemical Anomaly Contours and Rock Chip Sample Locations overlying IP Geophysical Survey Image of Chargeability (25m depth slice)

Under the Turkish Agreement, S2M2 Coal may earn an initial 51% interest in the Property over three years by, making a further US\$100,000 cash payment and completing US\$2,500,000 in cumulative exploration expenditures on the Property. If S2M2 earns the initial 51% interest in the Property, it may elect to earn a further 19%, for 70% in total, by paying Columbus Copper (now Teck Resources Limited) an additional US\$500,000 and by completing a bankable feasibility study within a four year period.

EARAHEEDY MANGANESE PROJECT – WA (Zenith 100%)

- **Zenith first mover and dominant landholder, recognised potential new manganese (Mn) province in Earacheedy Basin in 2010,**
- **Strong tenement position - 130 strike kilometres of target manganese horizon,**
- **Acquisition of Rio Tinto tenure includes airborne EM survey data, covering 30km of strike.**
- **Manganese appears both structurally controlled and stratiform,**
- **Zenith's priority target is high-grade near surface oxide grading >40% Mn,**
- **Red Lake 2012 – 1st direct shipping ore (DSO) grade Mn intersected by drilling in Earacheedy Basin;**
 - **3m @ 41.0% Mn within 5m @ 34.8% Mn from 22m**
 - **1m @ 40.2% Mn within 3m @ 30.7% Mn from 3m.**

Activities During the Quarter

Zenith announced during the quarter (ASX release 8th December 2014) that it is a successful applicant in Round 10 of the WA Government Co-funded Exploration Incentive Scheme (EIS), under which Zenith plans to drill test 7 high-priority manganese targets in 2015 including two new prospects Bluegrass and Blue Elbow where outcropping high-grade manganese returned assays up to 48.1% manganese.

The drill program is the culmination of Zenith's targeting exercise incorporating recent reconnaissance mapping data with a detailed assessment by Zenith's geophysical consultants of the airborne electromagnetic survey data (VTEM), flown previously by Rio Tinto for iron ore exploration and covering 3 recently acquired exploration licences that contain newly identified high-grade outcropping manganese mineralisation. Assessment of the VTEM data has been highly encouraging with discrete near surface conductors occurring co-incident with surface outcrop of high-grade manganese as well as conductors along strike of the manganese outcrops and a series of additional conductors in areas where field work is yet to be completed. Deeper conductive layers have also been resolved providing insights into the geological architecture of the host sequence and potential manganese accumulation zones.

The Company is excited by the potential for further manganese discoveries within its extensive landholdings with the geophysical review defining greater than 60 new VTEM conductors of which 7 will be tested in the planned drill program.

The Company will commence preparation for drill testing the manganese targets in early 2015.

Background on Earacheedy Project

The Proterozoic aged Earacheedy Basin north of Wiluna in Western Australia is a potential new manganese province with similarities to the giant Kalahari manganese field in South Africa. As first mover Zenith established a strong land position with tenements now covering ~80 strike kilometres of prospective stratigraphy (Figure 4). Zenith's priority target is high-grade (>40% Mn) manganese oxide formed by weathering or supergene upgrade of primary mineralisation.

Zenith completed the first ever drilling for manganese in the western Earacheedy in late 2010 at the Lockeridge prospect, intersecting a shallow dipping bed of primary manganese carbonate mineralisation. Better results from Lockeridge include: 12m @ 11.1% Mn from 28m depth, and 3m @ 18.0% Mn from 37m depth.

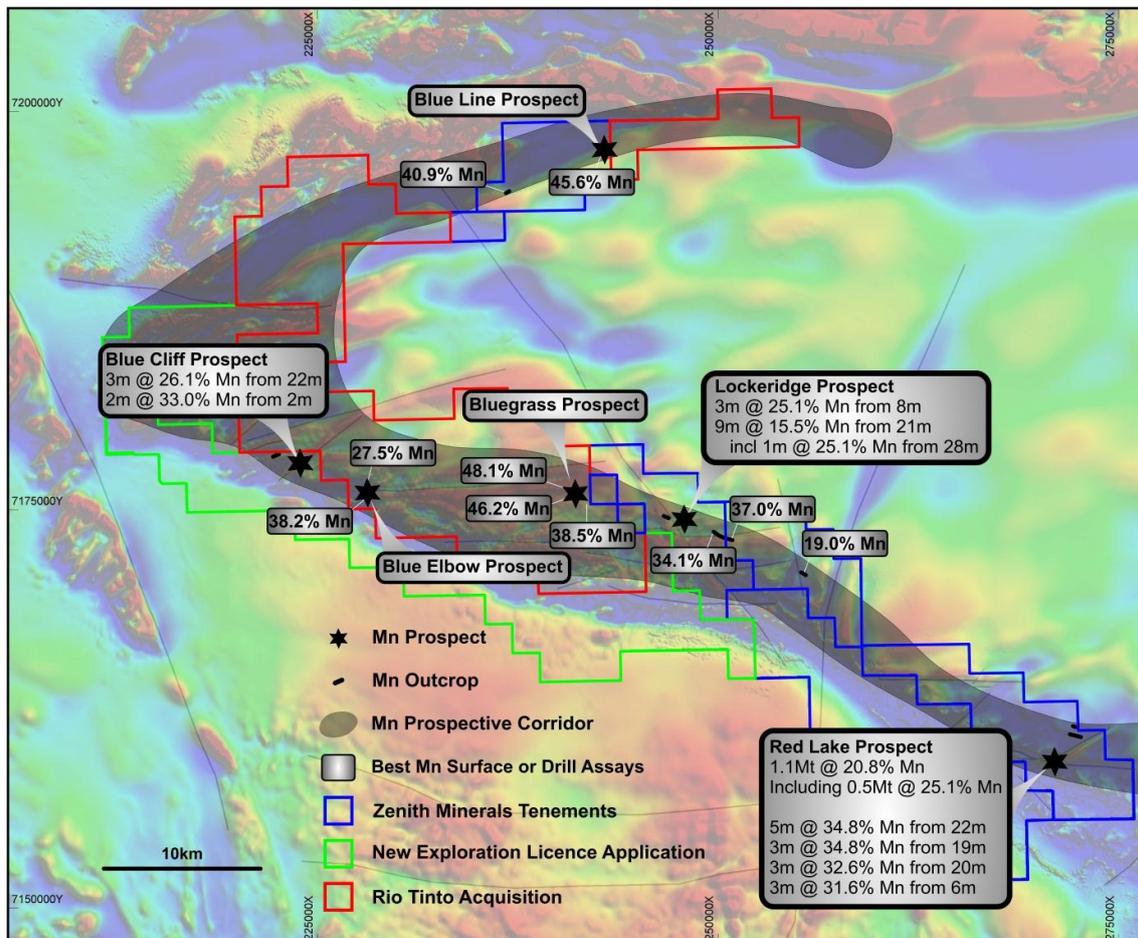


Figure 4. Zenith Tenements and Manganese Prospects, Western Earraheedy Basin

In late 2013 two additional holes drilled at the Lockeridge prospect were very positive, confirming that manganese oxide could persist up to 200m down dip from the high-grade manganese surface outcrops. The primary manganiferous carbonate at Lockeridge is supergene enriched near surface. Previous Zenith drilling completed in 2010 was stepped out more than 250 metres down dip from the outcrop, and intersected primary manganiferous carbonate with Mn grades in the range 3 to 10% Mn for up to 1.2 km down dip. The 2013 program established potential for supergene manganese oxide with both holes intersecting mineralisation. Hole ZTAC026 (3m @ 25.1% Mn incl. 1m @ 29.6%) intersected the target around 100 metres down dip from the high grade outcrop, and hole ZTAC025 (3m @ 20.2% Mn) hit partially oxidised mineralisation around 150m down dip from surface outcrop.

The first DSO grade Mn drill intersections recorded in the Earraheedy Basin were reported by Zenith in 2012 at the Red Lake prospect. Drilling results include; 3m @ 41% Mn (within 5m @ 34.8% Mn from 22m depth), and 3 metres @ 34.8% Mn from 19 metres, including 1m @ 42.3% Mn. Subsequent drill programs defined continuous near surface high-grade manganese at Red Lake. Based on a revised geological interpretation (ASX Release 9th September 2014) the Red Lake resource is: 1.4Mt @ 19.0% Mn at a 10% Mn cut-off grade with a higher grade component of 0.2Mt @ 30.0% Mn at a 25% Mn cut-off grade as presented in the Table below. The resource is classified under the JORC Code 2012 as Inferred, based on confidence in, and continuity of, the results from the drilling campaigns, and surface mapping.

Red Lake Manganese Mineral Resource Estimate as at August 2014

Classification	Reporting Cut-off Grade	Tonnes (Mt)	Mn %	Fe %	Si %	Al ₂ O ₃ %	P %	S %	LOI %
Inferred	25% Mn	0.2	30.0	14.1	13.85	7.9	0.24	0.03	12.1
	20% Mn	0.5	25.1	16.1	17.0	8.9	0.25	0.06	11.9
	15% Mn	1.1	20.8	17.7	20.5	9.3	0.24	0.17	11.5
	10% Mn	1.4	19.0	19.1	20.8	9.6	0.26	0.19	11.4

Note: The CSA Mineral Resource was estimated within constraining wireframe solids based on the specified nominal lower cut-off grade for Mn. The Mineral Resource is quoted from all blocks above the specified Mn cut-off grade %. Differences may occur due to rounding.



Geological assessment during the Red Lake resource estimation process resulted in identification of a new fault that controls the location of the high-grade manganese zones. The recognition of this fault as an important control on high-grade manganese mineralisation now opens up a high-potential resource extension target to the northwest and southeast of the existing Red Lake resource. The newly identified zone is a priority target for follow-up by Zenith (Figure 5).

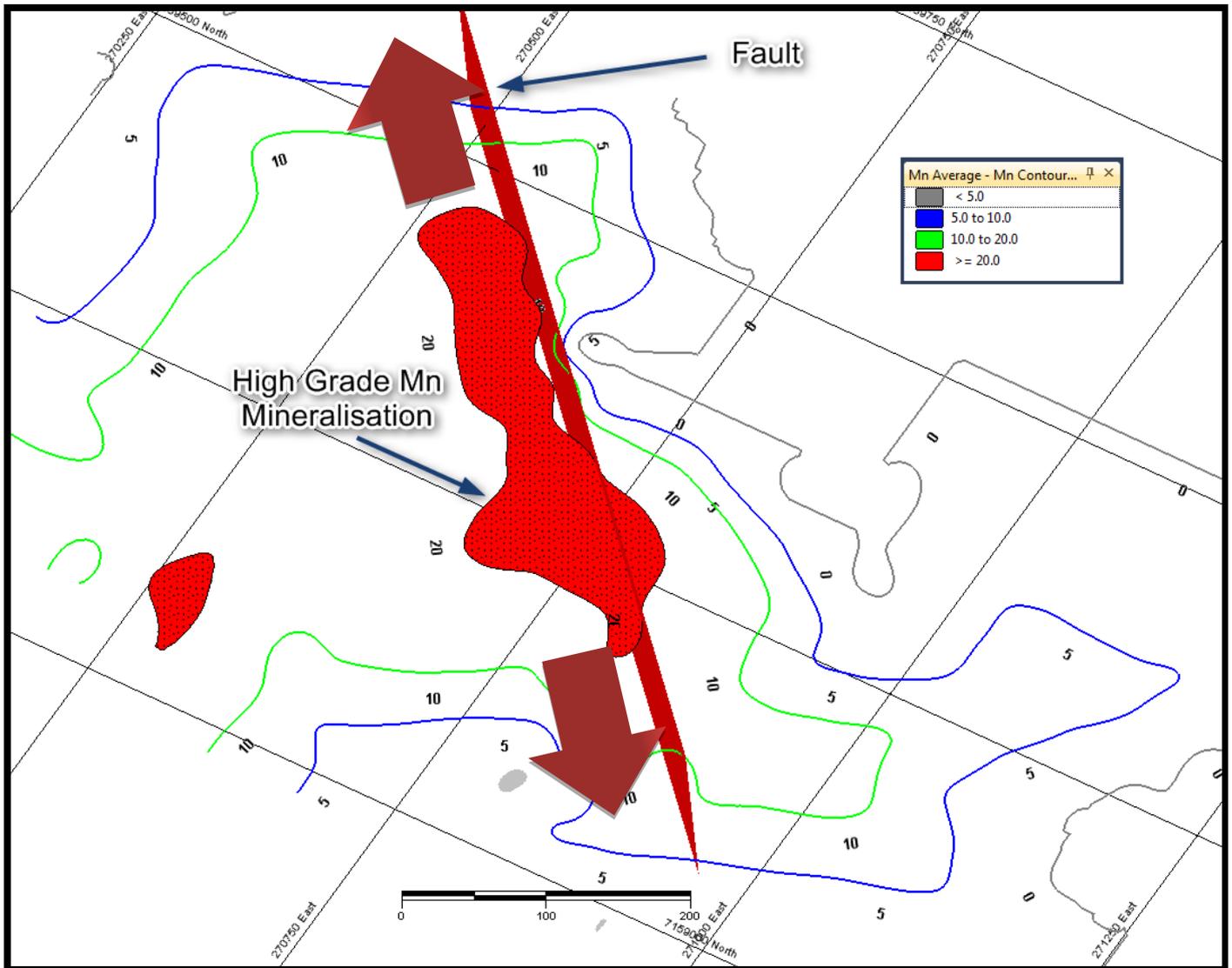


Figure 5: Red Lake Manganese Deposit with Resource Extension Targets (red arrows) - 3D view looking north, (red, green and blue contours show average Mn grades of >20%, >10% and >5% respectively)

An exploration licence application has been successfully applied for by Zenith to cover the Blue Cliff Manganese prospect where previous drilling by a JV managed by Cazaly Resources Limited intersected: 2 metres @ 33.0% Mn from 2 metres and 3 metres @ 26.1% Mn from 22 metres depth (as announced by Cazaly to the ASX – 27th July 2012). Zenith considers there to be potential for the development of additional Mn along strike of the Blue Cliffs occurrence as well as within the area adjacent to the tenure recently acquired from Rio Tinto.



EARAHEEDY BASE METALS PROJECT – WA (Zenith 100%)

- Irish/MVT Style carbonate hosted zinc and lead (Zn-Pb) mineralisation along western edge of Earahedy Basin,
- Wide spaced (1-10km) historic drilling demonstrates Zn-Pb anomalism over 300km²
- High-grade zinc-lead trends require drill testing,
- Previous drilling intersected:
 - Navajoh Prospect: 7.3m @ 6.1% Zn, 0.77% Pb (incl. 3.3m @ 11.2%Zn & 0.93%Pb)
 - Magazine Prospect: 5m @ 5.6% Zn+Pb (incl. 2m @ 8.2%Zn & 2.8%Pb)
 - Chinook Prospect: 6m @ 3.63% Zn+Pb
- Potential for large scale deposit remains untested.

Activities During the Quarter

No field work during the quarter. The company is seeking expressions of interest from third parties who may be interested in advancing the Earahedy base metals project.

MT ALEXANDER IRON PROJECT – WA (Zenith 100%)

- Advantages over other WA magnetite deposits;
 - Location close to coast and infrastructure (Well located close to sealed roads, gas pipelines and only 120km from coast near Onslow (Mitsui, Chevron ports)
 - Coarser grained = better beneficiation
 - Low waste to ore ratio ~ 1:1, provides a good compact mining shape
- Base case in 2011 Scoping study - slurry pipeline, tranship by barge to vessel offshore
- 80km to API JV (Baosteel-AMCI) West Pilbara proposed railway to Anketell Port – third party access indicated by developers,
- Prominent range magnetite zone +4 km long and up to 200 metres thick,
- JORC Inferred Resource of 535Mt @ 30 % Fe is only ~ 50% of target iron formation (“BIF”) area. Clear potential to grow resource within significant additional Exploration Target.

Activities During the Quarter

During the quarter the Company continued discussions with various potential partners interested in advancing the Mt Alexander Iron Project. Field work was also complete during the quarter to assess an area of potential high-grade DSO hematite mineralisation, however mapping and sampling indicated that high-grade hematite is restricted in surface extent.

Background on Mt Alexander Project

The Mount Alexander Project is 120 km from the port of Onslow, and 260 km south west of Karratha in the West Pilbara region of Western Australia, close to the Pilbara coast, the sealed North West Coastal Highway and the



Dampier Bunbury gas pipeline. Planned rail from the nearby West Pilbara Iron Project (Baosteel/AMCI JV) to a new port development at Anketell Point provides a possible alternative infrastructure solution (Figure 6).

Zenith has discovered magnetite iron mineralisation occurs in a banded iron formation (BIF) associated with a sequence of amphibolite, dolomite, schist and quartzite of Proterozoic age in the northern Gascoyne Province. These rocks have been metamorphosed to upper greenschist and amphibolite grade.

In May 2013 the Company announced a significant upgrade to the magnetite resource at Mount Alexander. The new Inferred Resource now stands at **535 million tonnes @ 30.0% Fe**.

Mount Alexander BIF Mineral Resource estimate as at May 2013							
Classification	Tonnes (Mt)	Head Grade					
		Fe %	SiO ₂ %	Al ₂ O ₃ %	LOI %	P %	S %
Inferred	535.1	30.0	48.0	2.2	-0.4	0.1	0.46
	DTR	DTR Concentrate Grade					
	Mass Recovery %	Fe %	SiO ₂ %	Al ₂ O ₃ %	LOI %	P %	S %
	24.6	69.9	2.4	0.1	-2.7	0.01	1.1

Substantial additional potential exists for increased tonnage with only ~50% of target BIF drill tested to date. The Company has released (24 May 2013) an **additional Exploration Target of 570 to 680 million tonnes @ 25 to 35% Fe** (excluding the Inferred Resource), in accordance with Section 17 and Section 38 of the JORC Guidelines 2012. *The potential quantity and grade of this Exploration Target is conceptual in nature. There has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. The Exploration Target has been estimated on the basis of outcrop mapping (by Zenith and by Jigsaw Geoscience, assays from outcrop rock chip samples taken by Zenith, drilling by Zenith (12 RC holes within the Exploration Target) at nominal 300m centres, magnetic susceptibility measurements and total iron and DTR analyses from drill samples, 2.5D profile and 3D inversion modelling of detailed ground (~100-200m line spacing) and airborne magnetic (~50m line spacing) survey data by Core Geophysics. A volume for the magnetite mineralisation was calculated to -100mRL and a bulk density range of 3.1g/cc to 3.7g/cc (consistent with a grade of 25-35wt% iron as magnetite) was applied to the volume derived from the modelling. The updated resource model wireframe was utilised for the Mt Alexander prospect area where appropriate. Further drilling to test the validity of the Exploration Target is planned within the next 2 years subject to receipt of the necessary permits and approvals, and the availability of funding.*

A Scoping Study by consultants ProMet was reported to ASX on 10 May 2011. The Study assessed the basic mining, processing and infrastructure requirements, and estimated Capital Costs and Operating Costs. Based on detailed test work on diamond drill core the Study applied a weight recovery of 30.2% at p80 minus 40 micron grind and a DTR concentrate grade of 69.9% Fe and 3.0% SiO₂. The Base Case selected included processing by crushing, grinding, wet magnetic separation. The Base Case transport option for the concentrate was by slurry pipeline 120 km to the coast near Onslow, and transport by barge to an offshore mooring for transfer into ships for export (transshipment).

** The Scoping Study referred to in this report is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.*

Pre-feasibility study elements undertaken aimed at de-risking the project include; finalised Level 1 and Level 2 flora & flora surveys (which did not identify any major environmental triggers), work on securing access to a project water supply, and investigation of export infrastructure options and bulk material transshipment technology.

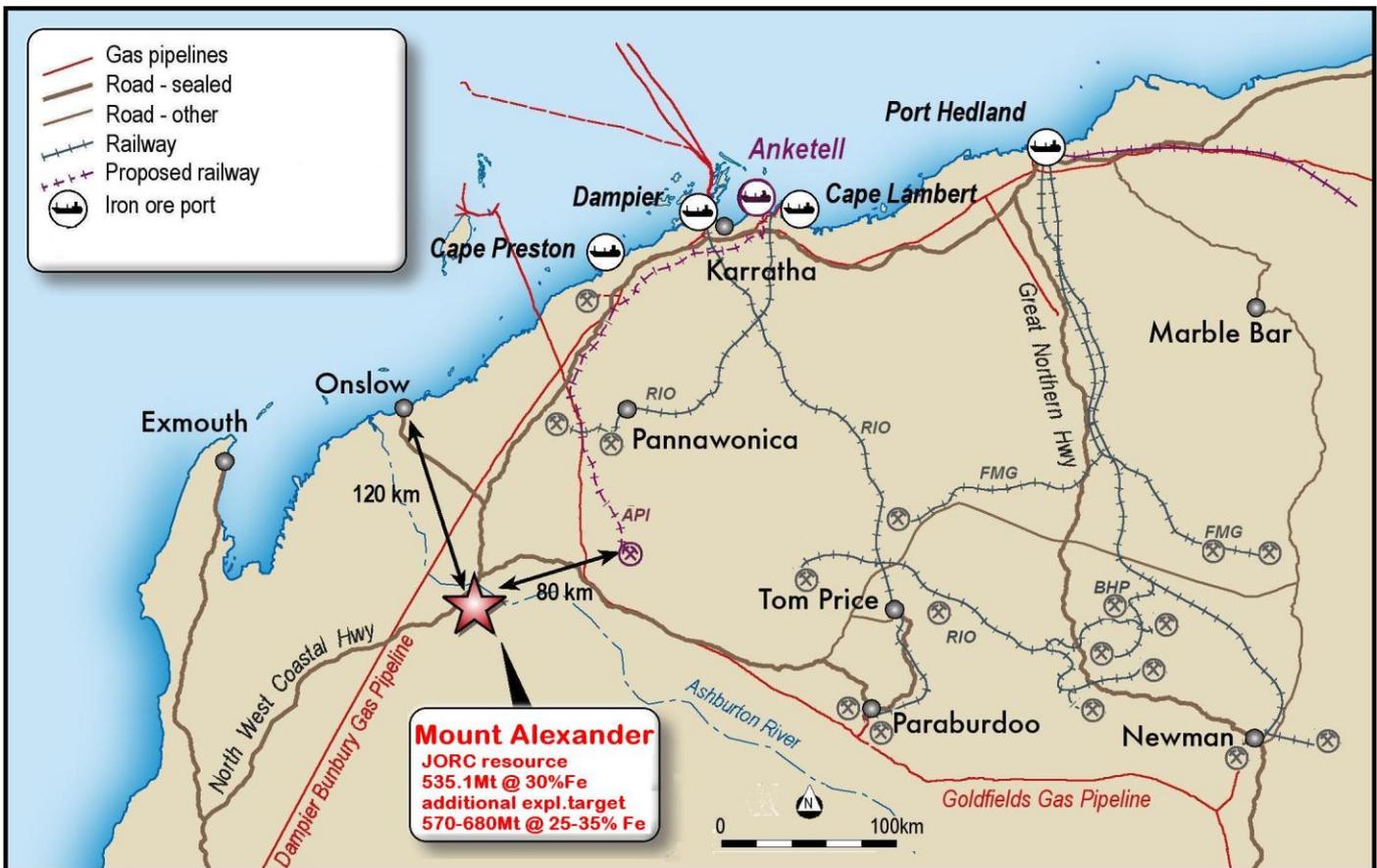


Figure 6: Mount Alexander Project Location Map – (Note Proximity to Coast and Regional Infrastructure)

MT MINNIE GOLD PROJECT – WA (Zenith 100%)

- 7 under explored gold prospects over 50km of strike;
- Zenith rock chip sampling confirms high-grade gold in quartz veins. New surface rock sample results include: 17.65 g/t gold, 13.15 g/t gold and 11.45g/t gold;
- Previous high-grade rock samples returned up to 64.2 g/t gold & 21.5 g/t gold;
- Only cursory historic reconnaissance activity in Zenith tenure by previous explorer, however focus was on nearby Minnie Springs molybdenum deposit;
- Zenith is applying a new geological model to assess seven under-explored gold prospects over 50km of strike, prospective for reduced intrusion related gold deposits, and
- Zenith's detailed orientation sampling program confirmed that surface soil samples can detect gold mineralisation at the Woods Prospect, whereas historic soil sampling failed to detect the gold rich veins.



Activities During the Quarter

Zenith announced to the ASX (3rd December 2014) new high-grade gold results from samples taken during an initial reconnaissance site visit during the quarter at the Mt Minnie Gold Project, located in Western Australia.

Previous rock chip sampling at the Woods Prospect identified a zone of very positive gold results up to 21.5 g/t gold (Au). Sampling by Zenith confirmed the high-grade tenor of gold mineralisation at the Woods Prospect with new samples returning: 11.45 and 1.24 g/t Au from the core of a 2-3m wide ferruginous quartz vein over an outcrop strike length of 30 metres with a further sample taken 200 metres north returning 17.65 g/t Au. A continuous rock chip sample across the strike of the vein returned 2 metres @ 1.24 g/t Au. The prospect is on the edge of a soil covered plain and outcrop is sparse (Figure 7).



**Figure 7: Woods Prospect – Significant Rock Sampling Results (only results greater than 1g/t Au shown).
Note lack of outcrop and extensive soil cover surrounding the vein as shown in photo).**

Zenith’s field crew also conducted a detailed orientation soil sampling program over the Woods Prospect and confirmed that analysis of certain size fractions of surface soil samples can detect the gold mineralisation, whereas a previous explorer’s attempt at soil geochemistry failed to detect the gold rich veins. This technical breakthrough provides Zenith with a cost effective, rapid screening tool to assess the size potential of the Woods Prospect and other gold mineralised veins systems in the project area.

The next steps in evaluation of the project will include interpretation of geophysical and remote sensing data to establish structural setting and controls on mineralisation followed by systematic soil geochemical sampling programs to assess the extents of gold mineralisation at the Woods Prospect.

Background on Mt Minnie Project

The Mt Minnie project consisting of two exploration licences is situated approximately 240 km northeast of Carnarvon in Western Australia. The Mt Minnie North – Ram West tenements cover a portion of terrain composed predominantly of mid-Proterozoic granite assigned to the Minnie Creek batholith prospective for reduced intrusion related gold deposits. The project has 7 existing gold prospects requiring follow-up that to date have only been the subject of cursory reconnaissance exploration activity.

Mt Minnie North (E09/2063) – Previous rock chip sampling at the Woods Prospect has identified a zone of very positive gold results including: 21.5 g/t Au, 0.49 g/t Au, 0.3 g/t Au, 0.15 g/t Au and 1.09 g/t Au. In addition rock chip sampling has returned up to 6.64g/t Au from the Osborne Well/Neptune Prospect area, located approximately 12 km to the south east of Woods Prospect. Mineralisation at all prospects is associated with quartz veining and sheared-altered granite.



Ram West (E09/2064) – Previous prospecting has defined 5 gold prospects over an area 10km x 5km that have not been followed up after their initial discovery: Ram West – gold to 0.85 g/t Au with associated bismuth (0.14%), tungsten and molybdenum, Fenceline – gold up to 64.2 g/t Au, Roadside - gold up to 0.3 g/t Au with associated tungsten and molybdenum, Michelle's Copper – gold up to 0.6 g/t Au with associated bismuth (0.2%), molybdenum (278 ppm), tungsten (0.12%) and copper (3.6%), Clay pan – gold up to 0.28 g/t Au.

MT RUSSEL COPPER PROJECT – WA (Zenith 100%)

- **Exploration License Application,**
- **Near surface copper exploration results in historic shallow drilling,**
- **Yerrida basin setting, same host sequence as Thaduna Green Dragon copper deposits under assessment 100km to the north.**

Activities During the Quarter

No field activities were conducted during the quarter. Follow-up surface sampling and mapping is now planned for early 2015.

Background on Mt Russel Project

Exploration licence E53/1809 (Mt Russel) encompasses historic copper exploration results reported by ACM in 1983 (GSWA – WAMEX Report a12928) including: 10m @ 0.28% Cu from 10m down-hole, in the oxidized portion of the hole of a regional stratigraphic drill hole.

The project area covers the southern margins of the Yerrida Basin (Maralouu formation) – part of the Capricorn Orogenic belt. A number of explorers are active in the northern portion of the Yerrida Basin including: Sipa Resources Limited (ASX:SRI) who have reported promising results from their Thaduna copper project and Sandfire Resources NL (ASX:SFR) and Joint Venture partner Ventnor Resources Limited (ASX:VRX) who are assessing the Green Dragon copper project.

The Mt Russel area is considered a viable near surface flat lying oxide copper target amenable to potential cheap mining and processing via solvent extraction electrowinning, similar to the near surface copper oxide deposits of the mid-western USA, that overly the large porphyry copper deposits

SUNGAI ROI COAL PROJECT – INDONESIA (Zenith Right to earn 90%)

- **Coal concession in East Barito, Kalimantan, Indonesia,**
- **Multiple, flat lying high-grade thermal coal seams crop out over 3km of strike,**
- **Close to existing infrastructure including haul roads and barge loading facilities,**
- **Conditional offer received: US\$500,000 in staged payments and royalty of US\$1.00/tonne coal mined for S2M2 Coal's rights.**

Activities During the Quarter

No field activities were conducted during the quarter.

Background on Sungai Roi Project

The Sungai Roi coal concession in East Barito, Kalimantan, Indonesia contains an Exploration Target estimated in accordance with Section 17 and Section 38 of the JORC Guidelines 2012 of approximately 1 to 1.2 million tonnes of high-grade (6800 - 6900 kcal/kg GAR) thermal coal. *The potential quantity and grade of this Exploration Target is



conceptual in nature. There has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource.

The Exploration Target was estimated by Zenith subsidiary, S2M2 Coal based on detailed mapping and sampling of 14 shallow dipping coal seams exposures over a strike length of 3km within a width of 800m and a 40m vertical range based on topographic contours. Cumulative coal seam thickness is up to 1.87m. Drilling to test the validity of the Exploration Target is recommended subject to receipt of necessary permits and approvals.

S2M2 Coal has the exclusive right to conduct due diligence on the Sungai Roi coal concession and the option, at its election, to acquire a 90% interest in the company owning the Sungai Roi coal concession. The multiple, flat lying coal seams on the concession crop out over 3km of strike within an area of gently undulating topography. The project is also close to existing infrastructure including haul roads and barge loading facilities that have the potential to reduce the upfront capital costs and time frame for development of the project.

In October 2013, S2M2 Coal received a conditional offer from an Indonesian entity to purchase S2M2 Coal's rights in respect of the Sungai Roi Coal Project for consideration of US\$500,000 in staged payments and a US\$1.00 royalty per tonne of coal mined. The company is awaiting confirmation of clean and clear title to the coal license.

NEW OPPORTUNITIES

The Company is continuing to assess resource opportunities that have both synergies with existing Zenith projects or that will enhance the Company's existing project portfolio. The focus is on gold and copper projects in which 100% ownership can be secured.

CORPORATE

An annual general meeting of Zenith shareholders was convened on the 21st November 2014 at which all resolutions put to shareholders were unanimously agreed to.

Zenith Minerals Limited

22nd January 2015

For further information contact;

Directors Michael Clifford or Mike Joyce

Phone 08 9226 1110



The information in this report that relates to Zenith Exploration Results and Exploration Targets is based on information compiled by Mr Michael Clifford, who is a Member of the Australian Institute of Geoscientists and an employee of Zenith. Mr Clifford has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Clifford consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this Report that relates to in-situ Mineral Resources at the Develin Creek project is based on information compiled by Ms Fleur Muller an employee of Geostat Services Pty Ltd. Ms Muller takes overall responsibility for the Report. She is a Member of the AusIMM and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity she is undertaking, to qualify as a Competent Person in terms of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition). Ms Muller consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

The information in this report that relates to Zenith Exploration Targets at Mt Alexander is based on information compiled by R M Joyce, who is a director of the Company and a Member of the AusIMM. Mr Joyce has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Joyce consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

This information this Report that relates to in-situ Mineral Resources at Zenith's Mount Alexander project is extracted from the 24 May 2013 ASX release entitled 'Mount Alexander Resource Upgrade' which is available to view on the Company's website (www.zenithminerals.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the 24 May 2013 market announcement, and that all material assumptions and technical parameters underpinning the Mineral Resource estimate in the 24 May 2013 market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information in this report that relates to Mineral Resources at Zenith's Earraheedy project is based on information compiled by Mr Dmitry Pertel, a Competent Person who is a fulltime employee of CSA Global Pty Ltd and a member of the Australian Institute of Geoscientists (AIG). Mr Pertel has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr Pertel consents to the inclusion of such information in this report in the form and context in which it appears.