



ASX & MEDIA RELEASE

Zenith  
Minerals  
Limited

ABN 96 119 397 938

## QUARTERLY ACTIVITY REPORT FOR THE PERIOD ENDING 31<sup>st</sup> December 2017

### HIGHLIGHTS

ASX CODE: ZNC

#### Exploration / Development

- Kavaklitepe Gold - Turkey
- American Lithium
  - Zacatecas – Mexico
  - San Domingo – USA
  - Burro Creek – USA
  - Wilson Salt Flat – USA
  - Spencer - USA
- Split Rocks Lithium, Gold & Cobalt – Aus
- Tate River Gold - Aus
- Develin Creek Copper-Zinc-Gold

#### Details as at 31<sup>st</sup> Dec 2017

Issued Shares (ZNC)	212.8 m
Unlisted options	2.5 m
Mkt. Cap. (\$0.135)	A\$29m
Cash as at 31 <sup>st</sup> Dec 17	A\$3.1m
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.	6 %
City Corp Nom	6. %
Nada Granich	6. %
Abingdon	4 %
Miquilini	4 %

#### Contact Us

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#### Australian Projects

##### Split Rocks Lithium-Gold-Cobalt Project - WA

Ongoing review of previous exploration on Zenith's recently granted, 100% owned Split Rocks project in Western Australia highlighted high-grade near surface **cobalt and nickel** historic drill results at the Dulcie Prospect, including:

- ♦ 22m @ 0.06% cobalt and 0.70% nickel from 18m downhole, including: 8m @ 0.12% cobalt and 0.96% nickel;
- ♦ 21m @ 0.06% cobalt and 0.49% nickel from 25m downhole, including: 5m @ 0.13% cobalt and 1.78% nickel;
- ♦ 15m @ 0.06% cobalt and 0.54% nickel from 32m downhole plus a further 21m @ 0.05% cobalt and 0.59% nickel from 52m;

This historic drilling at Dulcie covers only 400m of strike of an ultramafic unit with an additional up to 9km's of untested potential within Zenith's tenure. Drill permits received, drilling planned to commence early 2018.

Three new, large scale **lithium** surface geochemical anomalies defined at Split Rocks in 100% owned Zenith tenure located 10km northwest of the Earl Grey lithium pegmatite deposit (ASX:KDR/SQM). Drill permits received, drilling to proceed after results of infill and extension surface sampling (currently in progress) is completed in order to better define these large lithium anomalies. Note sampling for lithium to date covers less than 10% of the Company's tenement area.

Drill program (RAB) totalling 3300m completed testing two **gold** anomalies Mawson and Casey defined by Zenith auger soil sampling.

##### American Lithium JV

Drill programs are planned to commence on finalisation of JV partner Bradda Head's IPO on the London (AIM) stock market, anticipated to occur in early 2018.

##### Burro Creek Lithium Clay Project – Arizona USA

Drill permits for trench and resource drilling of extensive lithium rich clay deposit at Burro Creek were received in mid-January 2018.

##### San Domingo Pegmatite field- Arizona USA

Drill permits submitted to test high-grade lithium pegmatite targets where sampling returned results including grab samples of 5.8% and 8.0% Li<sub>2</sub>O. Systematic sampling of more strongly weathered spodumene rich pegmatite also returned: 2.9m @ 0.86% Li<sub>2</sub>O, 2.8m @ 0.69% Li<sub>2</sub>O, plus a near true width zone of 12.7m @ 0.45% Li<sub>2</sub>O.

##### Wilson Salt Flat & Spencer Lithium Brine Projects – Nevada USA

Drill permits received to test the Wilson Salt Flat lithium brine target where recently completed MT geophysics highlighted a strong, sub-surface conductive target similar to those associated with new lithium brine discoveries in Nevada.

##### Zacatecas Lithium Brine Project - Mexico

Shallow auger holes at San Juan Salar show strong lithium in salt lake sediments up to 874ppm Li. Lithium and total salinity in brine samples increase with depth in all holes pointing to deeper target. MT geophysical survey planned to assess deeper brine targets prior to drill testing.



## HIGHLIGHTS CONTINUED

### Corporate

23,401,788 listed ZNCO options (99%) were exercised prior to expiry on 31 December, converting to fully paid ordinary shares during the quarter raising a total of \$2,340,179.

## ZENITH'S EXPLORATION PROJECTS

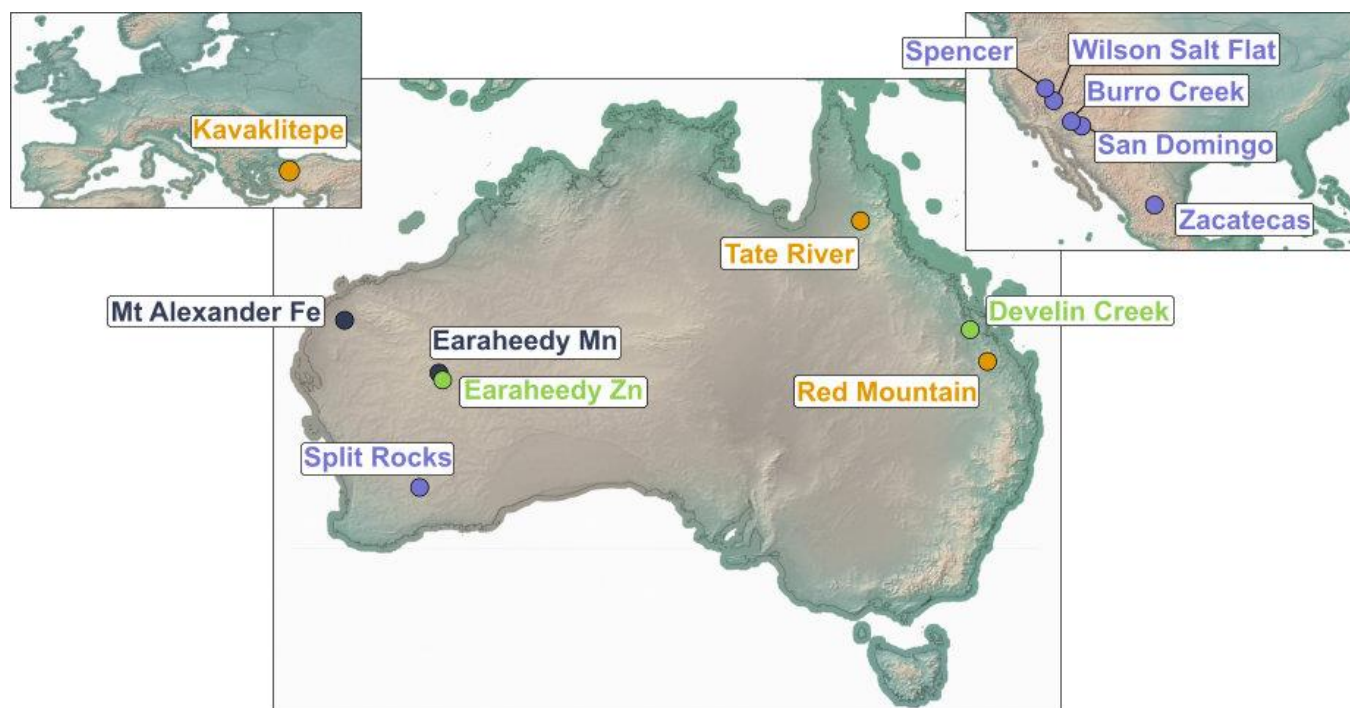


Figure 1: Zenith Project Locations

### **SPLIT ROCKS LITHIUM, COBALT-NICKEL & GOLD PROJECT – WA (Zenith 100%)**

- 100% owned exploration licences covering ~500sqkm of the Forrestania Greenstone Belt, 15km northwest of Earl Grey lithium pegmatite discovery and Bounty Gold mine;
- Ongoing review of previous exploration highlighted high-grade near surface cobalt and nickel historic drill results at the Dulcie Prospect, including: 22m @ 0.06% cobalt and 0.70% nickel from 18m downhole, including: 8m @ 0.12% cobalt and 0.96% nickel;
- Three new, large scale lithium geochemical anomalies defined, infill and extension surface sampling, currently in progress. Note sampling for lithium to date covers less than 10% of the Company's tenement area.
- Drill permits received for well-defined cobalt target.

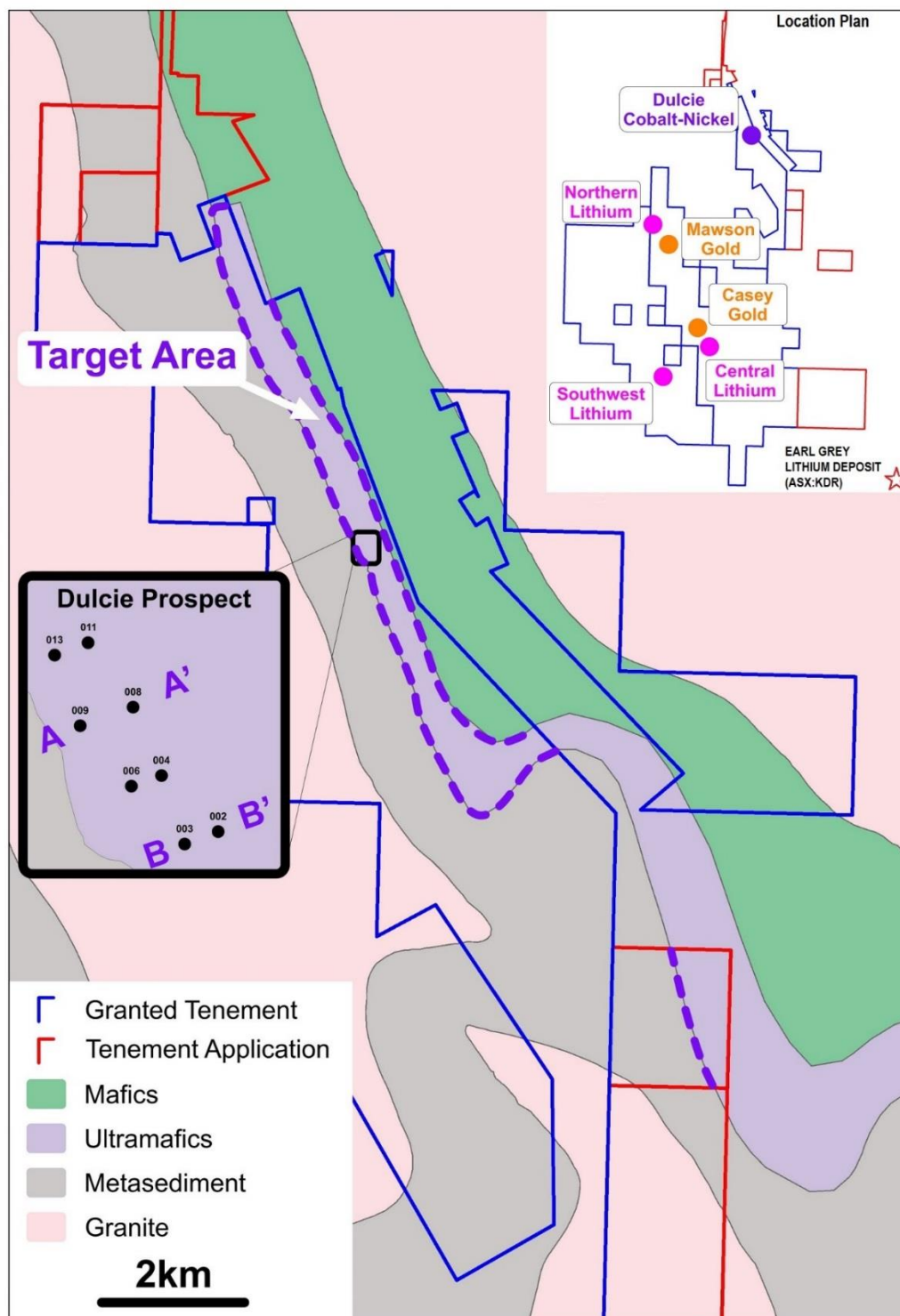
### Activities During the Quarter

#### *Cobalt-Nickel Activities*

As reported to the ASX on the 9<sup>th</sup> January 2018 an ongoing review of previous exploration activities on one of the recently granted exploration licences that makes up the Company's 100% owned Split Rocks project in Western Australia has highlighted that high-grade, near surface cobalt and nickel was intersected in previous drilling.



Drilling in 1998 at the Dulcie Prospect by Forrestania Gold NL (reported to the WA Mines Department in open file report A56331) returned strong cobalt and nickel in a near surface, flat lying, saprolite clay blanket-type body. In total 13 drill holes, of which only 8 have been analysed for cobalt and nickel were completed over 4 drill lines, covering only 400m of strike (Figures 2 and 3).



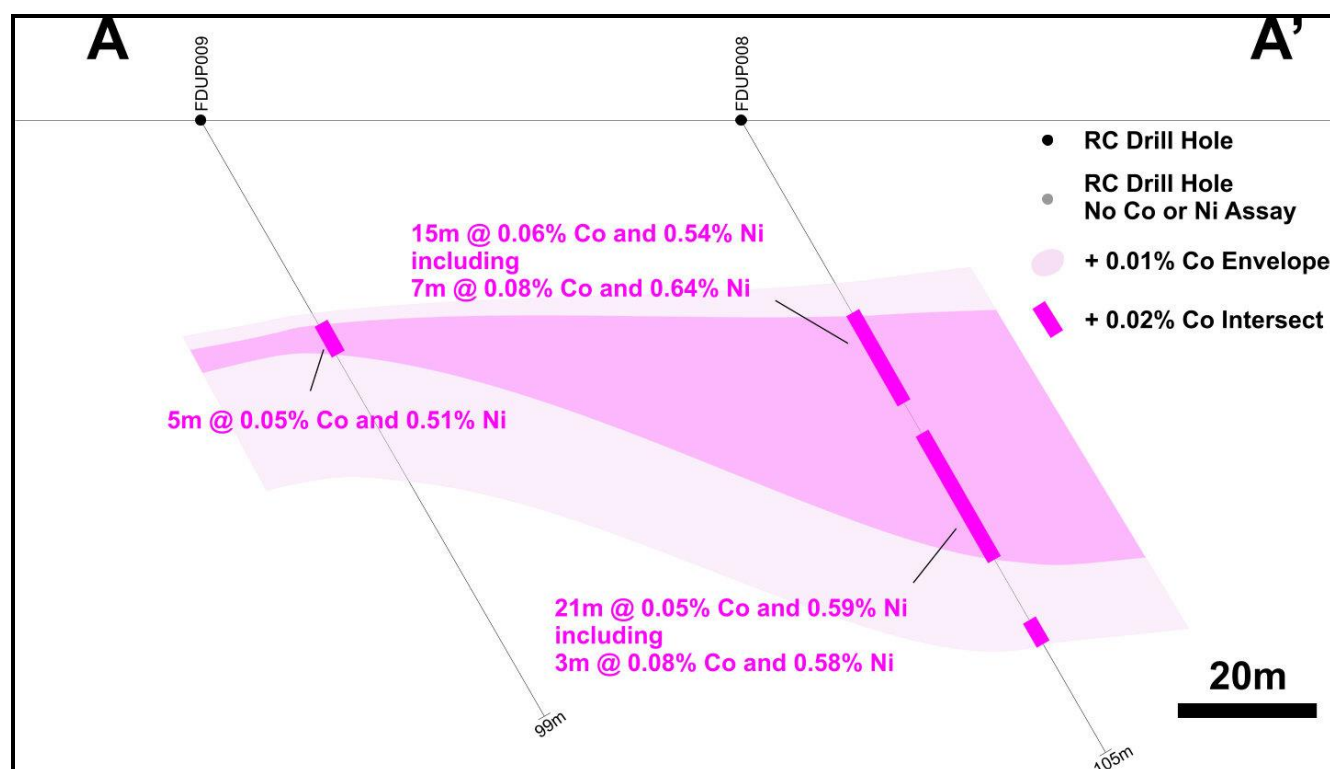
**Figure 2: Split Rocks Project Dulcie Cobalt-Nickel Prospect Plan**

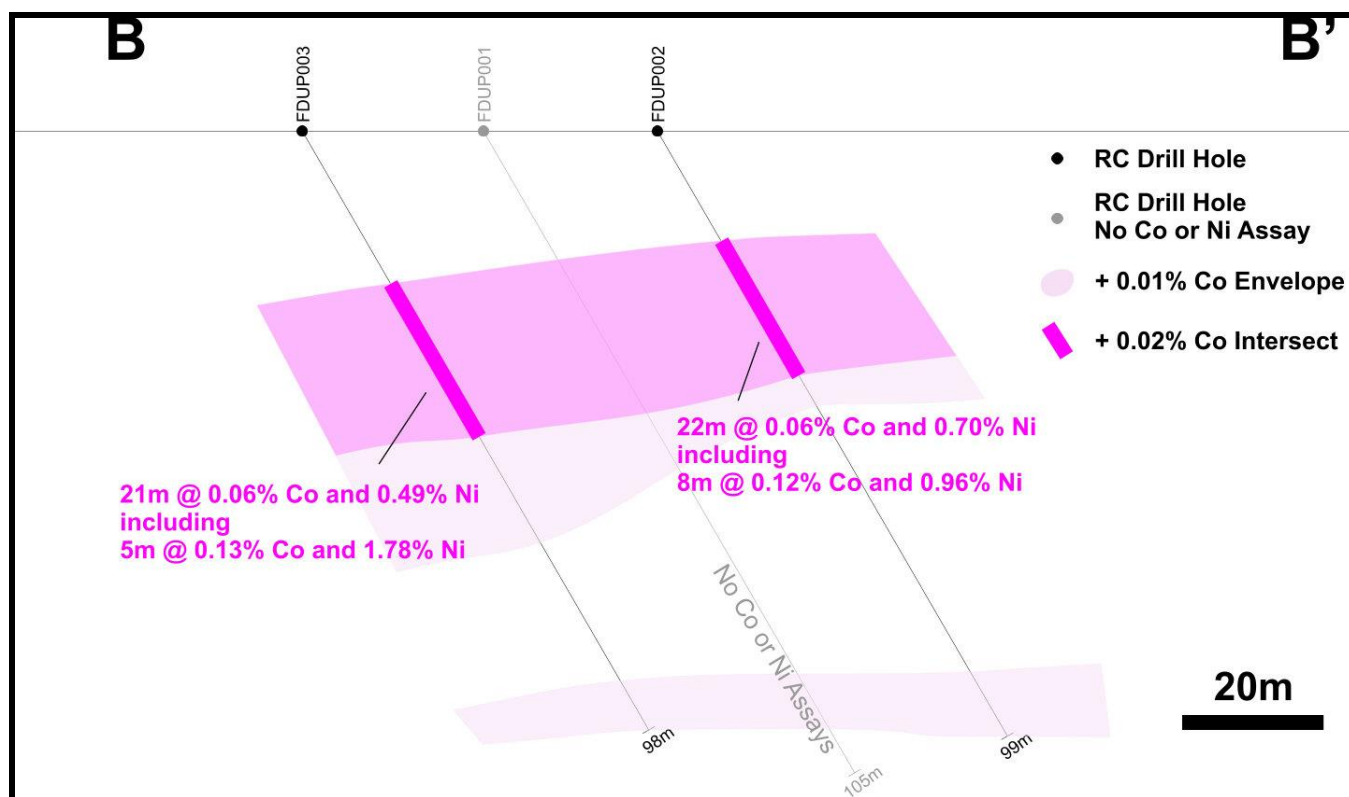


The cobalt – nickel mineralisation remains open in all directions, with nickel exploration by Kennecott reported in 1974 (report A5446) indicating up to a further 9km of strike potential of interpreted host ultramafic unit within Zenith's tenure that is yet to be tested. Cobalt rich drill results include:

- ◆ FDUP002 18 - 40 metres, 22 metres @ 0.06% cobalt and 0.70% nickel;
  - including: 8m @ 0.12% cobalt and 0.96% nickel
- ◆ FDUP003 25 – 46 metres: 21 metres @ 0.06% cobalt and 0.49% nickel;
  - including: 5 metres @ 0.13% cobalt and 1.78% nickel;
- ◆ FDUP004 27 – 32 metres, 5 metres @ 0.03% cobalt and 0.33% nickel, and 53 – 59 metres, 6 metres @ 0.04% cobalt and 0.48% nickel;
- ◆ FDUP006 27 – 56 metres, 29 metres @ 0.03% cobalt and 0.50% nickel
- ◆ FDUP008 32 – 47 metres, 15 metres @ 0.06% cobalt and 0.54% nickel, and 52 – 73 metres, 21 metres @ 0.05% cobalt and 0.59% nickel;
- ◆ FDUP009 34 – 39 metres, 5m 0.05% cobalt and 0.51% nickel;
- ◆ FDUP011 27 – 56 metres, 29 metres @ 0.04% cobalt and 0.5% nickel;
- ◆ FDUP013 26 – 34 metres, 7 metres @ 0.03% nickel and 0.31% nickel.

Drilling will be required to scope out the full extents of mineralisation along the 9 kilometres of strike potential. Permits have been received with drilling planned to commence in early 2018.





**Figure 3: Split Rocks Dulcie Cobalt-Nickel Cross Sections (refer to Figure 12 for cross section locations)**

#### Lithium Activities

The Split Rocks Project covers a large area (>500sqkm) of the Forresteria greenstone belt, this emerging lithium district is host to the new Earl Grey lithium deposit containing 128Mt @ 1.44% Li<sub>2</sub>O (KDR ASX Release 5<sup>th</sup> Dec 2016). Zenith is exploring for this style of lithium rich (spodumene) pegmatite within its large land holding.

As detailed in Zenith's ASX release on the 14<sup>th</sup> September 2017 first pass surface soil and auger samples taken at Split Rocks, to date covering less than 10% of the Company's tenements, were analysed at a commercial laboratory for gold only initially and outlined strong gold anomalies at the Mawson and Casey prospects, where permits to allow drill testing have recently been granted, and drilling is planned to commence this week. During the quarter the Company analysed the majority of those assay pulps for lithium, the results of which were reported to the ASX on the 4<sup>th</sup> December 2017.

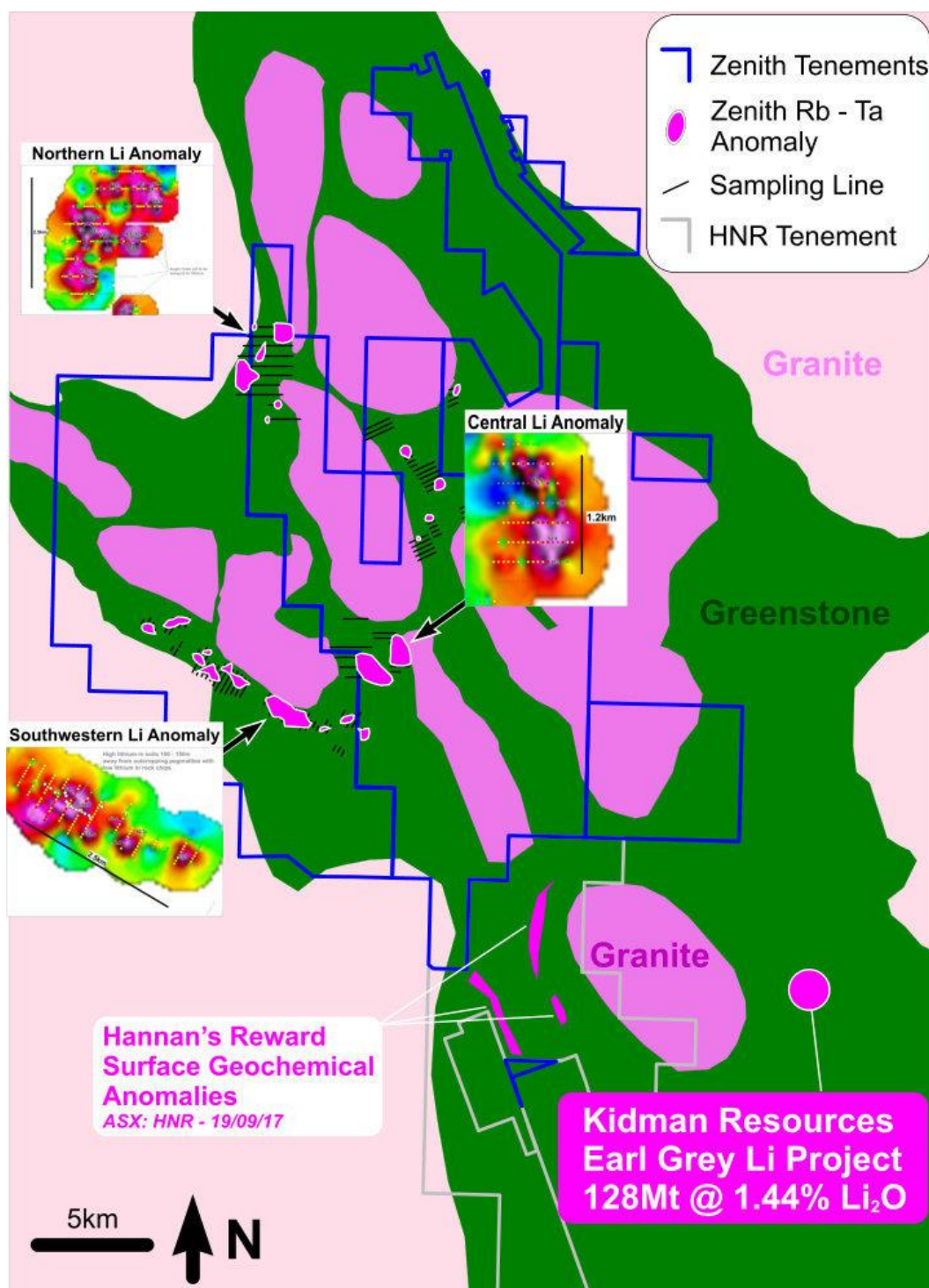
The re-analyses has defined three coherent zones of anomalous lithium, tantalum and rubidium surrounding granite bodies that may be potential source rocks for lithium bearing pegmatites (Figure 4).

The northern lithium anomaly outlined by auger sampling on 400m spaced lines extends over 2.5km of strike with discrete zones that are 500m in width. Samples from a further four sample lines in the south eastern portion of the grid yet to be analysed for lithium, these will be dispatched to the laboratory for analysis this month.

The central lithium anomaly outlined by soil sampling also on 400m spaced lines extends over 1.2km of strike, open to the south and is 200 to 500m in width.

The tenor of these large scale lithium anomalies is comparable with competitor surface results that upon drilling have returned significant bedrock lithium mineralisation in several instances. Drill permits have been received however drilling will proceed after results of infill and extension surface sampling (currently in progress) is completed to better define these large lithium anomalies.





**Figure 4: Split Rocks Project – Lithium Anomalies Overlying Generalised Geology**

In the southwest soil sampling has defined lithium, rubidium and tantalum anomaly over 2.5km of strike with a central, strong, coherent lithium zone comprised of two subparallel trends extending over 1.2k of strike. Non lithium bearing pegmatite crops out in the core of this central zone where the lithium soil results are of low order. This may indicate a possible zoned pegmatite system whereby lithium bearing pegmatite may be present beneath the soil cover some 100 to 150m away from the outcrop.



### *Gold Activities*

A RAB drill program totalling 3300m was completed during the quarter testing two **gold** anomalies Mawson (26 holes) and Casey (43 holes) defined by Zenith auger soil sampling. Preliminary composite assay results for gold only have just been received with anomalous gold intersected at Mawson and Casey including:

- 4m @ 0.1 g/t gold from 12 – 16m at Casey;
- 4m @ 0.23 g/t gold from 44 – 48m EOH at Casey;
- 8m @ 0.15 g/t gold from 20 – 28m at Casey; and
- 4m @ 0.1 g/t gold from 0 – 4m at Mawson.

Results for arsenic and other elements are awaited prior to assessment of results, however higher priority gold targets for future follow-up are located in the newly granted eastern tenure some 5km to the north east of Casey and Mawson that will be the short term focus of Zenith's gold exploration efforts at Split Rocks.

Assays results are also awaited for lithium from the RAB drilling program for selected intervals of strongly weathered clay – quartz rich material interpreted to be pegmatite, as well as for cobalt and nickel from strongly weathered ultramafic rocks.

### **Background on the Split Rocks Lithium-Gold Project**

#### **Lithium Potential**

The 100% owned Split Rocks Project covers a large portion (total area >500sqkm) of the Forrestania Greenstone Belt of Western Australia. This emerging lithium district is host to the new Earl Grey lithium deposit containing 128Mt @ 1.44% Li<sub>2</sub>O (KDR ASX Release 5<sup>th</sup> Dec 2016).

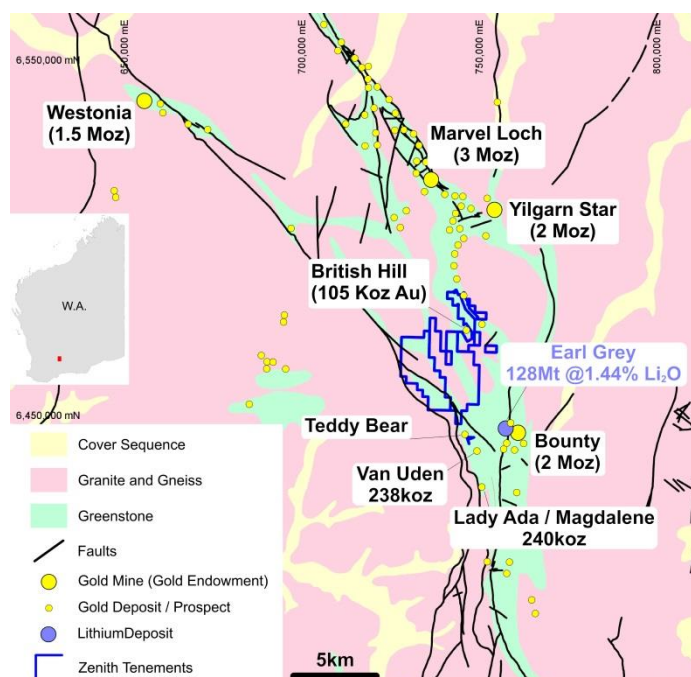
Zenith's northern Split Rocks exploration licences are located 10km northwest of the new Earl Grey lithium pegmatite discovery whilst exploration licence applications in the southern portion of the Forrestania Greenstone belt are located 2km west and 5km northwest, respectively, of the South Iron Cap Lithium Prospect where resampling by Western Areas (ASX:WSA) of historic nickel drilling has returned results including 50m @ 0.95% Li<sub>2</sub>O.

The Company notes that the majority of previous exploration activity reviewed to date covering the new exploration licence applications is surface based focused solely on nickel exploration and only limited fresh rock drilling programs, with no evidence of any lithium analyses during past exploration programs. However, several historic exploration drill holes documented in open file reports did intersect pegmatites in areas within Zenith's applications and along strike adding significantly to their lithium prospectivity.

#### **Gold Potential**

There are two main gold trends in the Forrestania Greenstone Belt; an eastern gold trend that includes the Bounty gold mine and associated smaller scale gold deposits extending north to Southern Cross where the large gold mines at Marvel Loch have been exploited (Figure 5). A second gold trend lies on the western side of the greenstone belt and includes deposits that have been mined at Van Uden and Teddy Bear as well as those under assessment by ASX:CLZ at Lady Ada and Lady Magdalene (240k oz gold). Zenith's new Mawson and Casey gold anomalies (as detailed in ASX Release 14<sup>th</sup> September 2017) lie along this western trend within an area of dense scrub vegetation that has historically limited access and resulted in historically lesser exploration activity.

On the eastern gold trend historic shallow RC drilling completed in 2005 north east of the British Hill gold deposit, which is located between Zenith's new licence applications, intersected significant gold mineralisation with results including: 34m @ 0.48g/t gold (Au), including 7m @ 1.57 g/t Au from 37m depth, open to the south west (as previously reported in ZNC - ASX Release 16<sup>th</sup> August 2016). Nine of the thirteen drill holes returned 1m intercepts greater than 0.5 g/t Au ranging up to 1m @ 8.6 g/t Au. Mineralisation is hosted within saprolite clays and weathered ultramafic rocks with associated quartz veining and minor pyrite. This gold mineralised zone remains open to the south and was not followed up by previous explorers. The company plans to test this gold trend in conjunction with cobalt-nickel drilling in early 2018.



**Figure 5: Split Rocks Project Tenure and Regional Gold Endowment**

### Planned Programs at Split Rocks

Drilling will be required to scope out the full extents of the cobalt-nickel mineralisation along the 9 kilometres of strike potential at Dulcie. Permits have been received with drilling planned to commence in early 2018.

Drill permits to test the lithium targets have been received however drilling will proceed after results of infill and extension surface sampling (currently in progress) is completed to better define these large lithium anomalies.

## AMERICAN LITHIUM JOINT VENTURE

The American Lithium Joint Venture includes a US\$5 million farm-in deal with a private company controlled by prominent UK investor Jim Mellon (Bradda Head Ltd) (ASX Release 7<sup>th</sup> March 2017) to jointly unlock the potential of Zenith's USA and Mexican lithium project portfolio.

Bradda Head are in the final stages of preparation to list on the London (AIM) stock market. Upon Bradda Head's market listing in early 2018 Zenith anticipates an acceleration of exploration activity on the American lithium JV projects. Permits were approved for drilling at Burro Creek and Wilson Salt Flat during the quarter, whilst permits for drilling at San Domingo were recently submitted.

### **BURRO CREEK LITHIUM CLAY PROJECT – ARIZONA, USA (Option to Earn 100%)**

- Large scale lithium (Li) clay target under exclusive option in Arizona, USA;
- Surface sampling returned high-grade lithium results of widths up to 33.6m metres at 980 ppm Li, and 15m @ 1427 ppm Li. These results are comparable to competitor lithium clay projects in USA and Mexico that are subject to feasibility studies and trial processing plants respectively;
- Recent geological mapping and seismic geophysical surveys confirm extensive zones of shallow dipping lithium bearing clay with true thickness up to 50 metres;
- Ongoing metallurgical testwork has returned positive results on Burro Creek clay samples, with lithium recoveries to 90% from simple acid leach, and to 89% via calcine-water leach process.
- Permits for trench and resource drilling approved.





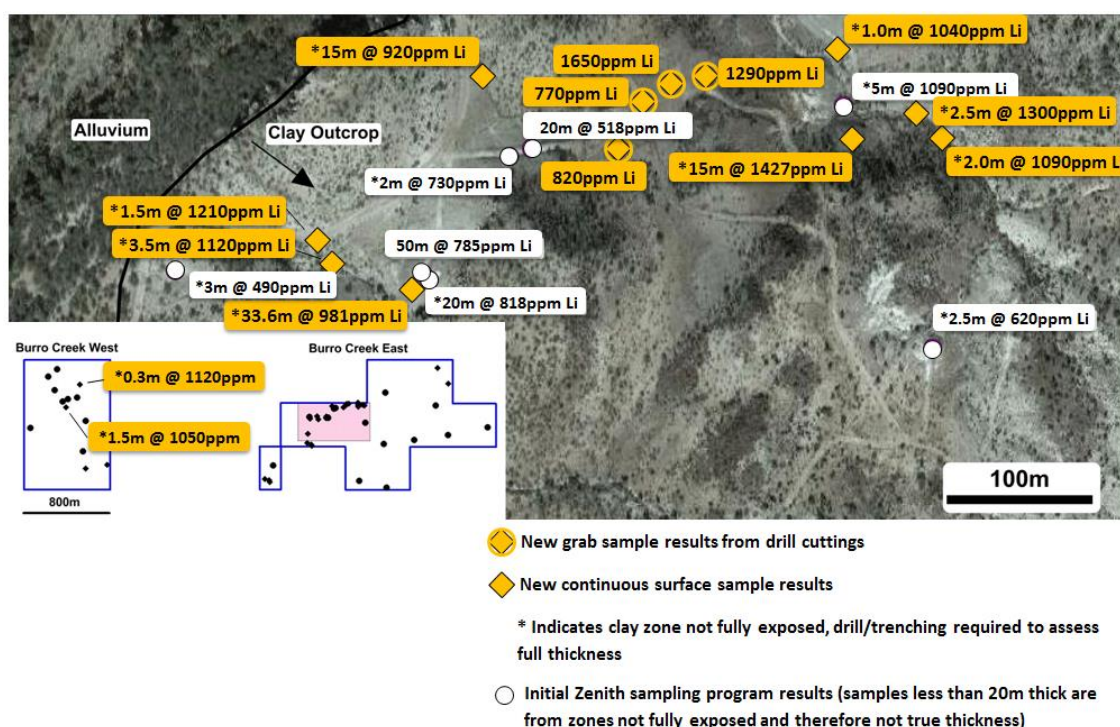
### Activities During the Quarter

Permits for resource drilling and trenching were received during the quarter.

### Background on the Burro Creek Lithium Clay Project

The Burro Creek lithium clay project located in central western Arizona, USA within an active mining district, Freeport M<sup>c</sup>MoRan's operating Bagdad porphyry copper mine is located 10km from the Burro Creek project.

Surface sampling by the Company of the lithium clay exposures (ASX releases 10<sup>th</sup> November 2016 & 13<sup>th</sup> January 2017) returned results up to 33.6m @ 980ppm Li whilst grab samples of relict drill spoil from shallow holes completed during a small, historical program to test the clay for industrial purposes returned results including: 1650ppm Li and 1290ppm Li (Figure 6). The lithium bearing clay zone is a near surface, flat lying horizon, with a true thickness greater than 30 metres, indicating excellent potential for large tonnages of lithium bearing clay within the Burro Creek project.



**Figure 6: Burro Creek Sample Location and Results Map  
(Enlargement - East Burro Creek Sample Results)**

The lithium bearing clay zone is a near surface, flat lying horizon extending over 1700m by 1000m within the eastern project leases and a further 800m by 600m within the western lease areas. Observations from mapping and sampling programs indicate that the clay horizon generally has a true thickness greater than 30 m where it is exposed in gullies within gently undulating, poorly vegetated hills that comprise the eastern project area. Previous drilling to test the clay quality for industrial uses intersected clay units over thicknesses up to 20m in the western half of the project area, notwithstanding that drilling did not penetrate the full thickness of those clay beds which are up to 50 m thick in outcrop in the eastern area. The Company therefore concludes that there is excellent potential for large tonnages of lithium bearing clay within the Burro Creek project.

### Planned Activities

Trench and resource drilling, bulk sampling and metallurgical testwork.

## WILSON SALT FLAT LITHIUM BRINE PROJECT – NEVADA USA



- Initial reconnaissance sampling by Zenith returned up to 192ppm lithium from the surface of a salt lake;
- The high-grade lithium surface sample results are coincident with gravity low anomalies reflecting basin sedimentary sequences that potentially host lithium brines.
- Both aeromagnetic and gravity modelling indicate complex basement geology indicative of major faults capable of channelling and focusing lithium enriched geothermal fluids; and
- Ground based magnetotelluric (MT) geophysical surveys indicates conductive layer in upper 200 – 300m below surface, representing a lithium brine drill target.

### Activities During the Quarter

Permits for initial drill testing were received during the quarter.

### Background on the Wilson Salt Flat Lithium Brine Project

The Wilson Salt Flat Project is located in Nye County, Nevada 140km east from the lithium production area of Silver Peak- Clayton Valley (Figure 7).

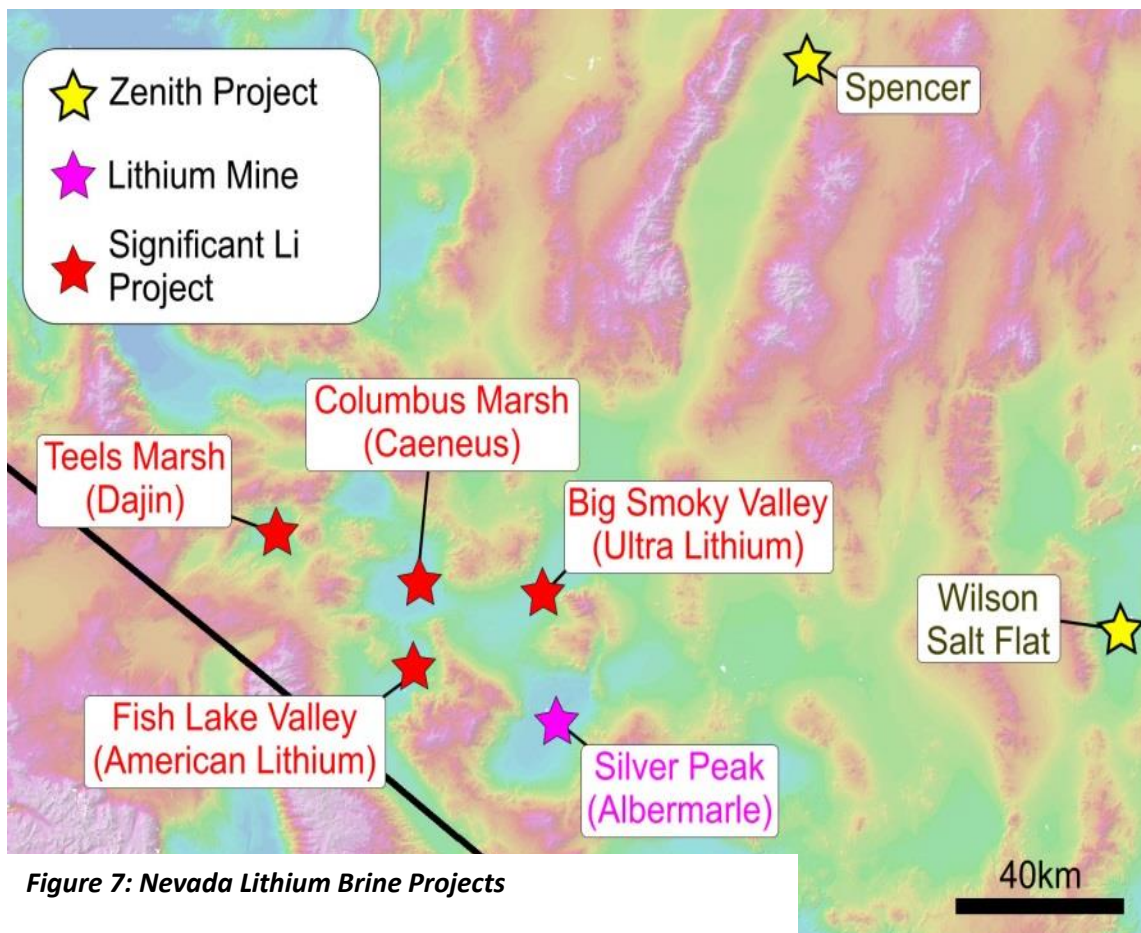
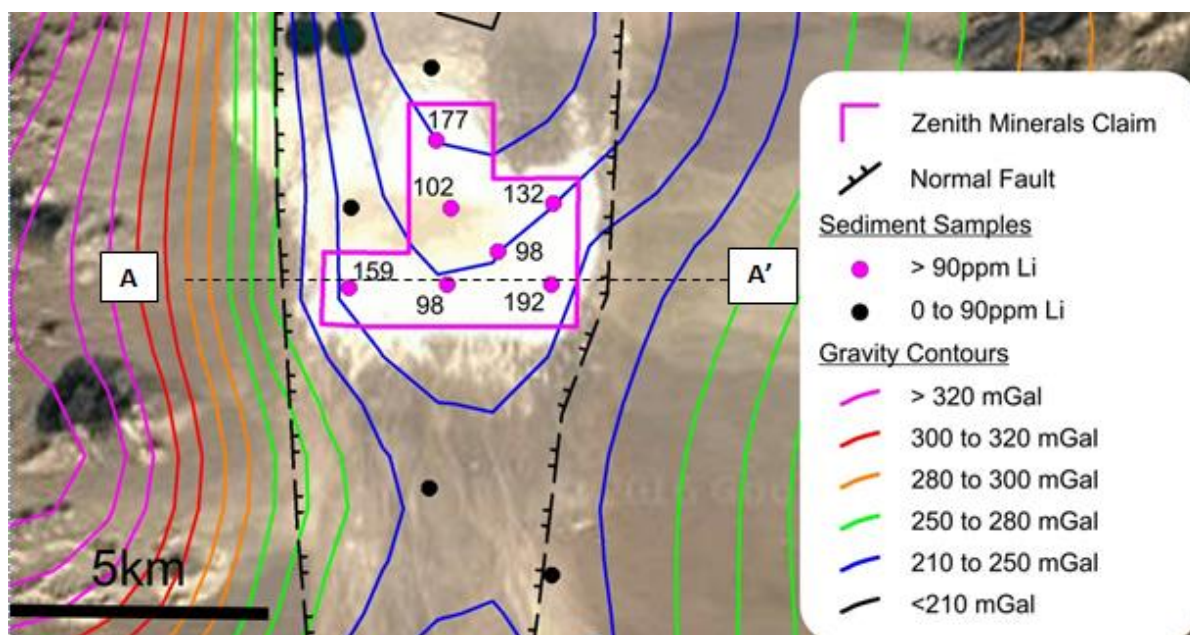


Figure 7: Nevada Lithium Brine Projects

The Project is 100% owned by Zenolith and is located in the Railroad Basin. The property is comprised of 168 unpatented placer claims in a single claim block totalling 3,360 acres that were located in November 2016 to encompass highly anomalous lithium in surface sediment samples up to 192ppm lithium coincident with a salt lake and discrete gravity low interpreted to be a closed basin (Figure 8).

During December 2016 Zenith completed a passive seismic geophysical survey that confirmed the presence of a thick, sedimentary sequence bounded by basin margin faults. The geophysical modelling identified structures and architecture that are consistent with the lithium-bearing brine deposit models identified in the nearby Clayton Valley lithium production area.



**Figure 8: Wilson Salt Flat Project - Initial Surface Geochemical Results on Google Earth Image, overlain by Gravity Contours, Major Interpreted Fault Structures**

A new lithium brine discovery in Nevada by Caeneus Minerals Limited announced to the ASX on the 19<sup>th</sup> September 2017 adds strong endorsement to the Company's lithium brine targeting methodology and the overall prospectivity of Zenith's nearby Wilson Salt Flat and Spencer projects.

Geophysical results for the Company's Wilson Salt Flat project (ASX Release 27<sup>th</sup> July 2017) (Figure 9a) show striking similarities to those of the Caeneus' Columbus Marsh discovery (Figure 9b).

The conceptual deposit model for Zenith's Wilson Salt Flat Project is adapted from the known deposits being exploited by Albemarle Corporation at Clayton Valley, where six different water-bearing formations or aquifer types have been identified. These are specific volcano-sedimentary units within the valley-fill sequence that are either saturated in lithium-enriched brine or contain salt or clay minerals with anomalously high concentrations of lithium. In addition, recent lithium brine drilling success by Pure Energy Minerals (TSX-V:PE) in the south of Clayton Valley provides an additional lithium brine host architecture model, whereby basin margin faults along the eastern boundary have a strong control on the host sequences and entrained lithium brines.

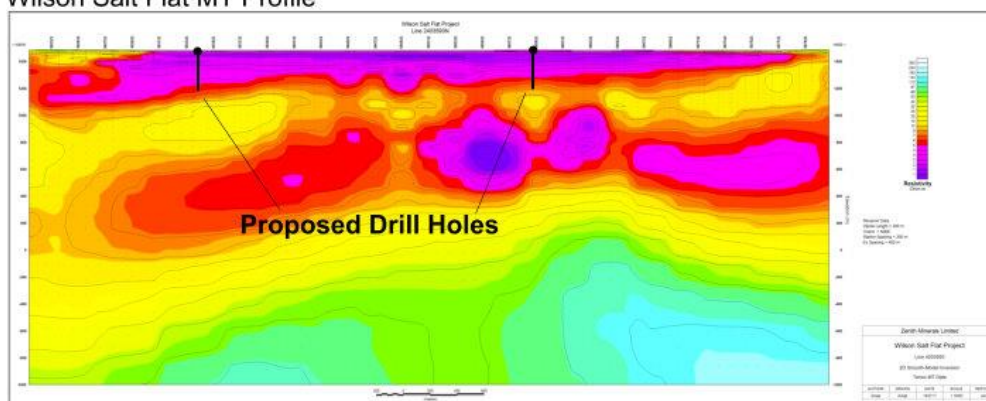
#### **Planned Activities**

An initial 2 hole drilling program has been permitted to test specific structural and stratigraphic targets identified by the geophysical surveys. Given success with these preliminary exploratory drill holes in finding brine aquifers and anomalous lithium contents, additional holes would be placed to expand on the information relating to basin hydrogeology, leading to resource estimation.

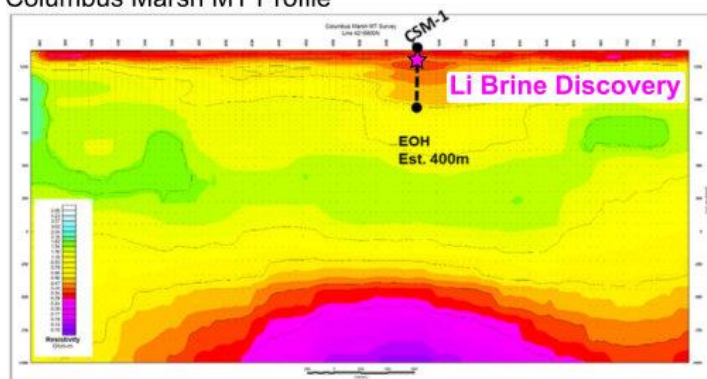




Wilson Salt Flat MT Profile



Columbus Marsh MT Profile



**Figure 9a and 9b : Wilson Salt Flat (Zenith JV) & Columbus Salt Marsh Lithium Brine (Caeneus Minerals) Comparative Magnetotellurics Geophysical Signatures**

## **SAN DOMINGO LITHIUM PEGMATITE PROJECT – ARIZONA USA**

- Abundant lithium bearing pegmatite dykes within Zenith's claims over an area 9km by 1.5km;
- Initial continuous rock chip sampling by Zenith's consultants has returned very encouraging results up to 5m @ 1.97%  $\text{Li}_2\text{O}$  including 2.4m @ 2.49%  $\text{Li}_2\text{O}$  within 14.1m zone @ 1.02%  $\text{Li}_2\text{O}$  from spodumene rich pegmatites;
- Sampling in the SW of the project returned high-grade lithium from pegmatite dykes with results including select grab samples that returned very high-grade results of 5.8% and 8.0%  $\text{Li}_2\text{O}$ . Systematic composite rock chip sampling of more strongly weathered spodumene rich pegmatite returned: 2.9m @ 0.86%  $\text{Li}_2\text{O}$ , 2.8m @ 0.69%  $\text{Li}_2\text{O}$ , 3m at 0.71%  $\text{Li}_2\text{O}$ , and 3m @ 0.56%  $\text{Li}_2\text{O}$ , the latter two samples being part of a near true width zone of 12.7m @ 0.45%  $\text{Li}_2\text{O}$ ; and
- Lithium as spodumene and amblygonite concentrates along with tantalum was produced from pegmatites within the district during the period 1947 – 1952.

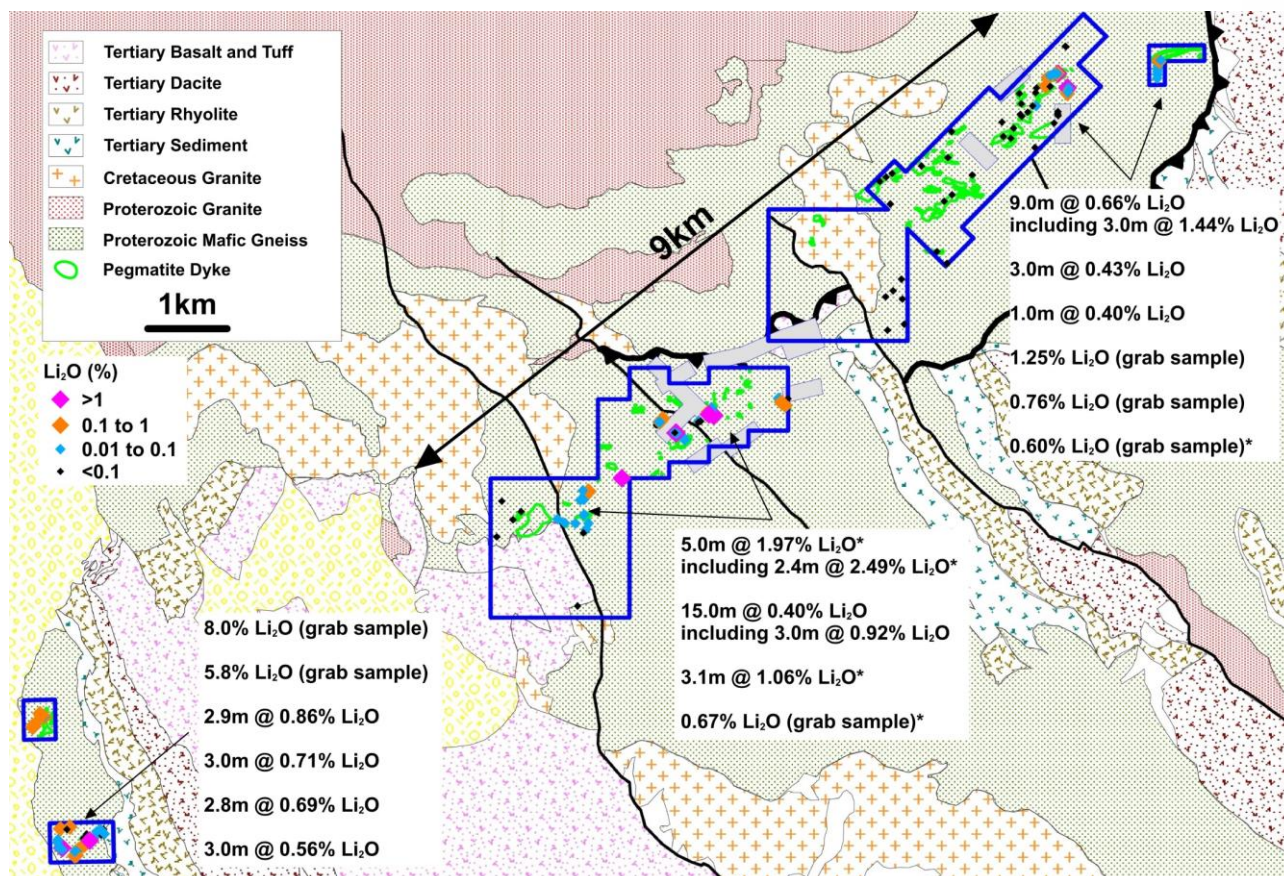
### **Activities During the Quarter**

Drill permits were submitted during the quarter.

### **Background on San Domingo Project**

During mid-2016 (16<sup>th</sup> June 2016) a wholly owned subsidiary of Zenith Minerals secured a 100% interest in a new lithium exploration project in Arizona, USA. The project covers a 9km by 1.5km lithium-bearing pegmatite dyke swarm that intrudes Proterozoic mafic gneiss host rocks that are in turn locally overlain by Tertiary age volcanic and sedimentary rocks (Figure 10).





**Figure 10: San Domingo Lithium Project- Surface Rock Sampling Results**  
(Blue box – outline of Zenith claims and lease applications, Grey boxes - approximate area of excised claims, \* indicates sample close to boundary of excised claim with poorly constrained location)

Initial mapping and sampling by Zenith's consultants to date has identified 10 lithium bearing pegmatite dykes ranging in outcrop size up to 60m in width and up to 600m in length within the area subject to Zenith's tenements. First phase continuous rock chip sampling conducted within the new applications has returned very encouraging results up to 5m @ 1.97% Li<sub>2</sub>O including 2.4m @ 2.49% Li<sub>2</sub>O from a 14.1m zone grading 1.02% Li<sub>2</sub>O, and sampling of Lithia King workings returned up to 1.44% Li<sub>2</sub>O over a 3 metre composite. A further 3 lithium bearing pegmatite dykes are known to occur at least partly within small claims that are believed to be excised from the land recently applied for by Zenith.

The pegmatite dykes show clear zonation, with lithium enrichment within the inner "core" zones. Historical records refer to spodumene crystals up to 11 feet long at the Lithia King pegmatite (held by Zenith).

Lithium (as spodumene and amblygonite concentrates) along with tantalum was produced from small scale mining of the pegmatites within the district during the period 1947 – 1952, historic production of lithium from two small scale mines within Zenith's claims produced amblygonite concentrates grading from 7.4 to 8.5% Li<sub>2</sub>O (Arizona Bureau of Mines Bulletin 1952). However the area has been subject to sparse systematic exploration for lithium. No drilling for lithium appears to have been completed since the early 1950s when diamond drilling on 4 of the pegmatite bodies and associated minor surface and underground exploration is mentioned in historical documents. Very little detail on this work has been sighted by the Company, other than partial results from one drillhole and anecdotal information mentioning "...considerable thicknesses of spodumene-bearing pegmatite..." penetrated in several other holes reported by a 3rd party. Since hole locations, sampling details and assay methodology are not known the Company considers the results not to be reportable under the JORC Code. A third party reference to a 1980-82 exploration program for tantalum and niobium does not mention lithium analyses.

As announced to the ASX on the 18<sup>th</sup> October 2017 sampling within the western San Domingo claim area returned high-grade lithium from pegmatite dykes over two zones: one 500m x 400m the other 200m x 100m in area. Results include a select grab sample that returned a very high-grade result of 8.0% Li<sub>2</sub>O from a pile of sorted ore material adjacent to a small historic mine cutting. Following a further data review of the original assay laboratory sheets the sample is confirmed to contain 8.0% Li<sub>2</sub>O but has high phosphate which confirms the sample does



contain the lithium mineral amblygonite (Figure 9). This very high lithium result is near the theoretical maximum of lithium in pure amblygonite and confirms that the sub-surface fresh pegmatite represents a strong exploration target.

In addition selective rock chip sampling also returned a very high-grade lithium result of 5.8% Li<sub>2</sub>O from a 4 - 5m wide pegmatite dyke containing the lithium minerals amblygonite, spodumene and lepidolite that is partly covered by surface sands and gravels. This poorly exposed pegmatite lying beneath surface cover also represents a new exploration target that requires further follow-up.

Systematic composite rock chip sampling of a strongly weathered spodumene rich pegmatite returned; 2.9m @ 0.86% Li<sub>2</sub>O, 2.8m @ 0.69% Li<sub>2</sub>O, 3m at 0.71%Li<sub>2</sub>O, and 3m @ 0.56% Li<sub>2</sub>O. It's likely that weathering has leached some of the lithium from these samples resulting in lower than expected lithium grades based on visual estimates of the spodumene contained in these samples.

The new lithium rich pegmatite zones reported above are located 5km southwest of the previously reported (31<sup>st</sup> July 2017) area of abundant known lithium bearing pegmatite dykes stretching over an area 9km by 1.5km within Zenith's claims from which initial continuous rock chip sampling has returned very encouraging results up to 5m @ 1.97% Li<sub>2</sub>O within a 14.1m zone @ 1.02%Li<sub>2</sub>O from spodumene rich pegmatites. The Company considers these results as highly promising. The new results expand the footprint of lithium bearing dykes identified to date and increase the overall prospectivity of this exciting lithium exploration target.

#### **Planned Programs**

Permits have been submitted to allow initial drill testing of the western San Domingo claim lithium pegmatite targets. This work will be followed by drilling of the central and eastern pegmatite targets.

### **ZACATECAS LITHIUM PROJECT – MEXICO**

- **Tenure (26,000 acres) over extensive system of salt lakes within emerging lithium brine district in central Mexico;**
- **Lithium brines to 2.1% lithium reported in regional sampling program conducted by the Mexican Federal Government from solar evaporation ponds for salt production on adjacent salt lake (10km west of Zenith's new tenure).**
- **Results confirm lithium enriched source brines are present in the district, as well as demonstrating that concentration of lithium by traditional solar evaporation methods is possible: Four water samples returned 1.2%, 1.4%, 1.4% and 2.1% lithium, these very high-grade lithium brines are similar to post-concentration brine feedstock to lithium brine production facilities;**
- **Systematic surface geochemical sampling by Zenith on salt pans covering the Company's new Zacatecas tenure returned highly anomalous lithium in surface sediments up to 1046ppm - comparable to and higher than those from competitor lithium brine projects in Mexico and the USA;**
- **An initial 11 hole shallow auger drilling program with strong lithium in salt lake sediments up to 874ppm Li;**
- **Near surface water samples are not strongly saline, perhaps due to rainwater dilution. However lithium and total salinity in brine samples increase with depth in all holes pointing to deeper target;**
- **MT geophysical survey planned to assess deeper brine targets prior to drill testing.**

#### **Activities During the Quarter**

No field activities during the quarter.

#### **Background on the Zacatecas Lithium Brine Project**

The Company announced (ASX release 17<sup>th</sup> January 2017) that it has staked new 100% owned concessions (totalling 26,440 acres) over a new lithium brine exploration project in central Mexico. The region is generally known for its large scale silver mines and has excellent infrastructure.

Three areas; San Juan, San Vicente and Illescas (covering a total of 26,440 acres) have been applied for with Zenith to hold 100% interest through a Mexican subsidiary. Lithium brines to 2.1% lithium have been taken from





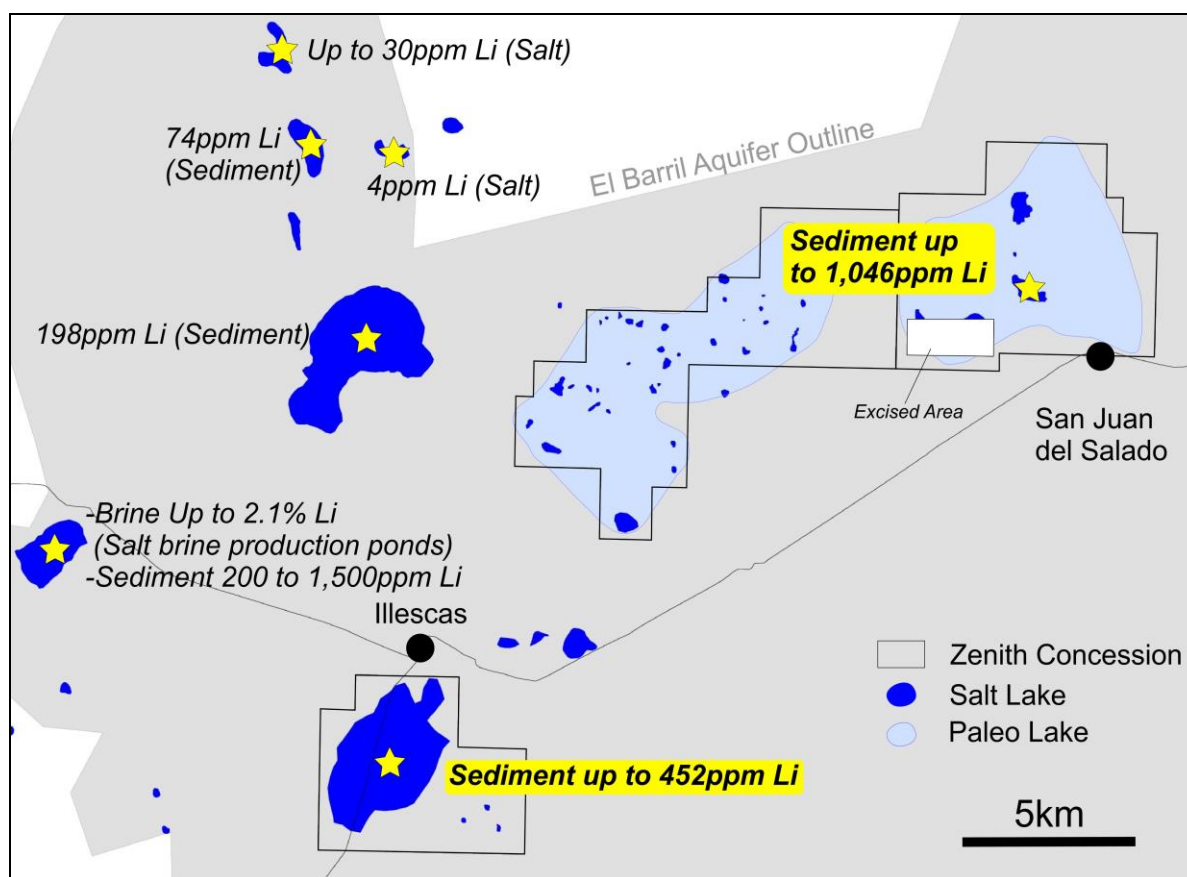
small scale, salt production solar evaporation ponds on an adjacent salt lake located 10km west of Zenith's new tenure. The samples were taken as part of a water and surface sediment sampling program conducted by the Mexican Federal Government - Mineral Resource Council. These results confirm lithium enriched source brines are present in the Zacatecas district, as well as demonstrating that concentration of lithium by traditional solar evaporation methods is possible.

Systematic surface geochemical sampling by Zenith on salt pans covering the Company's new Zacatecas tenure returned highly anomalous lithium in surface sediments up to 1046ppm - comparable to and higher than those from competitor lithium brine projects in Mexico and the USA (Figure 11).

A program of 11 shallow auger holes (from 15m to 27m maximum depth) was completed at the Zacatecas Lithium Project in central Mexico as foreshadowed in the ASX Release on the 26th June 2017. The access to a local auger rig provided an opportunity to assess the very near surface waters and sediments of the San Juan Salar where Zenith's surface sediment results returned highly encouraging values up to 1046ppm lithium in the top 1 metre over an area 4km x 2km.

The auger holes revealed subsurface clay and sand horizons with salt and gypsum, and returned persistent strong lithium values up to 874ppm Li. As expected, basement was not reached in any of the holes (Figure 11).

Encouragingly, all auger holes intersected brine at depths ranging from 5 metres to 15 metres, with both the lithium concentration (maximum 7mg/l Li) and salinity increasing with depth in all holes.



**Figure 11: Zacatecas Lithium Brine Project – Location Map**

Nearest to surface the water samples were not strongly saline and may have been diluted by rainwater. The lithium brine concentration and total salinity increased with depth in all holes pointing towards a deeper drill target. The Zacatecas brine targets are considered by the Company to be most similar to those hosted in the immature salt lake systems such as at Clayton Valley (host to the USA's only lithium brine operation, Silver Peak in Nevada where the lithium brines aquifers are stratified and occur in specific aquifers towards the deeper portions of the host basins (Figure 6b). Lithium brine projects can be subdivided into two broad deposit types, depending on the salt lake/salt basin (salar) characteristics (Houston et al., 2011):

- Mature salars (those containing extensive thicknesses – often hundreds of meters - of halite (salt), such as those in the Argentina and Chile- the Salar de Atacama, and the FMC Hombre Muerto operation). These Mature salt dominated salars are characterized by having high permeability and specific yields (to a maximum of ~ 15 % Sy) near surface, with the porosity and permeability decreasing rapidly with depth. In



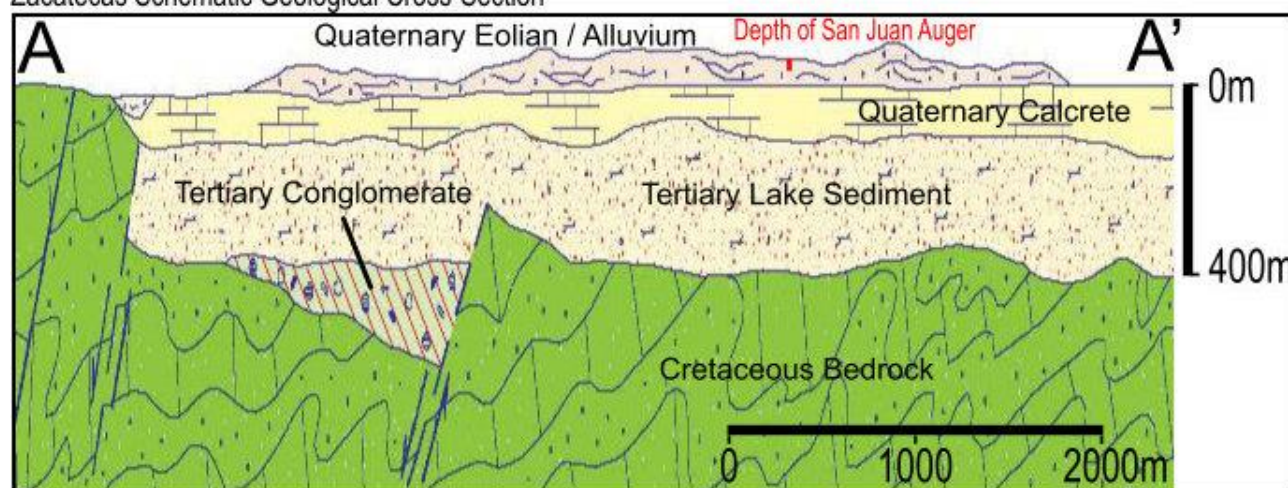
these salars the brine resource is essentially between surface and 50 m below surface, as below this depth there is limited permeability in the salt, due to salt recrystallization and cementation of fractures; and

- Immature salars, which are dominated by clastic sediments, with limited thicknesses of halite.-, such as those known at Clayton Valley in Nevada. and Zenith's model for Zacatecas Immature salars conversely have porosity and permeability controlled by individual layers within the salar sequence. The porosity and permeability may continue to depths of hundreds of meters in clastic salars.

A schematic cross section produced by the Servicio Geologico Mexicano (Figure 12a) located immediately west of Zenith's San Juan Salar at Zacatecas, shows interpreted deep (to 400m) Tertiary Lake Sediments beneath a calcrete layer that may act as an aquaclude (water barrier), segregating ground water layers potentially of different salinity and composition.

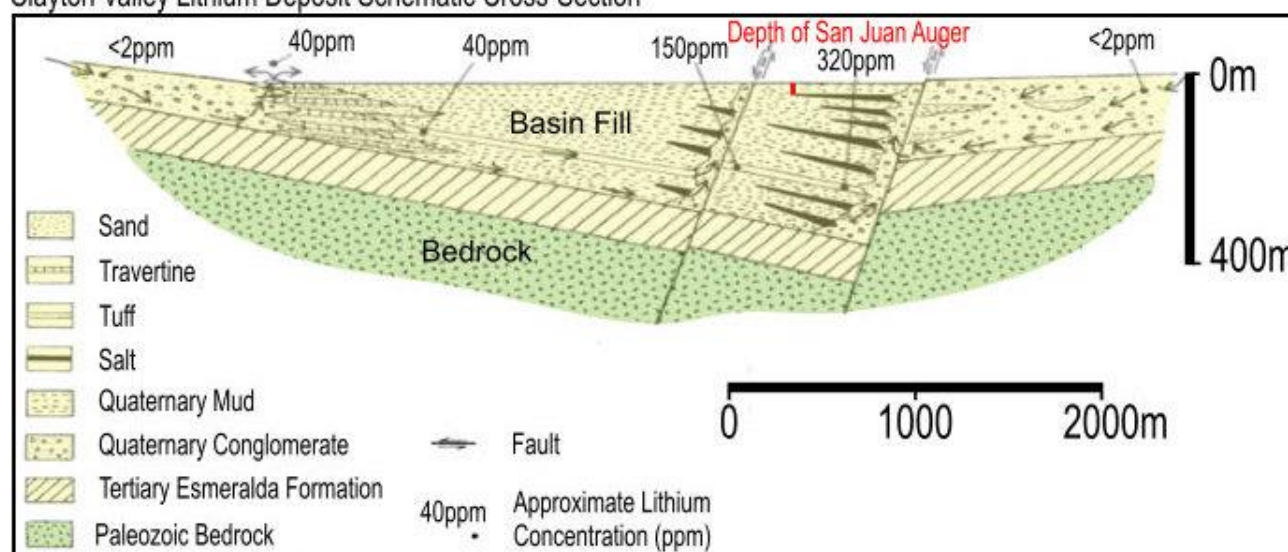
A comparative schematic section of the Clayton Valley basin is shown in Figure 12b at the same scale to highlight similarities in the model, illustrating the near surface nature of the recent 15-27m deep auger holes at San Juan Salar.

Zacatecas Schematic Geological Cross-Section



Modified after El Rucio Geological Map (F13-B39) 2001 - Servicio Geologico Mexicano

Clayton Valley Lithium Deposit Schematic Cross-Section



Modified after Davis et al. 1986

**Figures: 12a and 12b: Comparative Schematic Cross Sections - Zacatecas and Clayton Valley Lithium Brine Operation Area. Location of the Zacatecas section in relation to Zenith's tenements is shown in the inset plan.**





An MT geophysical survey is planned to assess these deeper brine targets at San Juan and Illescas prior to drill testing.

The conceptual deposit model for Zenith's new Zacatecas lithium brine project is adapted from the known deposits being exploited by other companies in the USA, Chile, Bolivia and Argentina. Water-bearing formations or aquifer types range from deep volcano-sedimentary units within the valley-fill sequence that are saturated in lithium-enriched brine such as at Albemarle's Clayton Valley operation in Nevada USA to near-surface salt lakes and ponds in the south American lithium operations. Existing lithium brine operations have lithium resource grades ranging from 102 milligrams per litre (mg/l) to 1409 mg/l this is roughly equivalent to 80 to 1100ppm lithium. In most cases the lithium brine is pumped into surface ponds and the lithium is concentrated to percent levels by solar evaporation before final treatment in a processing plant to produce lithium carbonate or similar products commonly used by battery manufacturers.

The Zacatecas lithium brine project within the closed El Barril aquifer, with its thick sequence of Tertiary, Cretaceous, and Quaternary age clastic sediments, ash beds and evaporite deposits is prospective for lithium brines. In addition, low average annual rainfall and very high average annual evaporation rates means that traditional methods of solar evaporation of brines are a viable production method. This is also evidenced in the many artisanal table salt production facilities that exploit the brines on several of the salt lakes within this district.

#### **Planned Programs at Zacatecas**

Ground based electrical geophysical surveying to test for presence and depth of subsurface brines to precede deeper drill testing.

#### **SPENCER LITHIUM BRINE PROJECT – NEVADA, USA**

- Initial reconnaissance sampling by Zenith returned up to 550ppm lithium in surface sediments - comparable to and higher than those from competitor lithium brine projects in the USA;
- The high-grade lithium surface sample results are coincident with gravity low anomalies reflecting basin sedimentary sequences that potentially host lithium brines.
- Local geothermal springs indicate active circulating hot waters capable of leaching lithium whilst both aeromagnetic and gravity modelling indicate complex basement geology indicative of major faults capable of channelling and focusing lithium enriched geothermal fluids; and
- Infill surface sampling and ground based geophysical surveys are planned prior to drill testing.

#### **Activities During the Quarter**

No field work this quarter.

#### **Background on the Spencer Lithium Brine Project**

The Spencer Project is located in Lander County, Nevada near the lithium production area of Silver Peak-Clayton Valley. The Project is 100% owned by Zenolith (USA) Inc ("Zenolith") a wholly owned subsidiary of Zenith Minerals Limited, and is located in the North Smoky Basin northwest of White Mountain. The property is comprised of 146 unpatented placer claims in two claim blocks totalling 2,920 acres that were located in November 2016 to encompass highly anomalous lithium in surface sediments and water samples, in close proximity to the Spencer hot spring that lies on the eastern margin of the North Smoky Valley basin, coincident with inferred major basin margin faults.

Initial surface sediment samples taken from the salt lake surface by Zenolith are enriched in lithium up to 550ppm (ASX Release 6<sup>th</sup> December 2016) supporting the hypothesis of lithium brines being present in the sub-surface.

The conceptual target model is the same as that described for the Wilson Salt Flat lithium brine project.

#### **Planned Activities**

Infill surface sampling and electrical geophysical surveys followed by drilling are the next steps in exploration of the Spencer project.



## KAVAKLITEPE GOLD JOINT VENTURE

### **KAVAKLITEPE GOLD PROJECT – TURKEY (Zenith 30%)**

- Two coherent plus 800 metre long, high order gold in soil anomalies (+50 ppb), with peak soil sample values over 1 g/t gold;
- Continuous rock chip of 54.0m grading 3.33 g/t gold, including 21.5m grading 7.2 g/t gold within the northwest soil anomaly (Kuzey Zone);
- Continuous rock chip of 21m grading 2.67 g/t gold at the Discovery Zone, and 12m @ 2.5 g/t gold at the Guney 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;
- 2016 drill results include: 16m @ 4.7 g/t, 9m @ 5.2g/t and 7.8m @ 7.3g/t gold.

#### **Activities During the Quarter**

2018 drill programs and budgets finalised – awaiting forestry permits.

**During 2016** the maiden short-hole diamond drilling program (25 holes/2558.5m) using a mobile rig was completed at the Kavaklitepe gold project in western Turkey. Zenith considers the 2016 program to have been successful with sulphide-related gold mineralisation being discovered at both the Discovery Zone and Kuzey Zone, and with near surface high-grade oxide and transition gold mineralisation also intersected at Kuzey.

#### **Kuzey Zone**

Drilling completed in 2016 (11 holes (KT-01 to KT-11, including KT-06A) provided an initial wide spaced test of only 360m of the 900m by 250m wide Kuzey Zone gold-in-soil anomaly target (Figure 13).

Near surface oxide and transition gold mineralisation is interpreted to occur as a flat lying zone extending over the full 360m length that has been drill tested to date. Better intersections that are considered close to true width of high-grade, near surface, gold mineralisation (previously reported) include: KT-01; **3.5m @ 5.5 g/t Au** from surface, KT-02; **9.0m @ 5.2 g/t Au** from surface, KT-03; **7.8m @ 7.3 g/t Au** from 3.3m depth, KT-05; **1.2m @ 10.8 g/t Au** from 14.7m (as part of a 16.9m mineralised zone with lower core recovery), KT-06; **6.3m @ 4.3 g/t Au** from surface, KT-06A ; **6.3m @ 3.6 g/t Au** from surface and KT-07 ; **12.9m @ 1.2 g/t Au** from surface.

Deeper drill results previously reported (5<sup>th</sup> October 2016) from the Kuzey Zone include: hole KT-09; an overall 67.7m gold mineralised zone from 46.2 to end of hole at 113.9m (true width unknown) including several zones of higher grade: **18.7m @ 1.7 g/t Au** from 50.2m, **16.0m @ 4.7 g/t Au** from 82.1m, (including **8.0 m @ 7.1 g/t Au**) and **8.8m @ 1.0 g/t Au** with the drill hole ending in mineralisation at 113.9m and hole KT-08; an overall 76.0m gold mineralised zone from 12.5m to 88.5m including: **13.4m @ 1.0 g/t Au** from 16.1m, **1.5m @ 1.3 g/t Au** from 33.0m, **2.0m @ 3.0 g/t Au** from 48.8m, and **9.5m @ 1.2 g/t Au** from 56.8m..

The, high-grade, wide, gold intersections in hole KT-09 are particularly significant, as they represent the best sulphide gold mineralisation intersected to date at Kavaklitepe. Sulphide gold intersections are down-hole widths as the orientation of that style of mineralisation is currently unknown. Gold mineralisation at the Kuzey Zone remains open to the north and east and is open along strike to the south (Figure 14) where drill holes KT-02, KT03 and KT05 only test a portion of the target zone (80m of width).

Reporting cut-off criteria and associated JORC tables are included in ASX release dated 22<sup>nd</sup> December 2016.

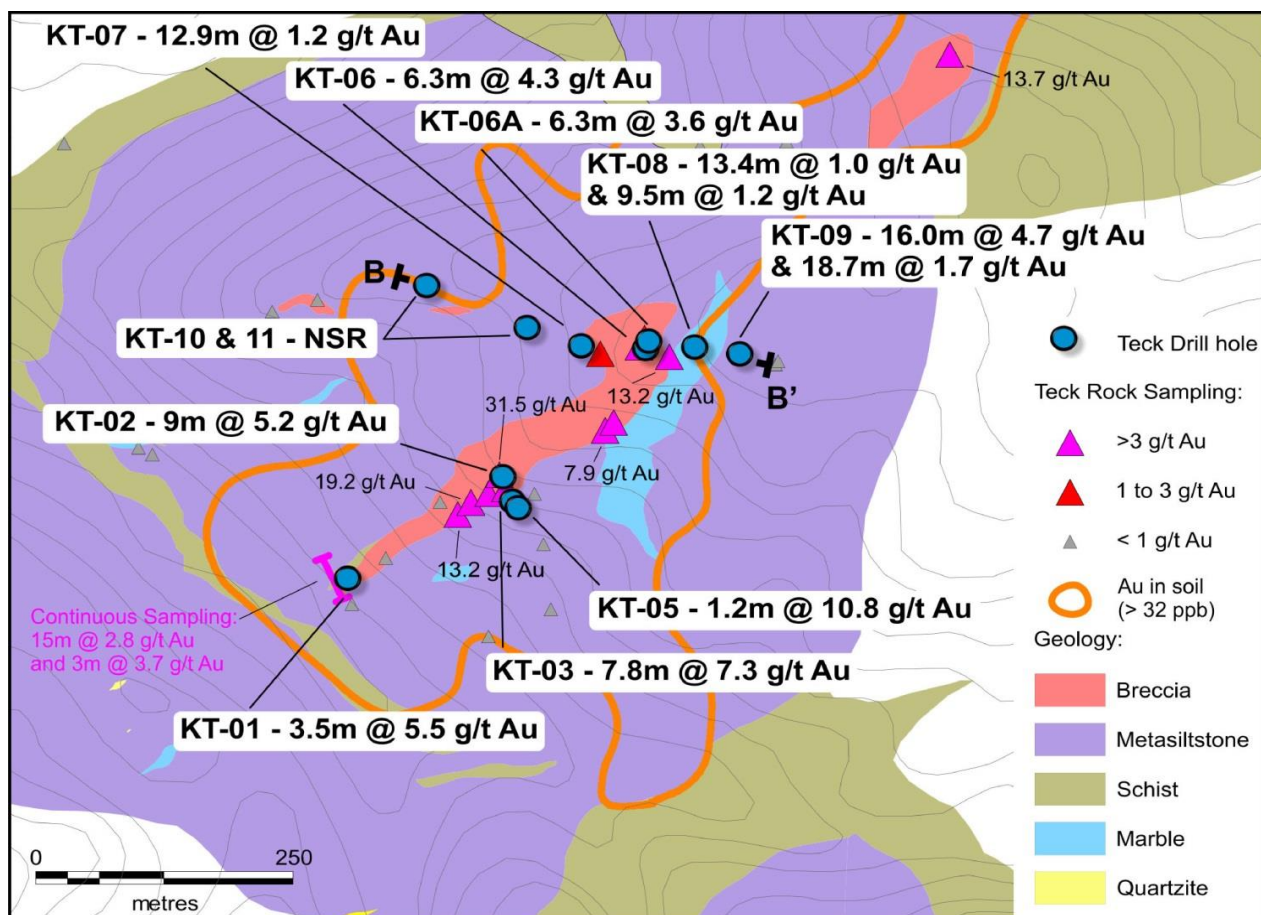


Figure 13: Kavaklitepe Kuzey Zone Drill Hole Locations, Gold Intersections and Location of Cross Sections (B-B')

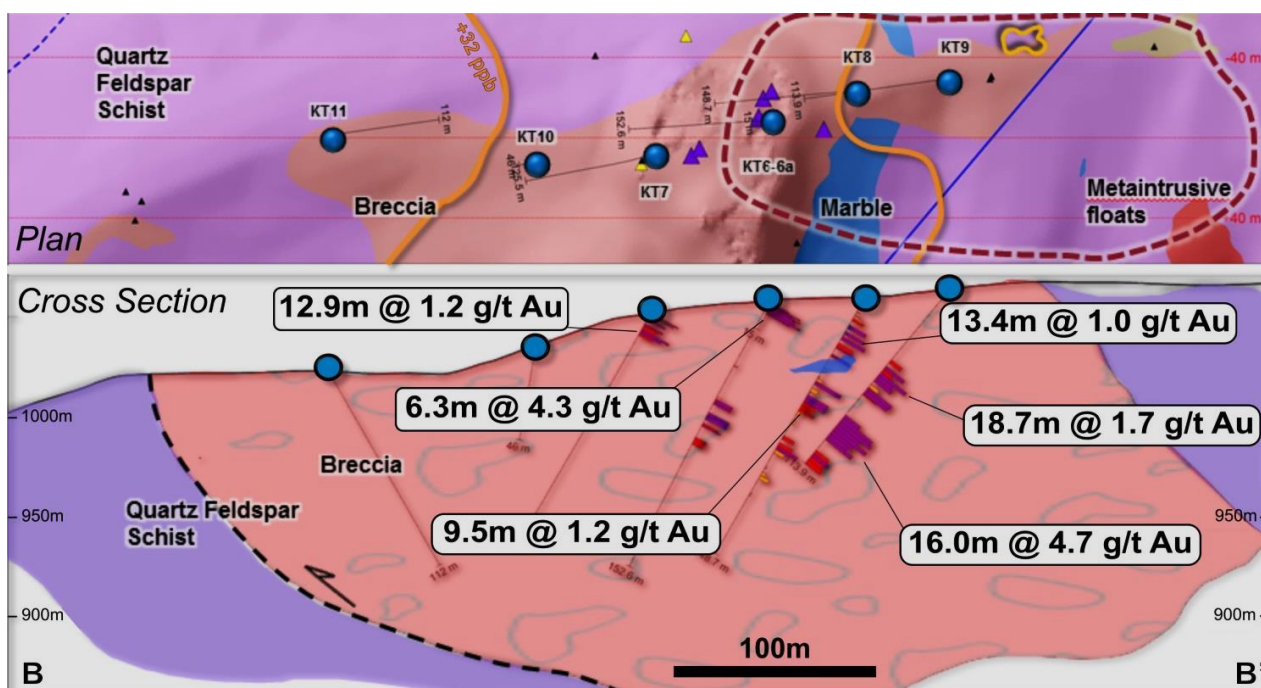


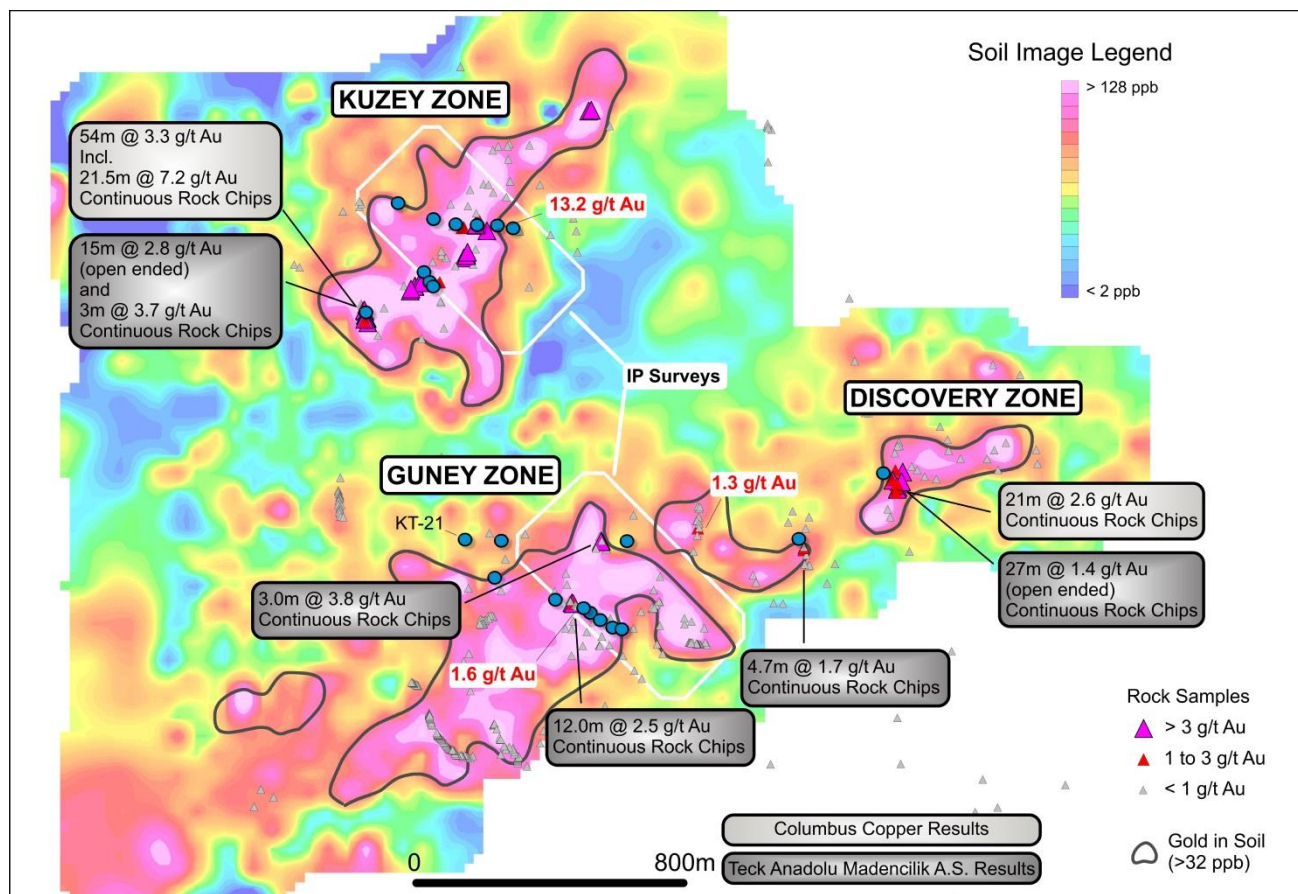
Figure 14: Kavaklitepe Kuzey Zone Cross Section (B-B')





## Discovery and Guney Zones

2016 drilling at the Discovery Zone (2 holes (KT-18A and KT-23) intersected gold mineralisation over a 23.5m interval from 22.5m to 46.0m depth with results including: **9.4m @ 1.5 g/t Au** and **3.5m @ 2.1 g/t Au** (true width intervals). The near surface gold mineralisation dips to the northwest and is 60m down dip of previously reported continuous roadside surface sample results that include: 21.0m @ 2.7 g/t Au and 27.0m @ 1.4 g/t Au (Figure 15). The roadside sampling was conducted as an initial test of the 400m long gold-in-soil anomaly at the Discovery Zone.



**Figure 15: Plan Showing Kavaklítepe Project Gold Geochemistry**

The new Discovery Zone gold mineralisation remains open to the northeast and southwest and is open down dip. A second drill hole 275m southwest along strike where surface rock chip samples returned up to 2.4g/t Au, intersecting **1.3m @ 1.3 g/t Au** within a 17.9m wide altered zone from 17.5m to 35.4m with associated anomalous silver, arsenic and antimony.

Drilling at the **Guney Zone** (11 holes (KT-12 to KT-17 & KT-19 to KT-22 & KT-24 to KT-25) has been technically difficult, intersecting a thick, flat-lying, massive sequence of calc-silicate rocks which contained multiple underground cavities up to 4 metres deep that caused several holes to fail at shallow depths and provided locally only very poor diamond drill core sample recoveries. Hole KT-12 returned **1.2m @ 1.4g/t Au** from 12.5m and 1.3m @ 0.6g/t Au from 17.2m before being abandoned in a cavity and drill hole KT-21 drilled on the northern part of the prospect intersected a wide zone (30.7 m) of silicified and altered breccia crosscutting a meta-siltstone rock sequence from 54.9m to 85.6m with associated higher concentrations of trace elements arsenic, antimony and silver more similar to those returning significant gold intersections at the Kuzey and Discovery zones.

## Background on the Kavaklítepe Project

Gold mineralization at Kavaklítepe was discovered in 2013 by following up a stream sediment anomaly to a stream bed outcrop that returned 5.2 g/t Au. Subsequently a small trench in a nearby road cut returned 2.6 g/t Au over 21.0 metres of exposure. About 1.4 kilometres northwest from the discovery outcrop four samples from a gold bearing breccia zone returned 28.2 g/t, 21.7 g/t, 6.7 g/t and 3.6 g/t Au respectively (Columbus Copper release March 1, 2013). Further rock sampling along a road bank in this zone confirmed the presence of high-grade gold mineralization returning 54 metres of continuous rock chips with an average grade of 3.3 g/t Au (no gold grade cut-off applied), including 21.5m grading 7.2 g/t Au. A total of 2,127 soil samples were also





collected on the Property 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) Au. The soil sampling outlined a potentially mineralized zone measuring 850 metres by 250 metres and continuing for another 800 metres to the southwest. There are strong, coincident arsenic and antimony anomalies.

#### **Kavaklitepe Joint Venture**

Teck Anadolu Madencilik A.S. ("Teck"), a Turkish subsidiary of Teck Resources Limited, has earned a 70% interest in the Kavaklitepe gold project from Zenith by spending US\$700,000 in property expenditures including a minimum of 1500m of drilling. Both companies may continue to explore or develop the property by contributing their pro-rata costs or they may elect to dilute their interests according to a standard industry formula. If Zenith reduces its equity below 10% then the remaining interest is converted to a 5% net profit interest royalty.

## **OTHER AUSTRALIAN EXPLORATION PROJECTS**

### **DEVELIN CREEK COPPER-ZINC-GOLD-SILVER PROJECT – QUEENSLAND (Zenith 100%)**

- **Inferred Mineral Resource (JORC 2012) of: 2.57Mt @ 1.76% copper, 2.01% zinc, 0.24g/t gold and 9.6g/t silver (2.62% CuEq) released to ASX on the 15<sup>th</sup> February 2015.**
- **Mineralisation remains open at all 3 massive sulphide deposits, with upside to resource grades with Zenith RC hole twinning previous 1993 percussion hole returning significantly higher copper, zinc, gold and silver grades (300% to 700% higher);**
- **Initial metallurgical testwork results show positive first stage "rougher" recoveries of 90%;**
- **Highly prospective host rock extends for up to 50km north - south in Develin Creek tenure;**
- **Ongoing systematic soil geochemical programs proven a successful, initial screening tool;**
- **Drilling planned to test new targets**

#### **Activities During the Quarter**

No field work this quarter.

#### **Planned Activities**

- Ongoing program to expand geochemical coverage over priority host rock horizons within the highly prospective tenure surrounding the Develin Creek deposits; and
- Drill testing Wilsons South target, Sulphide City twin hole drilling program to test historic drilling assay under-call and provide metallurgical samples.

#### **Background on Develin Creek Project**

Located 80km north-west of Rockhampton in Central Queensland, the Develin Creek base metals project hosts several copper-zinc-gold-silver volcanic hosted massive sulphide deposits and covers an extensive belt of underexplored prospective host rocks. The existing Inferred Mineral Resource (JORC 2012) of: 2.57Mt @ 1.76% copper, 2.01% zinc, 0.24g/t gold and 9.6g/t silver (2.62% CuEq) (ASX release 15<sup>th</sup> February 2015) 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, which are both located in Western Australia. These types of deposits typically occur in clusters making them attractive exploration targets.

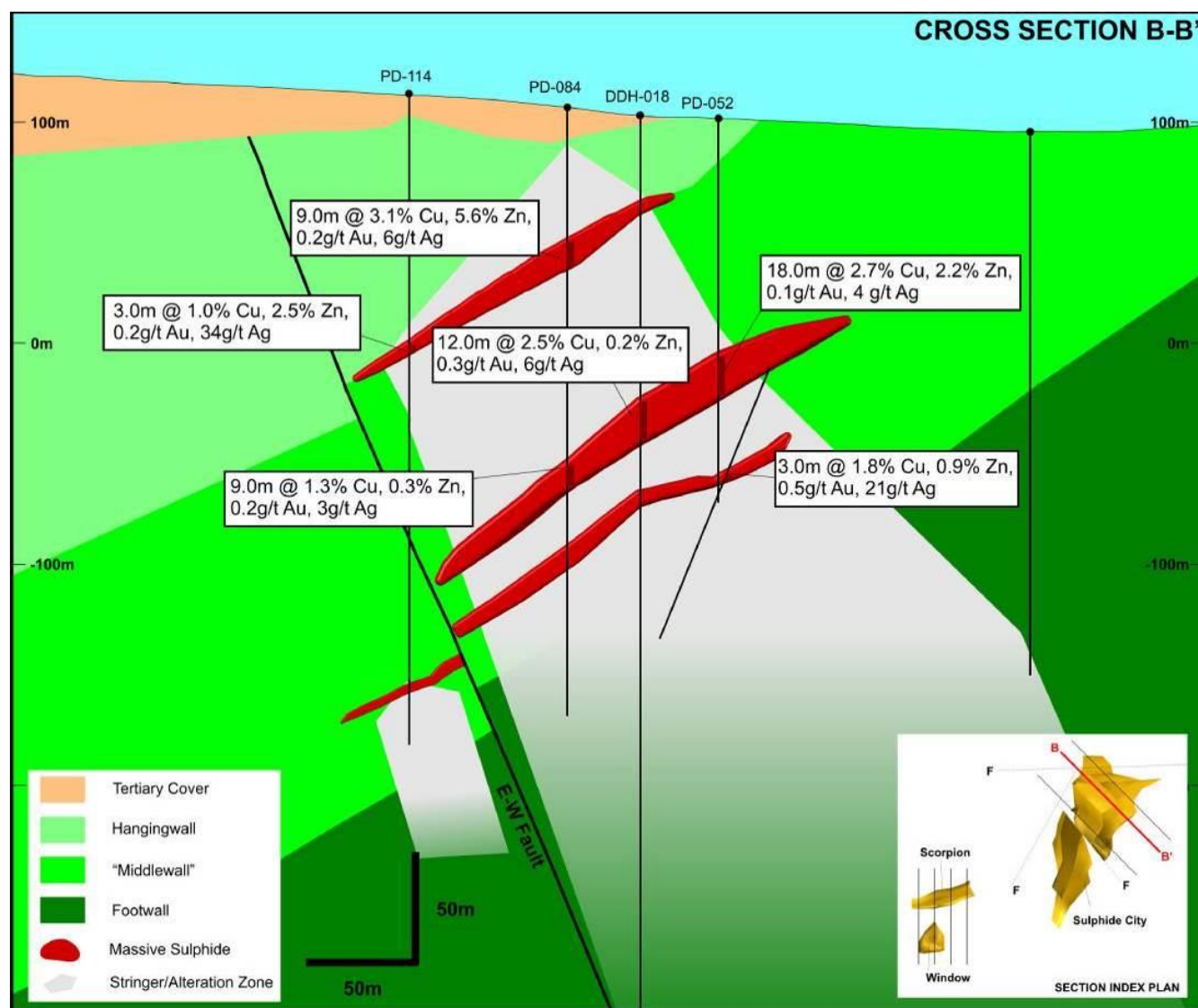
Drilling completed to date by Zenith at the Sulphide City deposit has returned results including: 5m @ 2.45% copper, 2.14% zinc, 0.4 g/t gold and 30.7 g/t silver and 3m @ 2.63% copper, 0.88% zinc, 0.5 g/t gold and 36.7 g/t



silver supporting 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.

Massive bedded copper-zinc sulphide mineralisation remains open at depth beyond the main Scorpion deposit to the north and north-east, whilst bedded massive sulphide remains open ended to the northwest of the Sulphide City deposit (Figure 16). Incremental resource extensions are likely to the immediate north of the Window resource.

In addition a Zenith RC hole completed in the drill program twinned a 1993 percussion drill hole as the older hole appeared to have anomalously low results compared to the more recent diamond drill holes and other older 1993 diamond drill hole results further to the north. Zenith's new hole returned significantly higher copper, zinc, gold and silver grades (3x copper, 5x zinc, 5x gold and 7x silver) for the equivalent drilled interval. Results from the newer twin hole replaced the older drill hole results allowing a zone of continuous high-grade copper to be defined through the core of the Sulphide City deposit.



**Figure 16: Sulphide City Deposit – Cross Sections**

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 400m 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) 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

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) 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)

The highly weathered Window mineralisation consists of a ~40m thick sub-horizontal supergene blanket of copper mineralisation 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) include:

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

### **Wilsons South Prospect**

In the Wilsons area, located 30km south of the known Develin Creek copper-zinc-gold-silver deposits Zenith's geochemical sampling program defined a 1000 metre by 500 metre, coincident copper-zinc soil anomaly overlying the Wilsons Copper Prospect where samples of gossans (up to 2.7% copper and 0.4% zinc) were mapped. Based on mapping and historical drilling Zenith's geologists interpret the Wilsons Prospect to represent the footwall stringer or feeder position typically observed below copper-zinc massive sulphide bodies.

In addition to identifying the known prospect at Wilsons, the soil sampling defined a prospective corridor 2000 metres by 750 metres continuing to the south which overlies a discrete EM conductor defined by a HeliTEM geophysical survey. The coincident soil anomaly and EM conductor at Wilsons South are located at higher topographic elevations directly along geological strike from the Wilsons prospect and are therefore considered to be an attractive drill target as preservation of the copper-zinc massive sulphide bodies are considered likely.

### **Regional Targets**

Within the Develin Creek project area, Zenith believes that there is good potential to discover new massive sulphide copper-zinc mineralisation, in the extensive landholdings totalling 300km<sup>2</sup>. Zenith controls over 50km of strike length of prospective volcanic host rock sequence.

To date approximately 11,100 soil samples have been collected and analysed by Zenith as part of a systematic geochemical surveying program. Historically there has been little to no systematic geochemical soil sampling over much of the prospective target horizons, and thus Zenith's ongoing sampling program is the first to provide effective regional geochemical coverage over key portions of the target area.

### **TATE RIVER GOLD PROJECT – QLD (Earning up to 70%)**

- **Widespread bedrock gold mineralisation confirmed by Zenith excavator trenching program: with results including: 5m @ 3.92g/t Au, 3m @ 1.72 g/t Au, 3m @ 1.09 g/t Au and 2m @ 0.82g/t Au. Wide zones of strongly anomalous gold i.e. Trench GT12 (entire length average 166m @ 0.14g/t Au) indicate large scale gold mineralised system.**
- **Setting and geochemical association is indicative of an intrusion related gold system. Nearby deposits of this type include Mungana / Red Dome gold mine that had gold endowment of 2.7Moz Au.**

### **During the Quarter**

A detailed review of previous exploration reports was undertaken to assess additional targets that will be explored in 2018 in conjunction with follow-up of the Guppy Strike prospect area.

### **Background on the Tate River Project**

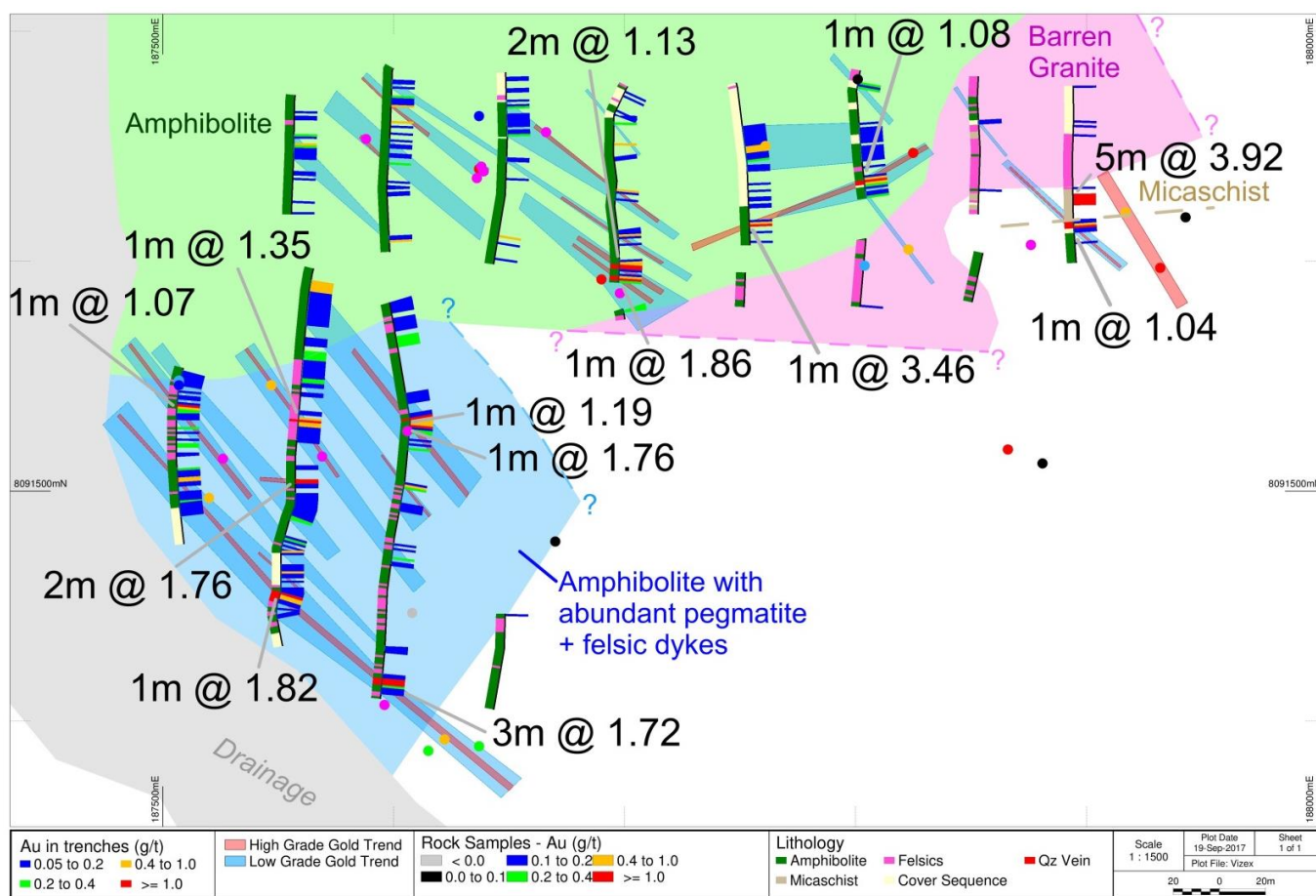
As previously announced (ASX Release 2<sup>nd</sup> August 2017) a wholly owned subsidiary of Zenith, Caldera Metals Pty Ltd signed a Farm-In agreement with private company Jumani Pty Ltd, whereby Caldera may earn up to 70%



interest in The Tate River gold project. The project contains several gold and gold-silver prospects that are considered to be epithermal or intrusion related gold deposit systems.

As previously announced to the ASX (21<sup>st</sup> September 2017) continuous, horizontal channel sampling of 13 trenches dug by excavator has confirmed widespread bedrock gold mineralisation over an area 450m x 300m, with results including 5m @ 3.92g/t Au from mica schist, whilst ferruginous quartz vein zones hosted in amphibolite tested by 3 separate trenches returned: 3m @ 1.72 g/t Au, 3m @ 1.09 g/t Au and 2m @ 0.82g/t Au over a strike length of 150m (Figure 17). Widespread strongly anomalous gold zones such as in Trench GT12 (entire length averaging 166m @ 0.14g/t Au) in the southwest of the prospect area are associated with a felsic and pegmatite dyke swarm.

In addition a soil geochemical survey was completed over the Guppy Strike discovery area in order to assist in determining the extents of the gold mineralised system. Assay results from the soils program show a 550m long x 400m wide gold-bismuth-tellurium-copper-zinc soil anomaly coincident with the Guppy Strike gold zones. Additional untested and open ended gold-bismuth+ tellurium-copper soil anomalies occur to the southwest and south east that requires follow-up field assessment.



**Figure 17: Guppy Strike Prospect Gold Trench Results**





## RED MOUNTAIN GOLD-SILVER PROJECT – QLD (Zenith 100%)

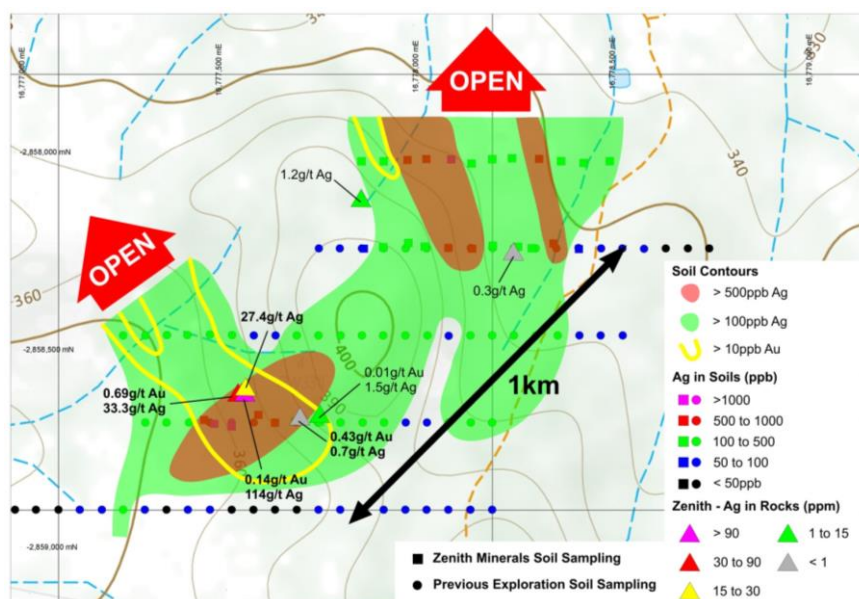
- Initial reconnaissance field work by Zenith returned highly encouraging silver and gold rock chip sample results up to 114 g/t silver and 0.69 g/t gold;
- 1km long, high-order (>100 ppb) silver soil geochemical anomaly confirmed with results up to 1 g/t silver. Open ended silver soil anomaly provides target scale and immediate follow-up opportunity;
- Follow-up mapping and sampling to define the extents of the gold-silver mineralisation is planned along with trenching to test the true thickness of the poorly exposed gold-silver zones and to track mineralisation where it extends beneath shallow soil cover to the southwest.

### Activities During the Quarter

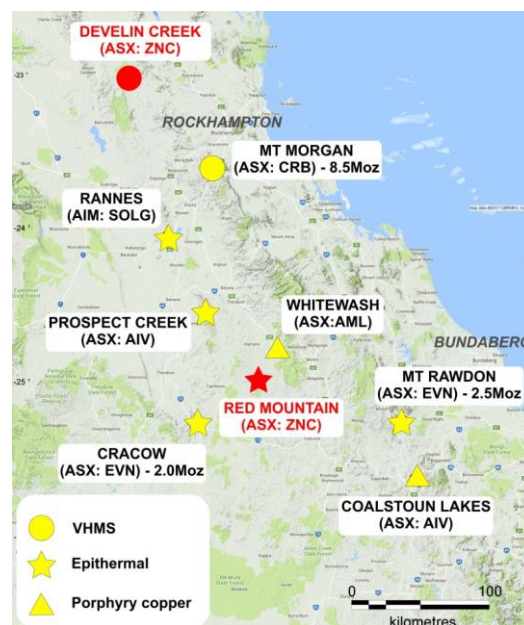
Nil this quarter.

### Background on the Red Mountain Project

As announced to ASX on 25<sup>th</sup> July 2017, mapping in an area dominated by soil with minor sporadic rock outcrop identified discrete 2 to 3 metre wide manganese and iron rich fracture vein stockwork zones hosted in rhyolite and granodiorite with minor quartz. Rock chip sampling from these zones returned highly encouraging silver and gold rock chip sample results up to 114g/t silver and 0.69 g/t gold in association with anomalous copper, lead, zinc, barium, cobalt (up to 0.1%), antimony and bismuth. A total of 7 rock samples were collected, all results are shown on Figure 18.



**Figure 18: Prospect Map Showing Gold & Silver Rock Results and Silver Soil Results**



**Figure 19: Red Mountain Project – Location Map (Showing mineral deposits with past production plus current published resources)**

Soil samples taken by Zenith confirmed an area of anomalous silver soil geochemistry which now outlines an open-ended, high-grade (>100 ppb) silver anomaly with individual soil results up to 1 g/t silver that provides target scale and an immediate follow-up opportunity (Figure 18).



Based on the initial site visit and preliminary evidence, the geological setting and geochemical association at Red Mountain is indicative of a gold-silver “carbonate-base metal gold epithermal” system. According to Corbett (2002) this group of deposits represents the most prolific gold producers in the SW Pacific rim, examples include the Porgera Gold Mine and Mt Muro Gold Mine.

The Red Mountain project is close to the low sulphidation epithermal gold deposit Cracow – owned by Evolution Mining and porphyry deposits such as the Whitewash Deposit porphyry copper-molybdenum deposit owned by Aeon Metals Limited (Figure 19). Project tenure is situated on grazing country with excellent access.

#### **Planned Activities**

The Zenith team is highly encouraged by the initial discovery of gold and silver at Red Mountain. Follow-up mapping and sampling to define the extents of the gold-silver mineralisation is planned along with trenching to test the true thickness of the poorly exposed gold-silver zones and to track mineralisation where it extends beneath shallow soil cover to the southwest.

#### **EARAHEEDY ZINC PROJECT – QLD (Zenith 100%, Rumble Resources option to acquire 75%)**

- **Wide spaced drilling has defined stratiform zinc and lead mineralisation over 20km of strike within carbonate sediments of the lower sedimentary units of the Earahedy Basin (Proterozoic) in Western Australia.**
- **Historical drilling intercepted high-grade zinc up to 18.6% within an intersection 3.3m @ 11.2% Zn, and 0.93% Pb from 150m. Other drill-holes include 2m @ 8.23% Zn and 2.77% Pb from 103m.**
- **Coarse grain sphalerite (Zn) and galena (Pb) with pyrite and marcasite occurs as breccias, veins and replacement zones within carbonates.**
- **The mineralisation style is similar to Mississippi Valley Type (MVT) large high grade base metal deposits that include the Devonian Lennard Shelf deposits of the Kimberley Region of Western Australia.**
- **Rumble plans to commission a detailed gravity survey to compliment the magnetics with the aim to delineate basement structures and directly define high density sulphides to drill test**

#### **Activities During the Quarter**

No field work this quarter.

#### **Planned Activities**

Rumble Resources plans to commission a detailed gravity survey to compliment the magnetics with the aim to delineate basement structures and directly define high density sulphides to drill test.

#### **Background on Earahedy Zinc Project**

The Earahedy Zinc project is located approximately 110km north of Wiluna, Western Australia, covering most of the known zones of primary carbonate hosted zinc–lead mineralisation in the Earahedy Basin. Broad spaced drilling (completed in the 1990’s) defined several prospects containing oxidised and primary Zn-Pb mineralisation (zinc dominant) associated a flat lying to shallow northeast dipping laterally continuous dolomite horizon with over 20 kilometres strike. The initial drill spacing was 5 to 10km. The current drill spacing is approximately 1km by 1km.

Three prospects were defined within the current Earahedy Project.

At ‘Navajoh’, an intersection of 7.3 metres @ 6.1 % Zn, 0.77% Pb (including 3.3 metres @ 11.2% Zn, and 0.93% Pb) remains untested for 500 metres to 1 kilometre in all directions.



At 'Magazine' there are no follow up holes within a 1kilometre radius of a discovery intersection of 11 metres @ 3.5% (Zn + Pb) which includes 2 metres @ 8.2% Zn, 2.8% Pb).

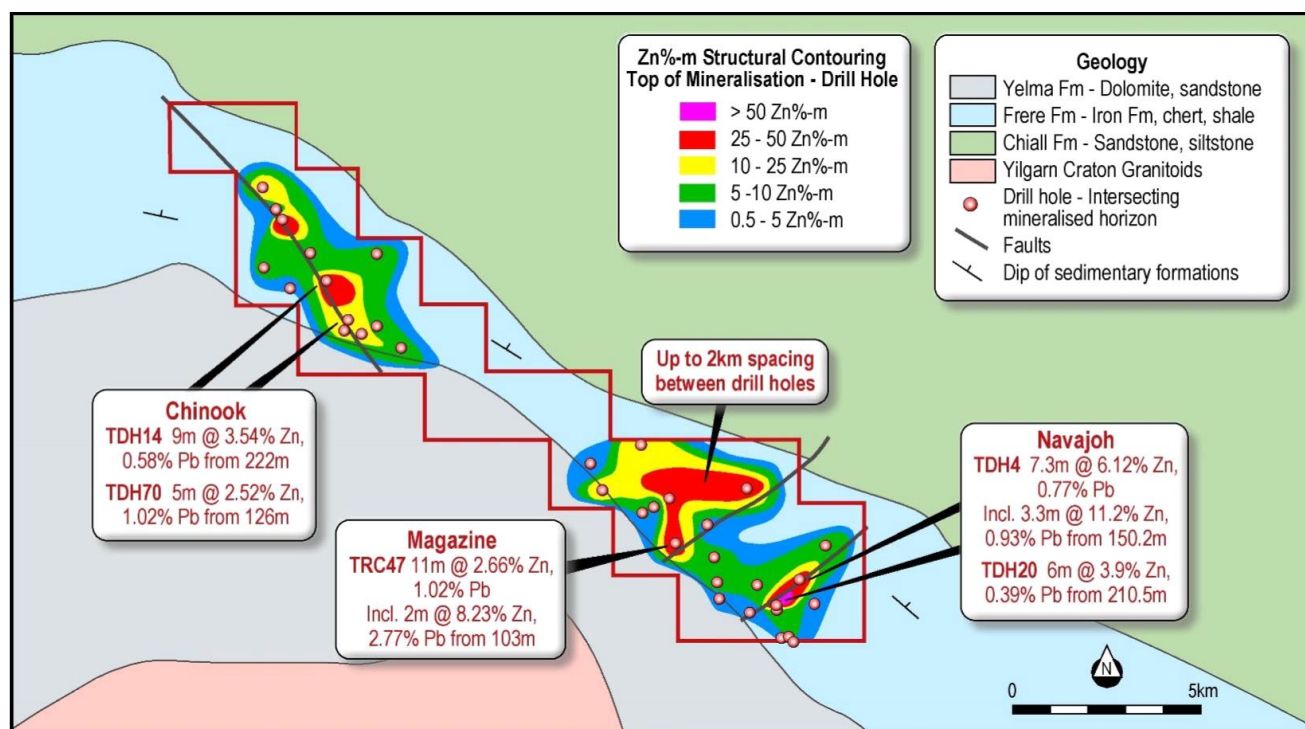
At 'Chinook' intersections include 6 metres @ 3.63% (Zn + Pb).

Review of the historic drilling has concluded that approximately half the drill holes did not intercept the target horizon. A total of 64 drill holes were completed within the project area (E69/3464) with only 35 drill holes intercepting the stratiform zinc horizon (including partial end of hole intercepts).

Structural contouring of the flat lying mineralised carbonate horizon has highlighted the extent of mineralisation. Using Zn%-m (cumulative assay values > 0.15% Zn per hole) contouring as a guide (Figure 20), significant areas of untested potential mineralisation remain completely open. North of the Magazine prospect, drill hole spacing is up to 2km. Note that the Zn%-m contouring represents metal endowment per drill hole and does indicate economic grade and widths.

The Earraheedy Project, based on the mineralisation style, host rocks, known basement structural architecture and the current drilling density (2km by 1km and 1km by 1km spacing), has the potential to host a significant Zn – Pb resource.

The target size is similar to the Pillara (Blendevalle) Zn – Pb deposit located in the Devonian limestones of the Lennard Shelf, Kimberley Region, Western Australia which produced 10.3 Mt @ 6.9% Zn and 2.3% Pb. Of note, the discovery drill-hole (8m @ 8.9% Zn, 3.5% Pb below 210m) at Pillara, was the 136<sup>th</sup> drill hole in the area.



**Figure 20: Earraheedy Zinc Structural Contours (Zn%-m) Drill Holes Intercepting Mineralised Horizon**

#### Rumble Resources Limited Transaction

Option agreement executed with Rumble Resources Limited (RTR) over the Earraheedy Zinc project, as announced to the ASX by RTR on the 12<sup>th</sup> October 2017. Zenith will receive RTR shares worth \$50,000 as an initial option payment. RTR may purchase a 75% interest in the Earraheedy Zinc project for \$550k in shares within 2 years, subject to a 2 year extension (for a further payment of \$200k cash / shares at ZNC's election). Upon exercise of option to purchase the Earraheedy Zinc project by RTR, ZNC is then free carried at 25% to the end of a BFS.





## **WARATAH WELL LITHIUM-TANTALUM PROJECT – WA (Zenith 100%)**

- Warratah Well Project covers area of extensive outcropping pegmatites (3km x 2km) in north east of tenure - no reported previous exploration for lithium;
- Reconnaissance field work by Zenith returned encouraging lithium rock chip sample results up to 0.34% Li<sub>2</sub>O as well as widespread, high-grade tantalum up to 1166ppm Ta<sub>2</sub>O<sub>5</sub>;
- Systematic surface geochemical sampling of the lithium pegmatite target is planned.

### **Activities During the Quarter**

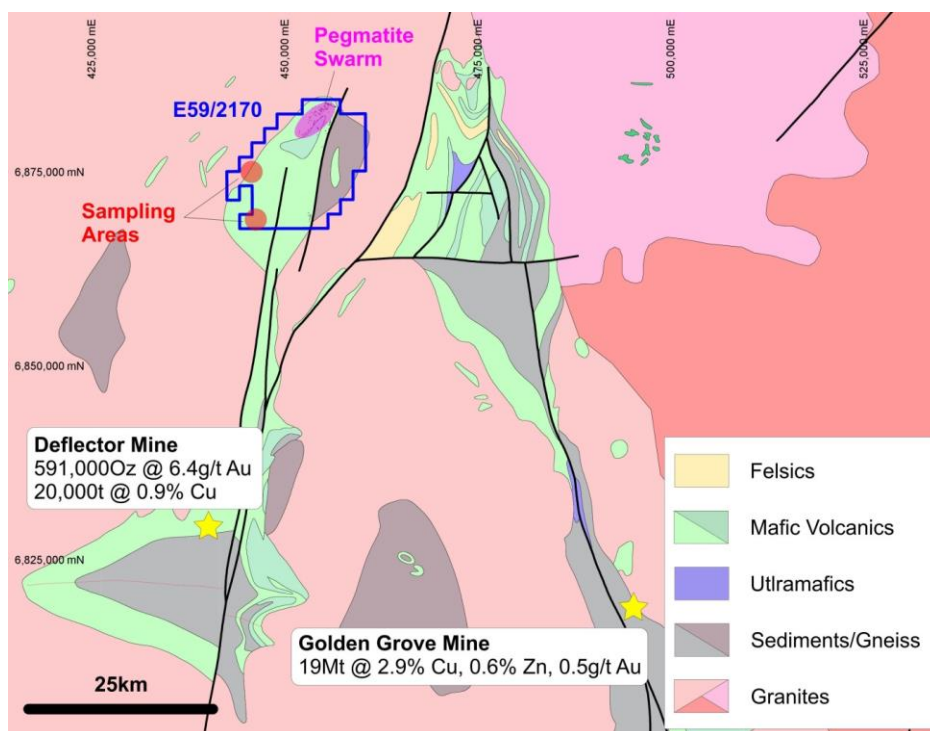
A detailed review of the zonation of the pegmatites was completed outlining potential drill targets.

### **Planned Activities**

Systematic surface geochemical sampling of the lithium pegmatite target is planned. The Company is considering options such as seeking a partner to drill test this target.

### **Background on Waratah Well Project**

Zenith's 100% owned exploration licence in central west Western Australia - Warratah Well Project covers area of extensive outcropping pegmatites (3km x 2km) in the northeast of the project area (Figure 21).



**Figure 21: Warratah Well Project (E59/2170) – Regional geological Setting and Location of Targets (Deflector resource DRM website accessed 24-07-17 & Golden Grove resource - MMG 2014)**

Field work completed by Zenith to assess the pegmatite dykes and sills has returned encouraging lithium rock chip sample results (23 samples) up to 0.34% Li<sub>2</sub>O as well as widespread, high-grade tantalum up to 1166ppm Ta<sub>2</sub>O<sub>5</sub> (ASX Release 29<sup>th</sup> July 2017). Individual pegmatite bodies range in thickness from 0.5 metres to 20 metres and generally dip shallowly to the northeast at between 50 and 600. Tantalum results range from 30ppm to a maximum of 1166ppm Ta<sub>2</sub>O<sub>5</sub>, with 10 samples in excess of 200ppm Ta<sub>2</sub>O<sub>5</sub> whilst lithium results are generally lower with only two samples returning greater than 0.2%Li<sub>2</sub>O. Preliminary assessment appears to indicate that the higher lithium results are from mica rich pegmatites, whilst the tantalum mineral species is not yet known. The target area lies 45km north along strike from Doray Minerals Limited (ASX:DRM) Deflector gold-copper mine and 75km northwest of the Golden Grove copper-zinc-gold mine.



## **MT ALEXANDER IRON PROJECT – WA (Zenith 100%)**

### **Magnetite iron ore resources retained under retention licences**

#### **Activities During the Quarter**

Nil this quarter.

#### **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.

Zenith 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.

The Inferred Mineral resource (JORC12) for magnetite iron at Mount Alexander is: **565.7 million tonnes @ 30.0% Fe**. Details are included in JORC Code Reporting Criteria Section 2 of the June 2015 Quarterly Report.

<b>Mount Alexander BIF Inferred Mineral Resource estimate as at June 2015</b>							
		Head Grade					
Classification	Tonnes (Mt)	Fe %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	LOI %	P %	S %
Inferred	565.7	30.0	48.1	2.2	-0.4	0.1	0.46
	DTR	DTR Concentrate Grade					
	Mass Recovery %	Fe %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	LOI %	P %	S %
	24.8	69.9	2.4	0.1	-2.7	0.01	1.1

In addition the Company reported a maiden Inferred Mineral resource estimate (JORC12) for magnetite iron at the Mt Alexander West prospect in June 2015 of: **25.9 million tonnes @ 22.7% Fe**. Details are included in JORC Code Reporting Criteria Section 2 of the June 2015 Quarterly Report.

<b>Mount Alexander West BIF Inferred Mineral Resource estimate as at June 2015 (18%Fe cut-off)</b>							
		Head Grade					
Classification	Tonnes (Mt)	Fe %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	LOI %	P %	S %
Inferred	25.9	22.7	50.0	7.9	0.27	0.35	0.04

Substantial additional potential exists for increased tonnage at both Mt Alexander and Mt Alexander West with only ~55% of target BIF drill tested to date.

Pre-feasibility study elements undertaken aimed at de-risking the project include; finalised Level 1 and Level 2 flora & fauna surveys which did not identify any major environmental triggers.

The Company has secured retention licences over the Mt Alexander and Mt Alexander West deposits as well as an area adequate to cover key infrastructure that would be required to develop the magnetite iron project. The retention licence/status will allow Zenith to hold the Mineral Resources but negate any ongoing Department of Mines statutory annual expenditure requirements for those licences.

## **EARAHEEDY MANGANESE PROJECT – WA (Zenith 100%)**

**Manganese Mineral Resources at Red Lake and Lockeridge are retained under retention licences.**

### Activities During the Quarter

The Company is assessing new extraction technologies that may be applicable for use at Earaaheedy including hydrometallurgical processing to produce high purity manganese of a type used in lithium ion batteries.

### Background on Earaaheedy Project

The Proterozoic aged Earaaheedy Basin north of Wiluna in Western Australia is a potential new manganese province with similarities to the giant Kalahari manganese field in South Africa. Zenith's priority target is high-grade (>40% Mn) manganese oxide formed by weathering or supergene upgrade of primary mineralisation.

The first DSO grade Mn drill intersections recorded in the Earaaheedy 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 9<sup>th</sup> 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 <sub>2</sub> O <sub>3</sub> %	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

On the 15<sup>th</sup> April 2015 Zenith reported an Inferred Mineral Resource (JORC 12) for the near surface oxide portion of the Lockeridge manganese prospect. The maiden estimate is: **2.6Mt @ 20.6% Mn** at a 10%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.

Lockeridge Manganese Mineral Resource Estimate as at April 2015									
Classification	Reporting Cut-off Grade	Tonnes (Mt)	Mn %	Fe %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	P %	S %	LOI %
Inferred	20% Mn	1.0	30.2	7.0	18.9	4.1	0.12	0.01	5.7
	15% Mn	1.9	23.4	6.7	25.4	4.7	0.15	0.01	10.4
	10% Mn	2.6	20.6	6.9	27.6	5.1	0.16	0.01	12.0

*Note: The 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.*

## OTHER

Field work during the quarter at the Pollappa lithium project in Queensland did not confirm the projects exploration potential and subsequently the project exploration licences were relinquished.

## NEW OPPORTUNITIES

In conjunction with its American lithium JV partner Bradda Head the Company is assessing additional lithium brine opportunities.





## CORPORATE

23,401,788 listed ZNCO options (99%) were exercised prior to expiry on 31 December, converting to fully paid ordinary shares during the quarter raising a total of \$2,340,179.

**Zenith Minerals Limited**

**31<sup>st</sup> January 2018**

**For further information contact;**

**Directors Michael Clifford or Mike Joyce**

**Phone 08 9226 1110**

## COMPETENT PERSONS STATEMENTS

*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 Mineral Resources at Zenith's Red Lake 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.*

*The information in this report that relates to Mineral Resources at Zenith's Lockeridge - Earraheedy project, Mt Alexander project and Mt Alexander West project is based on information compiled by Mr Rodney Michael Joyce, a Competent Person who is a director of the Company and a Member of the AusIMM. Mr Joyce 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 Joyce consents to the inclusion of such information in this report 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.*

## Appendix 5B

# Mining exploration entity and oil and gas exploration entity quarterly report

Introduced 01/07/96 Origin Appendix 8 Amended 01/07/97, 01/07/98, 30/09/01, 01/06/10, 17/12/10, 01/05/13, 01/09/16

### Name of entity

Zenith Minerals Limited

### ABN

96 119 397 938

### Quarter ended ("current quarter")

31 December 2017

Consolidated statement of cash flows		Current Quarter \$A'000	Year to Date (6 months) \$A'000
<b>1. Cash flows from operating activities</b>			
1.1 Receipts from customers		25	34
1.2 Payments for			
(a) exploration & evaluation		(207)	(690)
(b) development		-	-
(c) production		-	-
(d) staff costs		(136)	(260)
(e) administration and corporate costs		(167)	(283)
1.3 Dividends received (see note 3)		-	-
1.4 Interest received		1	2
1.5 Interest and other costs of finance paid		-	-
1.6 Income taxes paid		-	-
1.7 Research and development refunds		-	-
1.8 Other (provide details if material)		-	-
<b>1.9 Net cash from / (used in) operating activities</b>		<b>(484)</b>	<b>(1,197)</b>

<b>2. Cash flows from investing activities</b>			
2.1 Payments to acquire:			
(a) property, plant and equipment		-	(1)
(b) tenements (see item 10)		(1)	(1)
(c) investments		-	(8)
(d) other non-current assets		-	-

<b>Consolidated statement of cash flows</b>		<b>Current Quarter \$A'000</b>	<b>Year to Date (6 months) \$A'000</b>
2.2	Proceeds from the disposal of:		
	(a) property, plant and equipment	-	-
	(b) tenements (see item 10)	1	1
	(c) investments	-	-
	(d) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>-</b>	<b>(9)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of shares	-	-
3.2	Proceeds from issue of convertible notes	-	-
3.3	Proceeds from exercise of share options	2,327	2,327
3.4	Transaction costs related to issues of shares, convertible notes or options	-	-
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>2,327</b>	<b>2,327</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	1,270	2,004
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(484)	(1,197)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	-	(9)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	2,327	2,327
4.5	Effect of movement in exchange rates on cash held	2	(10)
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>3,115</b>	<b>3,115</b>



<b>5. Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter \$A'000</b>	<b>Previous quarter \$A'000</b>
5.1 Bank balances	3,100	1,255
5.2 Call deposits	15	15
5.3 Bank overdrafts	-	-
5.4 Other (provide details)	-	-
<b>5.5 Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>3,115</b>	<b>1,270</b>

**6. Payments to directors of the entity and their associates**

- 6.1 Aggregate amount of payments to these parties included in item 1.2
- 6.2 Aggregate amount of cash flow from loans to these parties included in item 2.3
- 6.3 Include below any explanation necessary to understand the transactions included in items 6.1 and 6.2

**Current quarter  
\$A'000**

110

-

Reimbursement to directors of administration and exploration expenses incurred on behalf of the Company and for the payment of director services.

**7. Payments to related entities of the entity and their associates**

- 7.1 Aggregate amount of payments to these parties included in item 1.2
- 7.2 Aggregate amount of cash flow from loans to these parties included in item 2.3
- 7.3 Include below any explanation necessary to understand the transactions included in items 7.1 and 7.2

**Current quarter  
\$A'000**

-

-

**8. Financing facilities available**

*Add notes as necessary for an understanding of the position*

- 8.1 Loan facilities
- 8.2 Credit standby arrangements
- 8.3 Other – Credit Card Facility

**Total facility amount  
at quarter end  
\$A'000**

**Amount drawn at  
quarter end  
\$A'000**

15

1

- 8.4 Include below a description of each facility above, including the lender, interest rate and whether it is secured or unsecured. If any additional facilities have been entered into or are proposed to be entered into after quarter end, include details of those facilities as well.


Credit Card Facility with ANZ bank which is secured by a term deposit with a right of set off to the total limit of the credit card facility.

<b>9. Estimated cash outflows for next quarter</b>	<b>\$A'000</b>
9.1 Exploration and evaluation	200
9.2 Development	-
9.3 Production	-
9.4 Staff costs	100
9.5 Administration and corporate costs	70
9.6 Other (provide details if material)	-
<b>9.7 Total estimated cash outflows</b>	<b>370</b>

<b>10. Changes in tenements (items 2.1(b) and 2.2(b) above)</b>	<b>Tenement reference and location</b>	<b>Nature of interest</b>	<b>Interest at beginning of quarter</b>	<b>Interest at end of quarter</b>
10.1 Interests in mining tenements and petroleum tenements lapsed, relinquished or reduced	E45/4713	100%	-	-
10.2 Interests in mining tenements and petroleum tenements acquired or increased	E45/4713	100%	-	-
	E63/1794	100%	-	100%
	E77/2388	100%	-	100%
	E77/2453	100%	-	100%
	E77/2454	100%	-	100%
	E77/2455	100%	-	100%
	E77/2456	100%	-	100%

### Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Sign here:  .....

(Director /Company secretary)

Date: 31 January 2018

Print name: **Melinda Nelmes**

**Notes**

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity that wishes to disclose additional information is encouraged to do so, in a note or notes included in or attached to this report.
2. If this quarterly report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, AASB 6: Exploration for and Evaluation of Mineral Resources and AASB 107: Statement of Cash Flows apply to this report. If this quarterly report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.