# ASX ANNOUNCEMENT

5 July 2023

# STRONG EM & IP ANOMALIES IDENTIFIED AT FENTON GOLD PROJECT

## HIGHLIGHTS

- Excellent early progress made on ground geophysical programs at DeSoto's 100%-owned Fenton Gold Project **(Fenton)**, located in the Pine Creek region of the Northern Territory.
- Survey ~60% complete, with Pole-Dipole IP and Fixed Loop EM programs designed to detect anomalous responses in Fenton's gold anomalous target area.
- Early results have successfully identified chargeable/conductive responses along the Fenton Shear Zone **(FSZ)**, including:
    - A strong late-time conductor in Fixed Loop EM proximal to FEND14 intercept (17m @ 0.71/g/t Au);
    - Moderate amplitude chargeability and resistivity anomaly in Pole Dipole 2D IP survey (Fig.1), proximal to FEND18 intercept (55m @ 0.89g/t Au);
    - FSZ mapped as a distinct resistivity and conductivity contrast;
    - Additional anomalies detected that warrant follow-up infill lines.

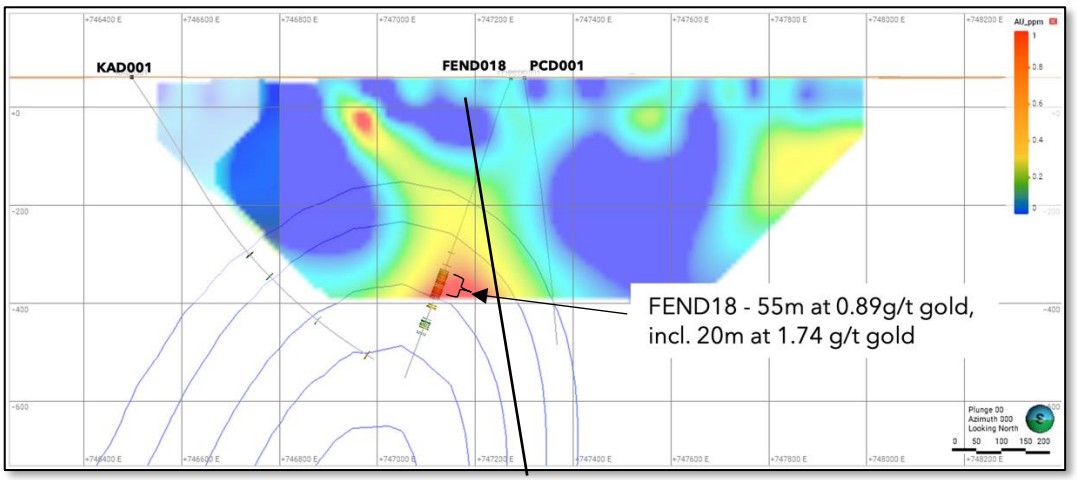


Figure 1 - Zonge 2D chargeability model for line 71600N with airborne magnetic 3D Isosurfaces (blue shells) and drill holes traces with gold assays in ppm. E-W cross section 8471600mN, +/- 100m clip, looking north, Vertical Exaggeration (VE)=1. Solid black line is interpreted shear zone.

- The geophysical program covers a 4km-long section of the FSZ (Fig. 2), a large sulphidic gold-mineralised zone which has seen historic drilling with encouraging intercepts.
- Ground geophysical survey is expected to be completed mid-July with the Company's maiden drill program to commence shortly thereafter.

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**DeSoto Resources Limited (ASX:DES or 'Company')** is pleased to announce that ground geophysical surveys, which will underpin the company's maiden drill program, are progressing well at its Fenton Gold Project (Fig. 2).

Excellent production rates have been achieved by the Zonge Geophysics acquisition crew since the survey commenced on the 13th of June. The initial focus has been on determining if there is a geophysical response from the known mineralisation intercepted by historic drilling whilst testing for new mineralisation target zones between, and along strike from FEND14 and FEND18.

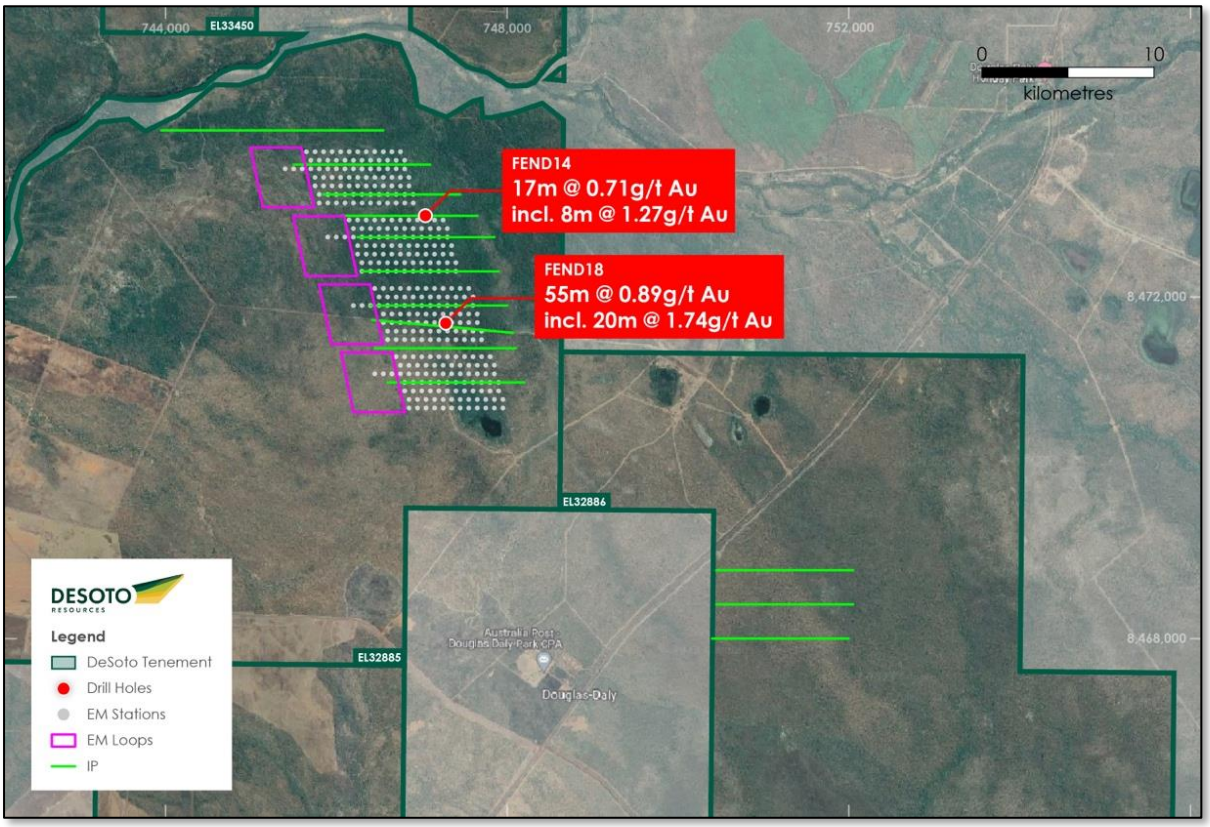


Figure 2 - Fenton Gold Project, with pole-dipole IP and fixed loop EM program survey lines, stations and loops overlain on a 4km-long section of the Fenton Shear Zone which includes previous Homestake drill holes FEND14 and FEND18.

## TECHNICAL DISCUSSION

### Fixed Loop EM

Preliminary results have been received from the first two EM loops collected with profile and gridded channel data reviewed. The initial results indicate the presence of a strong mid to late time conductor that is proximal to drill intercept from FEND14. This anomaly remains open along strike to the north.

The gridded channel data shows that the fixed loop EM survey is successfully mapping the shear zone contact as mid-time response that increases in conductivity towards the north. Multiple bedrock conductors may be present.

## Pole Dipole IP

Preliminary results have been received from the first five IP lines: 71600N, 71900N, 72300N, 72700N and 72950N. The data has been modelled using the Zonge 2D smooth inversion algorithm. The IP survey has successfully imaged the shear zone contact as a distinct change in basement resistivity The shear zone can be clearly traced northwards from the position intercepted by the historic drill hole FEND18.

Line 71600N was collected to test if there was an IP response proximal to FEND18. The resultant model indicates that the drilling intercept is partially coincident with a moderate amplitude chargeability anomaly located on the shear zone contact as defined by a change in resistivity (Fig 1). This anomaly remains only partially drill tested and is open along strike to the south.

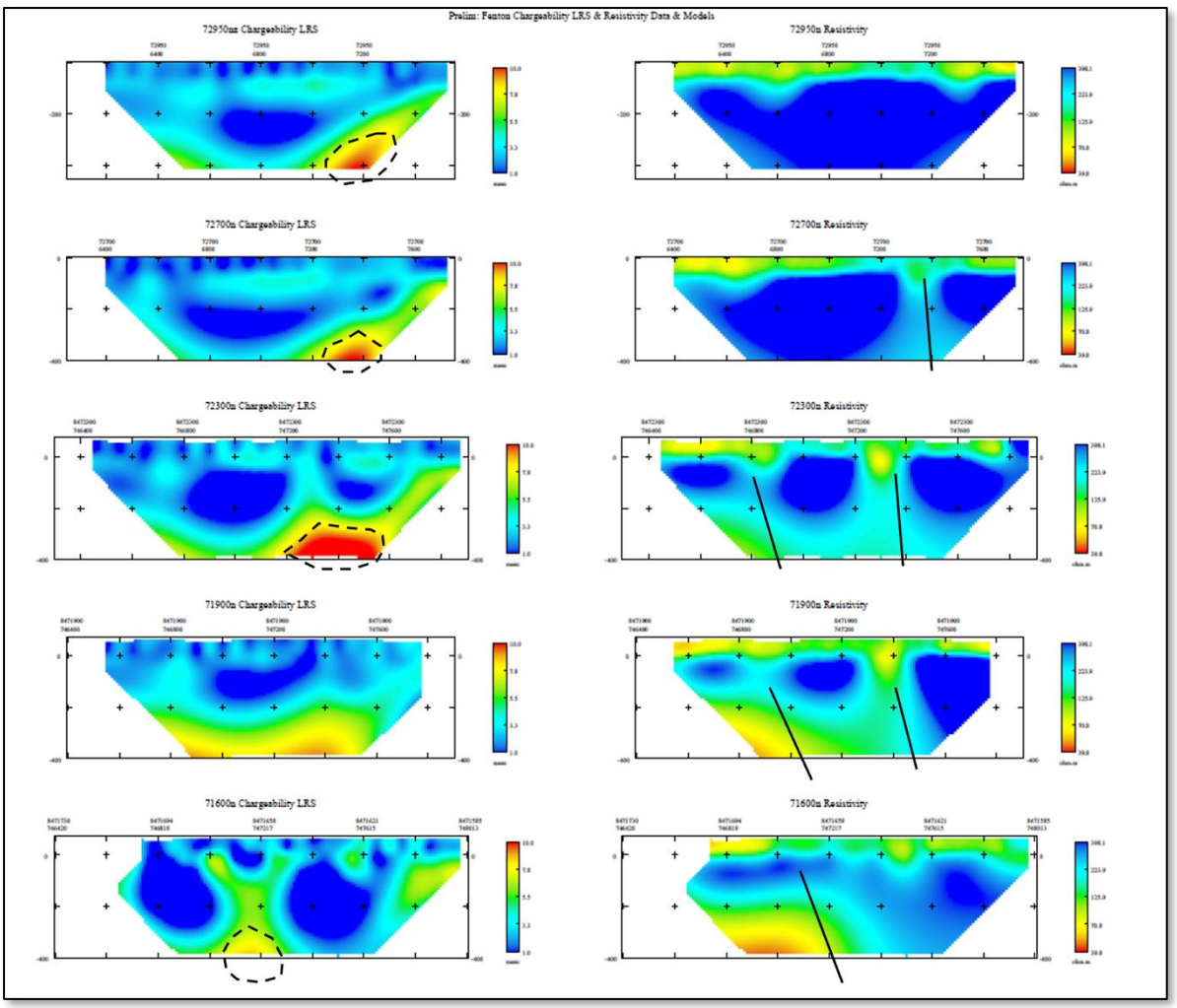


Figure 3 - Zonge 2D chargeability and resistivity model stack for completed Pole-Dipole IP survey lines: 71600N, 71900N, 712300N, 72700N, 72950N. Initial chargeability targets shown as dashed black lines, shear zone interpretation as solid black lines. All images are E-W cross sections, looking north, VE 1.

Preliminary interpretations indicate that there are similar chargeability anomalies on four of the five IP lines collected to date, along the shear zone contact. These increased zones of

chargeability may be the response of disseminated sulphide mineralisation along the structure. Observations on drill core indicate that these increased zones of sulphides can be related to gold mineralisation.

Additional EM loops and IP lines will now be collected to follow-up on these anomalies detected to date.

Following completion of the remaining geophysical program all results will be reviewed and drill targeting finalised.

## ABOUT FENTON GOLD

The Fenton Gold Project is an under-cover, structurally complex Palaeoproterozoic hosted gold target zone that extends for over 20km along strike by 4km across strike on the western edge of the Pine Creek inlier. It is covered by 50-200m of Cambrian limestones and mudstones of the Daly Basin.

In the mid-1990's, Homestake Gold (now Barrick Gold), conducted a global search for deposits analogous to the +40Moz Lead Gold deposit in South Dakota. During this search, Fenton was identified as a potential candidate due to its similarities with the host rocks and structure found at Lead, particularly within the South Alligator Group.

Subsequent drilling by Homestake Gold at Fenton returned good grades including FEND18 (55m at 0.89g/t gold, incl. 20m at 1.74 g/t gold) and FEND14 (17m at 0.71g/t gold, incl. 8m @ 1.27g/t Au)[1].

Ground electrical geophysics is key to unlocking exploration potential at Fenton. Observations on historic drill core demonstrate the correlation of elevated gold intervals with intensely sheared pyrrhotite rich zones, confirming the potential to host gold mineralisation along a significant shear zone (FSZ).

The target ore zones are predicted to have a high conductivity response to Electrical Magnetic surveys and a high resistivity/chargeability response to an Induced Polarization (IP) geophysical survey.

This announcement is authorised by the Board of Directors of DeSoto Resources Limited.

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For further information visit our website at DeSotoresources.com or contact:

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[1]DES ASX Announcement: Prospectus (14th December 2022)

## ABOUT DES AND PROJECTS

DeSoto is a gold and battery-metal exploration Company with a 1,893km$^2$ landholding located in the Northern Territory's prolific Pine Creek gold and pegmatite province. The Company's immediate focus is the ongoing exploration of these exciting assets with an experienced Board that uses a distinctive exploration method and capability which sets us apart from our peers.

With strong mineral-finding capability and a systematic geophysics and geochemical approach to gold exploration, DeSoto is well positioned to make new mineral discoveries. The Company has already identified important indicators of lithium potential in our Northern Territory projects, including pegmatites in some historical core and known tin occurrences.

## COMPETENT PERSONS STATEMENT

The information in this report that relates to exploration results is based on and fairly represents information and supporting documentation prepared by Ms Bianca Manzi. Ms Manzi is an employee of the company, is a member of the Australian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Ms Manzi consents to the inclusion in this report of the matters based on this information in the form and context in which they appear.

## COMPLIANCE STATEMENT

DeSoto advises that it is not aware of any new information or data that materially affects the previous exploration results or mineral resource estimate contained in this announcement and all material assumptions and technical parameters underpinning the mineral resource estimate continue to apply and have not materially changed.

# TABLE 1 – JORC CODE – GEOPHYSICS RESULTS

## Section 1: Sampling Techniques and Data

| Criteria | JORC Code Explanation | Commentary |
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| **Sampling Technique** | Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report.<br><br>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. | INDUCED POLARISATION GEOPHYSICAL SURVEY<br>• A Time Domain Induced Polarisation and DC Resistivity geophysical survey was undertaken during June 2023, by Zonge Engineering and Research Organisation Pty Ltd, an independent geophysical acquisition contractor.<br>• The survey employed the following sampling techniques: Time Domain Induced Polarisation and DC Resistivity geophysical survey.<br>• The survey used the following sampling equipment:<br>Method: Induced Polarisation and DC Resistivity<br>Array: Pole-Dipole<br>Geometry: Inline 2D<br>Receiver a spacing (m): 100<br>Transmitter a spacing (m): NA<br>Station Move Up (m): 100<br>N level: > n = 12<br>Transmitter Electrode: Two 1x0.3x0.1m aluminium plates<br>Receiver Electrode: Cu/CuSO4 non-polarising electrodes<br>Receiver System: GDD 32ch<br>Transmitter System: Zonge GGT-30 and 2x GDD Tx4<br>Transmitter Waveform: Square, 2 sec on 2 sec off<br>Stacking Time (sec): 120<br>Readings: 3 or more<br><br>ELECTROMAGNETIC GEOPHYSICAL SURVEY<br>• A Time Domain Fixed Loop electromagnetic geophysical survey was undertaken during June 2023, by Zonge Engineering and Research Organisation Pty Ltd, an independent geophysical acquisition contractor.<br>• The survey employed the following sampling techniques: Time Domain Fixed Loop Electromagnetic geophysical survey.<br>• The survey used the following sampling equipment:<br>Method: Fixed Loop EM<br>Geometry: Fixed Loop Rectangle ~2,600m perimeter<br>Receiver line spacing (m): 100<br>Station Move Up (m): 100<br>Transmitter Electrode: Two 1x0.3x0.1m aluminium plates<br>Receiver Antenna: 3 component EMIT B Field.<br>Receiver System: SmarTEM<br>Base Frequency: 0.5Hz<br>Transmitter System: Zonge GGT-30 and 2x GDD Tx4<br>Transmitter Waveform: Square, 2 sec on 2 sec off<br>Stacking Time (sec): 90<br>Readings: 3 or more |
| **Drilling** | Drill type (eg core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face- sampling bit or other type, whether core is oriented and if so, by what method, etc). | This release has no reference to previously unreported drill results. |

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| **Drill Sample Recovery** | Method of recording and assessing core and chip sample recoveries and results assessed.<br><br>Measures taken to maximise sample recovery and ensure representative nature of the samples.<br><br>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. | This release has no reference to previously unreported drill results. |
| **Logging** | Whether core and chip samples have been geologically and geotechnical logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.<br><br>Whether logging is qualitative or quantitative in nature. Core (or costean/Trench, channel, etc) photography.<br><br>The total length and percentage of the relevant intersections logged. | This release has no reference to previously unreported drill results. |
| **Sub-Sampling Technique and Sample Preparation** | If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.<br><br>For all sample types, the nature, quality and appropriateness of the sample preparation technique.<br><br>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.<br><br>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. Whether sample sizes are appropriate to the grain size of the material being sampled. | This release has no reference to previously unreported drill results. |

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| **Quality of Assay Data and Laboratory Tests** | The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.<br><br>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.<br><br>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. | INDUCED POLARISATION GEOPHYSICAL SURVEY<br>• A Time Domain Induced Polarisation and DC Resistivity geophysical survey was undertaken during June 2023, by Zonge Engineering and Research Organisation Pty Ltd, an independent geophysical acquisition contractor.<br>• The survey consisted of 8 line km of data collected along five E-W (090-270) oriented profiles (lines: 7471600N, 7471900N, 74712300N, 7472700N, 7472950N.<br>• Data QAQC was completed by the acquisition contractor and verified by an independent consultant geophysicist using industry standard TQIPdb software.<br>• Data QAQC showed that the obtained data is of moderate quality. EM coupling exists on some lines and may be geological in origin.<br>• Modelling of the data was completed by an independent consultant geophysicist using industry standard Zonge2D inversion software.<br>• The derived subsurface geo-electric models of Chargeability and Resistivity are interpreted with a high degree of confidence.<br>• This release has no reference to previously unreported drill results, sampling, assays or mineralisation.<br><br>ELECTROMAGNETIC GEOPHYSICAL SURVEY<br>• A Time Domain Fixed Loop electromagnetic geophysical survey was undertaken during June 2023, by Zonge Engineering and Research Organisation Pty Ltd, an independent geophysical acquisition contractor.<br>• The survey consisted of 16 km of data collected along 100m spaced E-W traverses.<br>• Data QAQC was completed by the acquisition contractor and verified by an independent consultant geophysicist using industry standard Maxwell software.<br>• Data QAQC showed that the obtained data is of moderate quality.<br>• Processing of the data was completed by an independent consultant geophysicist using industry standard Maxwell and Windisp software.<br>• This release has no reference to previously unreported drill results, sampling, assays or mineralisation. |
| **Verification of Sampling and Assaying** | The verification of significant intersections by either independent or alternative company personnel.<br>The use of twinned holes The verification of significant intersections by either independent or alternative company personnel. Discuss any adjustment to assay data | Data QAQC was completed by the acquisition contractor and verified by an independent consultant geophysicist.<br>This release has no reference to previously unreported drill results, sampling, assays or mineralisation. |
| **Location of Data points** | Accuracy and quality of surveys used to locate drill holes (collar and down- hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.<br><br>Specification of the grid system used Quality and adequacy of topographic control | The coordinate system used is GDA94 MGA Zone 52S coordinates.<br>Garmin Etrex 10 hand-held GPS was used to locate IP and EM receiver and transmitter stations.<br>km = kilometre; m = metre; mm = millimeter; mgal = milligal; msec = milliseconds |
| **Data Spacing and Distribution** | Data spacing for reporting of Exploration Results<br><br>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.<br><br>Whether sample compositing has been applied | INDUCED POLARISATION GEOPHYSICAL SURVEY<br>The survey consisted of 8 line km of data collected along five E-W (090-270) oriented profiles (lines: 7471600N, 7471900N, 74712300N, 7472700N, 7472950N.<br>These survey lines are spaced ~200m to 400m apart.<br>Petrophysics and forward modelling confirmed that the array geometry and dipole sizes were appropriate to detect the mineralization style targeted.<br><br>ELECTROMAGNETIC GEOPHYSICAL SURVEY<br>The survey consisted of 16 km of receiver data collected along 100m spaced E-W (090-270) traverses. The survey used a 100m station move up. The receiver lines were 100m apart. |
| **Orientation of Data in** | Whether the orientation of sampling achieves unbiased sampling of | INDUCED POLARISATION GEOPHYSICAL SURVEY |

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| **Relation to Geological Structure** | possible structures and the extent to which this is known, considering the deposit type.<br><br>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. | The survey consisted of 8 line km of data collected along five E-W (090-270) oriented profiles (lines: lines: 7471600N, 7471900N, 74712300N, 7472700N, 7472950N.<br><br>This is approximately perpendicular to magnetic gradients that define the targeted FSZ.<br>ELECTROMAGNETIC GEOPHYSICAL SURVEY<br>The survey consisted of 16 km of receiver data collected along 100m spaced E-W (090-270) traverses.<br><br>This is approximately perpendicular to magnetic gradients that define the targeted FSZ. |
| **Sample Security** | The measures taken to ensure sample security | This release has no reference to previously unreported drill results. |
| **Section 2 Reporting of Exploration Results** | | |
| **Mineral Tenement and Land Tenure Status** | Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.<br>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. | The Pine Creek Project comprises nine contiguous exploration licences (EL31356, EL32148, EL31899, EL32884-32886, EL33188-33189, and EL33225) and one application ELA33450 covering an area of 1,893 km2. The licences are held by Mangusta Minerals Pty Ltd, a 100% owned Desoto subsidiary.<br><br>The Project is located approximately 150 km south of Darwin, and 8 km north of Pine Creek in the Northern Territory. Access to the Pine Creek Project is from the sealed Stuart Highway Hayes Creek via the sealed Dorat Road and Oolloo Roads and then via well maintained gravel roads. |
| **Exploration Done by Other Parties** | Acknowledgment and appraisal of exploration by other parties. | The majority of past exploration work within the Project area (including drilling, surface sampling; geophysical surveys, geological mapping) has been largely completed by Homestake Gold of Australia, North Mining, Newmont Australia, St George Mining Pty Ltd, Aztec Mining Ltd, AngloGold Australia, Davos Resources and Thundelarra Exploration<br><br>The relevant reports are available on the Northern Territory Geological Survey GEMIS open file database library. A summary of previous work completed can be found in the company prospectus at www.desotoresources.com |
| **Geology** | Deposit type, geological setting and style of mineralisation. | The Project is located in the western and central sections of the Central Domain of the Pine Creek Orogen and comprises units of the Cosmo Supergroup which include the South Alligator Group, and Finniss River Group. The stratigraphic sequences are dominated by mudstones, siltstones, greywackes, sandstones, tuffs, and limestones. These sedimentary units, as well as basic intrusions, were folded, metamorphosed, and then subsequently intruded by the Cullen Batholith. Pegmatites occur throughout the region in close proximity to the Cullen Granites.<br><br>The Pine Creek Project is considered prospective for orogenic Pine Creek gold mineralisation and pegmatite hosted lithium (spodumene) mineralisation. The majority of known gold deposits are hosted by the South Alligator Group and the lower parts of the Finniss River Group along anticlines, strike-slip shear zones and thrusts proximal to the Cullen Granite. |
| **Drill Hole Information** | A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:<br><br>• easting and northing of the drill hole collar<br>• elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar<br>• dip and azimuth of the hole<br>• down hole length and interception depth<br>• hole length | This release has no reference to previously unreported drill results. |

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| | • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case. | |
| **Data Aggregation Methods** | In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.<br><br>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.<br><br>The assumptions used for any reporting of metal equivalent values should be clearly stated. | This release has no reference to previously unreported drill results. |
| **Relationship Between Mineralisation Widths and Intercept Lengths** | These relationships are particularly important in the reporting of Exploration Results<br><br>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down<br><br>hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). | This release has no reference to previously unreported drill results. |
| **Diagrams** | Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views. | This release has no reference to previously unreported drill results.<br><br>Diagrams including plan maps, perspective and section views are provided with this report. |
| **Balanced Reporting** | Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results. | The company believes this announcement is a balanced report, and that all material information has been reported. |
| **Other Substantive Exploration Data** | Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results;<br>bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances. | Exploration work by previous explorer for lithium is minimal and has largely been of a preliminary or reconnaissance nature. The Company is aware of regional scale aeromagnetic surveys and geological mapping programmes undertaken by past explorers and has access to versions of the data that is available in reports. Surface soils, rock chip sampling and reconnaissance drilling programmes have been undertaken over many parts of the Project area but is not lithium specific. This has not been fully compiled by the Company as yet. |
| **Further Work** | The nature and scale of planned further work (eg tests for lateral extensions or large scale step out drilling.<br>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. | Planned further work includes drill testing of selected target areas. These targets have been selected based on IP, EM, magnetic and structural data. |