Recent Projects

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>PROJECT</th>
<th>COMMODITY</th>
<th>WORK COMPLETED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Santa Ines</td>
<td>Copper, Gold, Molybdenum</td>
<td>Acquisition of hyperspectral data from rock samples and integration with Landsat, ASTER and lithogeochemical data.</td>
</tr>
<tr>
<td>Australia</td>
<td>Central Victorian goldfields</td>
<td>Gold</td>
<td>Interpretation of HyLogger data and integration with lithogeochemical data.</td>
</tr>
<tr>
<td></td>
<td>Kurnalpi</td>
<td>Gold</td>
<td>Alteration mapping to define hydrothermal alteration cells as part of regional targeting exercise.</td>
</tr>
<tr>
<td></td>
<td>Burns Project</td>
<td>Copper, Gold, Molybdenum</td>
<td>Alteration mapping of early stage prospect to better define controls on defined mineralisation towards providing confidence in regional targets.</td>
</tr>
<tr>
<td></td>
<td>Minnie Springs</td>
<td>Molybdenum, Copper</td>
<td>Alteration and lithology mapping: comparative study of the Halo and HyLogger techniques.</td>
</tr>
<tr>
<td>Canada</td>
<td>QV Property</td>
<td>Gold</td>
<td>Hyperspectral analysis and integration with lithogeochemical data.</td>
</tr>
<tr>
<td></td>
<td>Redton</td>
<td>Copper, Gold, Molybdenum</td>
<td>Hyperspectral analysis and integration with lithogeochemical data.</td>
</tr>
<tr>
<td>China</td>
<td>Caijiaying</td>
<td>Zinc, Gold</td>
<td>Detailed study of a base metal and gold skarn system to define alteration distribution for use in targeting near mine extensions</td>
</tr>
<tr>
<td>Sudan</td>
<td>Jebel O’Hier</td>
<td>Copper, Gold</td>
<td>Hyperspectral analysis of coarse crusher splits and integration with ASTER and lithogeochemical data.</td>
</tr>
<tr>
<td>Suriname</td>
<td>Maripaston</td>
<td>Gold</td>
<td>Alteration mapping of mid-stage prospect to better define controls on mineralisation.</td>
</tr>
</tbody>
</table>

Hyperspectral analysis of rock samples, crusher splits and drill core integrated with lithogeochemical data provides a comprehensive approach to the description and interpretation of hydrothermal alteration in mineral exploration. Data obtained from outcrop samples can be used to groundtruth interpretations of remotely sensed data (Landsat, ASTER, SEBASS, HyMap) for regional targeting purposes.

The technique can also be used to estimate bitumen contents of oil sand and shale deposits, as well as to identify a variety of clay minerals. CSA Global has expertise in the acquisition, interpretation and integration of hyperspectral data with lithogeochemical data.

CSA Global has acquired a TerraSpec Halo handheld spectrometer that allows rapid analysis of rock samples and drill core with on-board mineralogical interpretation. This equipment is used to enhance our field mapping and core logging capabilities to define hydrothermal alteration patterns and allow for vectoring within mineral deposit systems.

We draw on our collective experience to customise exploration and mining solutions to our client’s requirements. Our advice and services are tailored to respond to the individual advantages and constraints of each project. This approach helps us to provide a holistic approach to operating within the African region. We have worked with all sizes of companies from small businesses to international majors, as well as with governments and NGO’s. We make it our business to get to know and understand the cultural diversity, political background, sovereign risk, workforce and technical capability of every country or region we work in. We identify with each region’s approach to sustainability and its level of support for our industry.

**About CSA Global**

We are a leading mining, geological, technology and management consulting company with more than 30 years experience in the international mining industry. We cover all stages of the exploration and mining cycle, including mineral commodities and extraction methods across all regions:

**CORPORATE**
- Project reviews
- Due diligence
- Expert valuations
- Independent reports
- Geo-corporate advice
- Secure information hosting (Spring portals & data rooms)

**EXPLORATION**
- Mineral systems targeting & project generation
- Remote sensing & geophysics
- Geochemistry (traditional & non-destructive methods)
- Mapping & field investigations
- Drill program planning & supervision
- Exploration strategy & project management

**TECHNOLOGY**
- Data management (capture, data warehousing & QAQC of data)
- Data visualisation, analytics & cartography
- GIS plans, sections & 3D plots
- IT Management (health reporting, auditing, cyber security advice)
- Project design & management (Cloud systems design, infrastructure design & implementation)
- Mining specialist IT Helpdesk

**MINING**
- Mining & engineering studies (concept to feasibility)
- Reserve assessment reviews
- Mine optimisation, scheduling & design
- Ore Reserve estimation & reporting
- Grade control & reconciliation
- Productivity improvement & project management

**RESOURCES**
- Review of data collection techniques & QAQC of data
- Geological & geo-metallurgical modelling
- Geostatistical analysis & variography
- Mineral Resource estimation, validation & classification
- Resource reporting in accordance with international codes
- Resource audits & risk analysis

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