CAETANO PROPERTY
GRAVITY SURVEY
GIS DATABASE

CBA Gravity Looking Northeast

James L. Wright  M.Sc.
August 31, 2007
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>2</td>
</tr>
<tr>
<td>SURVEY PROCEDURE</td>
<td>2</td>
</tr>
<tr>
<td>DATA PROCESSING</td>
<td>5</td>
</tr>
<tr>
<td>INTERPRETATION</td>
<td>5</td>
</tr>
<tr>
<td>CONCLUSIONS AND RECOMMENDATIONS</td>
<td>8</td>
</tr>
<tr>
<td>REFERENCES</td>
<td></td>
</tr>
<tr>
<td>APPENDIX - LOGISTICS, GRAVITY SURVEY</td>
<td></td>
</tr>
<tr>
<td>CD HOLDER - DATABASE CD</td>
<td></td>
</tr>
<tr>
<td>MAP POCKETS -</td>
<td></td>
</tr>
</tbody>
</table>

GRAVITY SURVEY, STATION POSTING
GRAVITY SURVEY, COMPLETE BOUGUER ANOMALY, @ 2.50 G/CC
GRAVITY SURVEY, COMPLETE BOUGUER ANOMALY, RESIDUAL
GRAVITY SURVEY, COMPLETE BOUGUER ANOMALY, TOTAL HORIZONTAL GRADIENT

J L WRIGHT GEOPHYSICS 1
INTRODUCTION

A gravity survey was completed over the Caetano (Reese River) property controlled by Mill Bay Ventures Inc. Objectives for the survey are two fold: delineate structures, lithologies and alteration related to gold mineralization and established a geophysical database to support future work. Gravity data find the greatest utility in structural mapping and, to a lesser extent, delineation of alteration. The ability of gravity to define structures bounding horst blocks has proven very effective for sediment hosted gold exploration in Nevada.

Survey procedures and data processing for the survey are developed followed by conclusions and recommendations. Geologic data are incorporated where appropriate. Both map and digital products are provided. The map products include 1:24000 scale plots for a variety of products. These are located in map pockets at the rear of the report and listed below.

SURVEY PROCEDURE

Magee Geophysical Services LLC based in Reno, Nevada conducted the gravity survey during the period of August 24, 2007. A total of 108 gravity stations were surveyed on a 200 or 400 meter grid. Figure 1 presents a station posting over topography along with the property outline. Shown in magenta are the 108 stations acquired for Mill Bay Ventures. The black stations were provided by XCAL resources as per a data sharing agreement resulting in a total station count of 360. Agreement between the two surveys is excellent. Field operations were based out of Elko, Nevada. Gravity data were processed to Complete Bouguer Gravity and forwarded to consulting geophysicist, Jim Wright, for further processing and interpretation.

Data acquisition and surveying were performed by Rob Cipriano, Dave Cipriano, Steve Michalowski, and Ronnie Hegemann. Christopher Magee supervised all operations and completed final data processing. Four LaCoste & Romberg Model-G gravity meters, serial numbers G392, G393, G652 and G735, were used on the survey. Model-G gravity meters measure relative gravity changes with a resolution of 0.01 mGal. The manufacturer's calibration tables for each instrument were used to convert gravity meter
counter units to milliGals. Gravity survey is tied to a single absolute gravity base designated BIGCHIEF. BIGCHIEF was established several years ago and is tied to the US Department of Defense absolute gravity base at the Battle Mountain Airport. Information on the BIGCHIEF base is listed below.

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<td>N40°38'44.097&quot;</td>
<td>W116°56'18.018&quot;</td>
<td>1373.99 m</td>
</tr>
</tbody>
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\[FIGURE 1: Gravity Station Posting, Topography and Property\]

\[Mill Bay Ventures (●) / XCAL Resources (●)\]

All gravity stations were surveyed using the Real-Time Kinematic (RTK) GPS method or, where it was not possible to receive GPS base information via radio modem, the Fast-Static method was used. A single GPS base station, designated RR, was used on this project. The coordinates and elevation of this base station location were determined by making simultaneous GPS occupations in the Fast Static mode with Continuously Operating Reference Stations (CORS). GPS data for station RR were submitted to the National Geodetic Survey (NGS) OPUS service which is an automated system that uses the three closest CORS stations to determine coordinates and elevations for unknown stations. All topographic surveying was performed simultaneously with gravity data acquisition. The gravity stations were surveyed in NAD27 UTM Zone 11 North coordinates in meters. The Datum Grid method (NADCON) was used to transform from the WGS-84 (NAD83) datum to the NAD27 datum and the GEOID03 geoid model was
used to calculate NAVD88 elevations from ellipsoid heights. The elevations were then converted to North American Vertical Datum of 1929 (NAVD29) using the NGS program VERTCON.

Field data including station identifier, local time, gravity reading, measured slope, and operator remarks were recorded in the field in notebooks. The recorded data were then entered into a notebook computer in the form of GeoSoft RAW gravity files. Survey coordinates were transferred digitally. All gravity data processing was performed with the Xcelleration Gravity module of Oasis montaj (Version 6.3). Gravity data were processed to Complete Bouguer Gravity over a range of densities from 2.00 g/cc through 3.00 g/cc at steps of 0.05 g/cc using standard procedures and formulas. The following parameters were used to reduce the gravity data:

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<td>1967</td>
<td>ISGN-71</td>
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Terrain Corrections were calculated to a distance of 167 km for each gravity station. The terrain correction for the distance of 0 to 10 meters around each station was calculated using a sloped triangle method with the average slopes measured in the field. The terrain correction for the distance of 10 meters to 2000 meters around each station was calculated using a combination of a prism method and a sectional ring method with digital terrain from 10-meter Digital Elevation Models (DEM). The terrain correction for the distance of 2 to 167 kilometers around each station was calculated using the sectional ring method and digital terrain from 90-meter DEMs.

Gravity repeat statistics for the Reese River gravity survey follow:

- Total number of stations: 108
- Number of repeated stations: 8
- % stations repeated: 7.4%
- Total number of readings: 119
- Number of repeat readings: 19
- % readings repeated: 16.0%
- Maximum repeat error: 0.0442 mGal
- Mean repeat error: 0.0142 mGal
- RMS error: 0.0194 mGal

The survey statistics are excellent indicating high quality data. Additional details concerning survey logistics are available in the Appendix.
DATA PROCESSING

A density of 2.50 g/cc was selected as an average for the terrain in the vicinity of the survey. This was determined by examination of topographic / gravity correlation for a spread of densities and is also consistent with previous experience in the area. The complete Bouguer anomaly (CBA) data for the merged surveys were gridded with a 100m interval using a kriging algorithm. The CBA was filtered recursively with a nine point Gaussian filter to yield a regional, which upon subtraction from the CBA produced the gravity residual. Finally, a total horizontal gradient (HG) was computed from the CBA.

Color images were produced for the three products (i.e. CBA, residual & HG), as well as contours for the CBA and residual with an interval of 0.02 mgals. All the images and contour plots were imported into MAPINFO, as well as used for map preparation. Color bars for the CBA, residual and horizontal gradient (top to bottom) appear below. Units for the CBA and residual are milligals (mgals). The HG units are mgals / m.

INTERPRETATION

As noted, agreement between the XCAL Resources and Mill Bay Ventures data is excellent. Figure 2 presents the CBA gravity for the combined data set. The upper image shows the CBA over topography, and the lower image has gravity over the geology of Map 50 (Stewart and Carlson, 1976). Also shown on the figure are the Goat and Horse Mtn. lower plate windows as white polygons. Finally, the property outline appears in the southwest corner.
FIGURE 2: CBA Gravity over Topography (Upper) and Map 50 Geology (Lower) Structures and Lower Plate Windows
First order features in the gravity are a high associated with the Horse Mtn. window and a strong gravity low across the southern edge of the survey produced by low density volcanics filling the Caetano Trough. The gravity high extends northwest from the Horse Mtn. window and appears to be terminated by a major north-south oriented structure, which traverses the property. To the east of the north-south structure is a swarm of northeast-southwest directed faults, which offset the gravity high into a series of horsts and grabens. Sense of movement for the various structures is shown in the figure. Stewart and Carlson (1976) map a number of faults along the northeast extension of the interpreted structures (see Figure 3). Sense of movement on these is generally normal down to the northwest.

Figure 3 shows the residual gravity at a more detailed scale with the aforementioned features labeled for ease of identification. The residual, by removing longer wavelengths from the gravity, enhances detailed features. This is quite evident in Figure 3, particularly concerning the swarm of northeast-southwest directed horsts and grabens. The most prominent horst protrudes into the Caetano Trough and the property’s east side. Within this horst is a prominent gravity high interpreted as possibly being produced by shallower lower plate carbonate rocks. The horst is offset down to the south by the northern edge of the Caetano Trough, continues to the southwest into the property and terminates against the southern extension of the large north-south structure.

**FIGURE 3: Residual Gravity, Interpreted Structures, Geology and Property**
The north-south structure appears to be right laterally offset by the northern edge of this prominent horst. However, normal movement on the horst bounding structure would tend to produce apparent right lateral offset on a north-south down to the west normal fault. If this is the case, then last movement on the northeast-southwest structures post dates the north-south structure and Caetano Trough. It should be noted that recent exploration activity has been focused to the north slightly east of the north-south structure on another interpreted horst.

In summary, the property straddles the southern extension of a large north-south structure offset to the west by a northeast-southwest directed horst. Immediately east of the property shallow lower plate is suggested within the horst. Finally, volcanic cover related to the Caetano Trough thickens to the southwest across the property. Substantial thicknesses of volcanic rocks are to be expected in the extreme southwest corner of the property extending up the west side.

CONCLUSIONS AND RECOMMENDATIONS

The property falls at the intersection of three prominent structural elements (i.e. north-south, northeast-southwest, northwest-southeast). Of these, the north-south directed feature appears to be oldest and has been the focus of exploration efforts to the north. This feature’s intersection with the northeast-southwest horst along the property’s east side would represent an area where possible feeders to mineralization could encounter lower plate lithologies conducive for hosting mineralization. This area is considered the most prospective on the property.
Figure 4 shows the residual gravity for the northern portion of the property with proposed controlled source audio-magnetotelluric (CSAMT) lines and two suggested drill holes (magenta stars). The CSAMT lines were first proposed by Wright (2007) as part of a property review. The gravity survey re-affirms the proposed survey as set forth by Wright (2007).

The lines extend off the property to the east in order to anchor the survey to outcrop. Again, cooperation with XCAL Resources will be important for success of the survey. The CSAMT survey will aid greatly in refining structure locations, determining depth of volcanic cover, and possibly depth to lower plate.

Two suggested drill holes are shown in Figure 4. These holes are provisional in the event the CSAMT survey is not undertaken. However, exact hole placement would undoubtedly be altered / refined with acquisition of the CSAMT data.

REFERENCES


APPENDIX

GRAVITY SURVEY

over the

REESE RIVER PROSPECT

LANDER COUNTY, NEVADA

for

Mill Bay Ventures Inc.
AUGUST 2007

SUBMITTED BY

Magee Geophysical Services LLC
10075 Timberwolf Drive Reno, Nevada 89523 USA
Gravity data were acquired over the Reese River Prospect in Lander County, Nevada for Mill Bay Ventures Inc. The gravity survey was conducted on August 24, 2007. A total of 108 new gravity stations were surveyed at 200 and 400 meter intervals. Relative gravity measurements were made with LaCoste & Romberg Model-G gravity meters. Topographic surveying was performed with Trimble Real-Time Kinematic (RTK) and Fast-Static GPS. Field operations were based out of Elko, Nevada. Gravity data were processed to Complete Bouguer Gravity and forwarded to Consulting Geophysicist, Jim Wright for further processing and interpretation.

**DATA ACQUISITION**

Data acquisition and surveying were performed by Rob Cipriano, Dave Cipriano, Steve Michalowski, and Ronnie Hegemann. Christopher Magee supervised all operations and completed final data processing.

Four LaCoste & Romberg Model-G gravity meters, serial numbers G392, G393, G652 and G735, were used on the survey. Model-G gravity meters measure relative gravity changes with a resolution of 0.01 mGal. The manufacturer's calibration tables for each instrument were used to convert gravity meter counter units to milliGals.

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All gravity stations were surveyed using the Real-Time Kinematic (RTK) GPS method or, where it was not possible to receive GPS base information via radio modem, the Fast-Static method was used. The following GPS equipment was used on the project:

Trimble Model 5700 and R-8 Dual-Frequency GPS Receivers with built in UHF radios
Trimble Model TSCe and TSC2 Data Collector/controllers
Trimble TrimMark III base radio
Trimble Zephyr and internal R-8 GPS antennas
Trimble Geomatics Office (Version 1.63) was used for GPS data processing

A single GPS base station, designated RR, was used on this project. The coordinates and elevation of this base station location were determined by making simultaneous GPS occupations in the Fast Static mode with Continuously Operating Reference Stations (CORS). GPS data for station RR were submitted to the National Geodetic Survey.
(NGS) OPUS service which is an automated system that uses the three closest CORS stations to determine coordinates and elevations for unknown stations. The coordinates and elevations of station RH1 are listed below.

<table>
<thead>
<tr>
<th>Station</th>
<th>WGS-84 Lat</th>
<th>WGS-84 Long</th>
<th>WGS-84 Ellipsoid Ht.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR</td>
<td>40° 16’ 32.74392”</td>
<td>-117° 05’ 17.80081”</td>
<td>1466.758 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAD27 UTM N</th>
<th>NAD27 UTM E</th>
<th>Elevation NAVD29</th>
</tr>
</thead>
<tbody>
<tr>
<td>492574.266 m</td>
<td>4458167.115 m</td>
<td>1487.935 m</td>
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All topographic surveying was performed simultaneously with gravity data acquisition. The gravity stations were surveyed in NAD27 UTM Zone 11 North coordinates in meters. The Datum Grid method (NADCON) was used to transform from the WGS-84 (NAD83) datum to the NAD27 datum and the GEOID03 geoid model was used to calculate NAVD88 elevations from ellipsoid heights. The elevations were then converted to North American Vertical Datum of 1929 (NAVD29) using the NGS program VERTCON. The coordinate system parameters used on this survey are summarized below.

**Datum**
- Datum Name: NAD27
- Ellipsoid: Clarke 1866
- Semi-Major Axis: 6378206.4 m
- Eccentricity: 0.082271854
- Transformation: NADCON (CONUS)

**Projection**
- Type: Universal Transverse Mercator Zone UTM 11
- North Origin: Latitude 00° 00' 00.00000" N
- Central Meridian: 117° 00' 00.00000" W
- Scale Factor: 0.9996
- False Northing: 0
- False Easting: 500000 m
- Geoid Model: GEOID03 (CONUS)
DATA PROCESSING

Field data including station identifier, local time, gravity reading, measured slope, and operator remarks were recorded in the field in notebooks. The recorded data were then entered into a notebook computer in the form of GeoSoft RAW gravity files. Survey coordinates were transferred digitally. All gravity data processing was performed with the Xcelleration Gravity module of Oasis montaj (Version 6.3). Gravity data were processed to Complete Bouguer Gravity over a range of densities from 2.00 g/cc through 3.00 g/cc at steps of 0.05 g/cc using standard procedures and formulas.

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