AURORA GEOSCIENCES

NORTHERN GEOLOGICAL & GEOPHYSICAL CONSULTANTS

YELLOWKNIFE - WHITEHORSE - JUNEAU

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MEMORANDUM

To: James Moors
Bill Chornobay
Goldstrike Resources Ltd.

Date: September 5, 2017

From: Andre Lebel

Re: Gold Bank 2017 gravity survey field report

This memorandum describes a ground gravity survey on Goldstrike Resources Ltd.'s Plateau South Gold Project. A two person crew from Aurora Geosciences Ltd. stayed at Goldstrike's Spit Lake camp to complete the survey. Andre Lebel mobilized into the camp on August 25, 2017 and joined Hannah Warrington who was already in camp. They demobilized to Whitehorse on Aug 31, 2017. A full crew log describing daily production is included with the digital version of this report.

14.5 line kilometers of gravity surveying at 1000 m line spacing on NE trending lines was completed over the area of the Gold bank and Ron Stack trends following the previously cut grid for the IP and PROTEM surveys at 100 m station spacing. Maps of gridded Bouguer gravity anomaly, gridded Bouguer gravity anomaly with a first order trend removed, Bouguer gravity anomaly profiles and Bouguer gravity anomaly profiles with a first order trend removed are appended to this report in geo-registered tiff images (.tif) and packed Geosoft maps (.map).

Crew

The following Aurora Geosciences Ltd. personnel conducted the surveys:

Crew Member	Job Role	Dates on Site
Andre Lebel	Geophysicist	Aug 25 – Aug 30, 2017
Hannah Warrington	Technician	Aug 25 – Aug 30, 2017

Equipment

The crew was equipped with the following instruments and equipment:

- 2 - Garmin 64 csx non-differential GPS receivers
- 2 - Handheld VHF radios
- 1 - Iridium sat phone
- 1 - Laptop computers (plus one personal laptop)

1 - Scintrex CG-5 Gravimeter (s/n: 1368)
2 - Leica GS14 antennas
1 - Leica CS15 controller
2 - Pacific Crest Radio-Repeaters

Property Location

Goldstrike's Plateau South project is located approximately 120 km E of Mayo and the Spit Lake camp is accessed by float plate. The Gold bank lines were accessed daily via helicopter from the Spit Lake camp.

Survey Specifications

Each gravity station was located using a handheld Garmin GPS. The site was cleared of soft moss and organics or preferentially located on a low boulder if available and were marked with a Tyvek tag for future relocation. A total of 151 gravity stations were occupied on the grid including 3 repeated stations. 5 planned stations were not surveyed due to inaccessibility (e.g. water).

Station locations: Stations were located with non-differential GPS receivers.

Gravimeter preparation: The gravimeter was warmed up for a period greater than 48 hours prior to the commencement of gravity surveying. The instrument remained under power at all times throughout the survey operation.

Gravity readings: A minimum of one reading stacked for a minimum of 60 s was taken at each station and the standard deviation in individual 5Hz readings (after seismic filtering) was kept to less than 0.05 mGal if possible. When this was not possible, readings were repeated at least 3 times to ensure that the data were repeatable within 0.05 mGal. Seismic filters were engaged to remove seismic noise and wind noise.

Gravity tie readings: Prior and post daily surveying, readings were taken at a control station, established on a concrete pad at 573460.371E, 7019997.098N, 1227.069 MASL (approximately 10 metres NNW of the GPS control). Readings were stacked for a minimum of 60 s and were repeated until three readings repeated within 0.01 mGal. A datum of 5625.500 mGal is used for this control station in gravity reductions.

Accompanying the gravity survey was a GPS survey to provide vertical control for the gravity reductions; GPS readings were taken in identical locations as the gravity readings. The specifications for the GPS survey are:

Geographic datum & projection NAD83 (CSRS) datum, UTM Zone 8N projection.

Elevation datum:	Orthometric Height (CGVD 1928 Geoid) or Meters above Sea Level
Satellites used:	GPS and Glonass
GPS base:	The base station was established in conjunction with the gravity control station at 573462.658E, 7019990.685N with a ground elevation of 1226.607 MASL. The base Leica GPS antenna logged data continuously at one second epochs, recording the data to disk as well as broadcasting over a RTK radio link.
GPS rover:	The GPS antenna was placed on the gravity survey station and elevations corrected for a rover antenna height of 2 m. A RTK link was established, a minimum of 10 coincidental epochs with the base were measured.

Control points were established at two locations in 2017; one at Spit Lake camp next to the office tent (no GPS location) and one located at on the survey grid named Gold Bank control point (89). Tie readings were taken at the Spit Lake camp control point before and after each day, however it was used as an alternate location in the event that the crew could not return the Gold Bank control station. At the Gold Bank control location a concrete pad and a reference post are installed at the control station; the wooden stake defines the positional location of the RTK GPS base.

Data Processing

The GPS data were downloaded daily in field from the Leica GPS controller. The data are checked and unique line-station coordinates attached matching the gravity measurements. Station labels increment typically by 100, the same as the station spacing. Repeat stations are denoted by a station increment of 1. All GPS data are compiled into a single database where a datum shift is applied to all days of data to correct RTK solutions to the final corrected location of the control station. The gravity data were downloaded daily in the field using Scintrex software and processed using the propriety software package 'Gravred2'. The program merges the gravity data with location and elevation data and corrects for drift, latitude, free-air, Bouguer slab, Bullard–B and a suite of terrain corrections. All corrections were performed daily in the field but final corrections required the corrected GPS control point positions and the final DEM and were therefore not completed until after the field program was complete.

The GPS base data from August 28th were decimated to 30 s, converted to RINEX format and sent to the Canadian Spatial Reference System Precise Point Positioning (CSRS-PPP) tool to obtain a corrected position for the control station**Error! Reference source not found.**. The precise solution (+/- 2 cm) was not available when the corrected position was obtained from CSRS-PPP and the rapid solution (+/- 5 cm) was used. Precise solutions are available two weeks after collection.

The following corrections are applied to the gravity data.

Drift

The drift correction removes the linear drift of the gravity meter between the readings at the control stations at the start and end of every survey day. The datum was set arbitrarily on the first day of surveying to 5625.500 mGal, the first reading at the Gold bank control station (89) on August 26th. Below in Table 1 is a table of the gravity readings taken at the Gold bank control station (89). During the survey, drift measurements were made at the Gold bank control point prior to and after each day's survey. Figure 1**Error! Reference source not found.** shows the drift for the gravity meter at Gold Bank control station used for the survey from Aug 26 to 29, 2017. The gravity measurement is shown on the y-axis in mGal vs hours on the x-axis. The Spit Lake gravity control point has a gravity reference value of 5609.602 mGal that was calculated by ABABABA to find the difference in gravity between the two control stations.

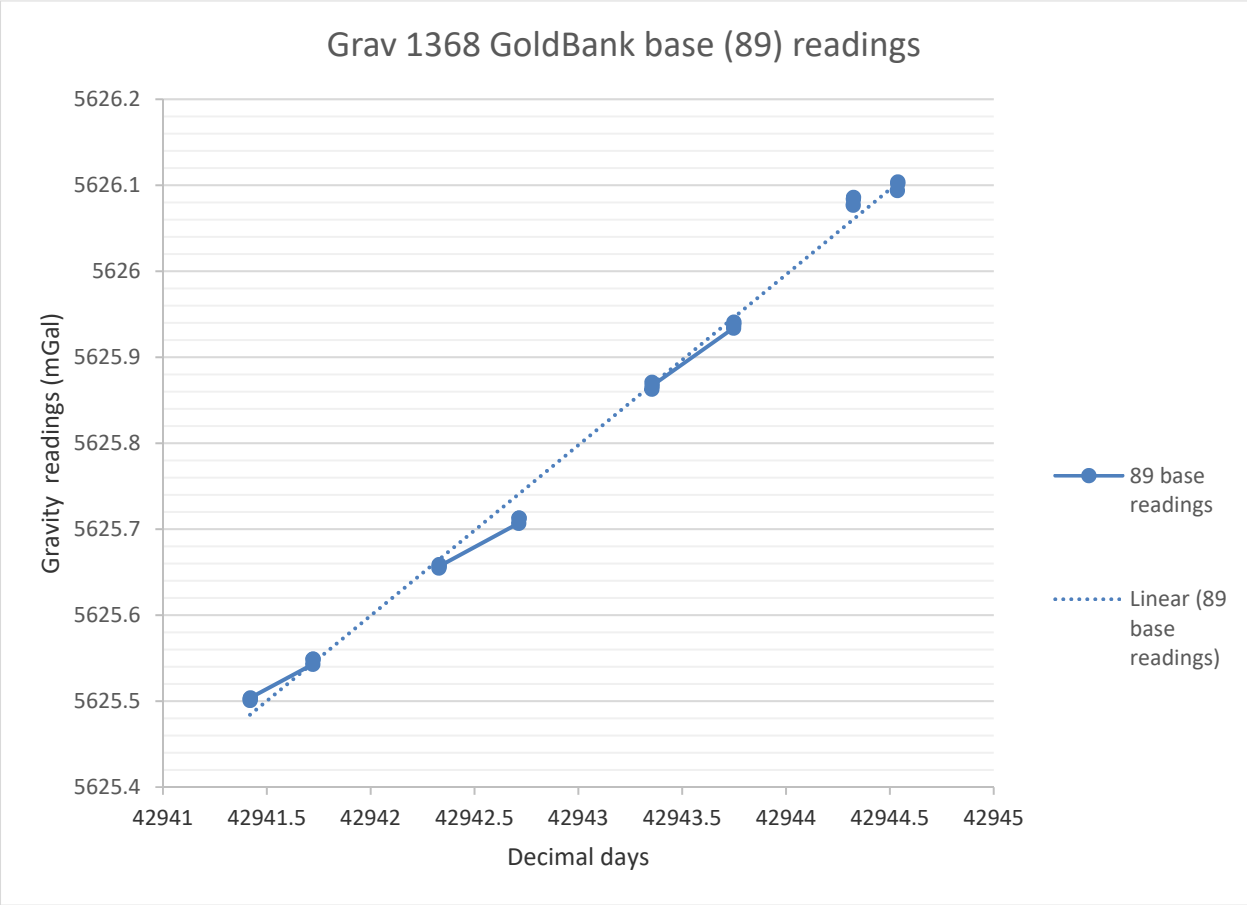

Figure 1: Gravity meter (s/n 1368) Gold bank control station readings.

Date	Time	Gravity reading	St Dev.
8/26/2017	10:05:30	5625.503	0.002
8/26/2017	17:21:18	5625.547	0.003
8/27/2017	7:54:41	5625.657	0.002

8/27/2017	17:09:20	5625.711	0.003
8/28/2017	8:31:05	5625.867	0.004
8/28/2017	17:59:03	5625.938	0.004
8/29/2017	7:47:11	5626.082	0.005
8/29/2017	12:54:35	5626.1	0.005

Table 1: Gold bank control station (89) gravity readings

Latitude

The latitude correction is to remove the effects of latitude from the gravity data. A centre latitude is arbitrarily set to 63.3 N and a centre UTME of 574500E, a centre UTMN of 7021500N and UTM declination of 1.3^{o} used to calculate latitude correction from the positional coordinates of each station.

Free-Air, Bouguer Slab and Bullard-B

The free-air correction corrects for the change in distance from the centre of the Earth. A datum of 0 m is used (sea level) and the correction brings the gravity value down to that datum.

The Bouguer slab corrects the gravity for a uniform slab, the thickness of which is equal to the elevation. A uniform density of 2.67 g/cm^{3} is used – no other values were experimented with.

The Bouguer slab assumption of an infinite slab can be improved on using the Bullard-B correction to account for the curvature of the earth in the slab. The same density as the Bouguer slab correction of 2.67 g/cm^{3} is used.

Terrain corrections

Two styles of terrain corrections are applied to the gravity data: a near-station correction within 20 metres of the station and a far-station correction for terrain further than 20 metres form the station.

Near-terrain correction (NTC)

The near station correction is a correction that accounts for local differences in topography. The government supplied digital elevation models usually have a cells on the order of 20 m and therefore details close to the station where they have the greatest effect on the gravity reading can be too fine to capture with a 20 m DEM. To compensate for this the gravity operators collect near-station correction measurements at each station that consist of 6 slope readings representing an average slope within the 20 metre radius of the station for each 60^{o} sector. The measured slopes are converted to an average elevation change and these readings form a vertical cylinder sector which a near-station terrain correction is calculated for each and added to the gravity reading.

Far-station correction

The far-station corrections compensate for terrain effects from 20 m to 10 km outside the survey area. A DEM using the NRCAN data is developed using a cell size of 12.5 m. The flat top prism algorithm is used in calculating the correction. To improve the far station corrections the actual elevations were compared to the elevations derived from the DEM and corrections were made to the DEM where elevation differences exceeded 10 metres.

The effect of correcting for a DEM beyond 10 km results in a differential of less than 0.010 mGal on the scale of this survey and therefore no further corrections were applied to this dataset.

Additional Processing

The gravity data after the above corrections is the Bouguer anomaly and is gridded using a minimum curvature gridding algorithm with a cell size of 100 m. A first order trend using all the points from the Bouguer anomaly grid is removed to accentuate property-scale anomalies; the Bouguer anomaly with the first-order trend removed are marked as first order trend removed (FOTR) in the profile and Bouguer Gravity anomaly plots.

e. Quality Control

The gravity data were manually examined for outliers, high error or high tilt readings. These are removed from the database and an average calculated from the remaining readings. Approximately one repeat readings were collected a day to demonstrate the repeatability and error of the gravity readings as shown in Table 2. These readings were recollected with a new gravity and GPS readings at a later time or date than first reading to give a true range for the errors for corrected gravity and elevation readings.

The differences between the repeated gravity readings are within the expected range of 0.02 mGal. The elevation differences are greater than the 2 cm which is expected for the accuracy of the RTK GPS system. This could be due to inaccurate marking of the stations that were repeated resulting in poor relocation repeatability.

Line, Station	Final Gravity Range (mGal) between the highest and the lowest	Final Elevation Range (m) between the highest and the lowest
1,400	0.009	0.015
1,3400	0.019	0.080
2,2100	0.011	0.060
St Dev.	0.005	0.033
Average	0.013	0.052

Table 2: Repeated gravity and GPS readings

f. Products

The raw data are included with this report in ASCII .txt format. The raw data remains unchanged from the data dumped by the gravimeter and RTK GPS system.

The final data are included with this report in both ASCII .csv and Geosoft .gdb formats. A list of the channel names and descriptions is located in Table 3.

Channel Name	Description
Line	Local coordinate plot point - Line
Station	Local coordinate plot point - Station
UTME_Z8N_NAD83	UTM east coordinate collected by the RTK GPS (m)
UTME_Z8N_NAD83	UTM north coordinate collected by the RTK GPS (m)

Elevation	Orthometric Height collected by the RTK GPS (m)
RawGravity	Raw Gravity measurement (mGal)
Time	Time the gravity measurement (HH:MM:SS)
SD	Standard deviation of the raw gravity reading
Drift	Drift correction applied to the gravity reading (mGal)
Latitude	Latitude correction applied to the gravity reading (mGal)
FreeAir	Free Air correction applied to the gravity reading (mGal)
Bouguer	Bouguer correction applied to the gravity reading (mGal)
Bull_B	Bullard-B correction applied to the gravity reading (mGal)
NearStn	Near station terrain correction applied to the gravity reading (mGal)
DTM1_inner	Terrain correction applied to the gravity reading (mGal)
FinalGravity	Final corrected gravity reading (mGal)
FinalGravityFOTR	First order trend removed final corrected gravity reading (mGal)

Table 3: List and description of the channels in the final databases

All figures for are provided in geo-registered .tif, and packed Geosoft map formats. The figures appended to this report are created in Geosoft Oasis Montaj.

The following files are included in the digital version of this report:

File / Folder name	**Description of contents**
\Raw data\	raw data recorded by the CG-5 gravimeters and the Leica RTK GPS.
\Final data\	Final corrected and geo-referenced gravity data. Reports from CSRS-PPP in .pdf formats.
\Figures\	Bouguer Gravity anomaly profile plots, first order trend removed Bouguer Gravity anomaly profiles plots, gridded Bouguer gravity anomaly plots, gridded first order trend removed Bouguer gravity anomaly and IP pseudosections with the gravity profiles

Respectfully submitted,

Andre Lebel B.Sc. Geophysics

Aurora Geosciences Ltd.