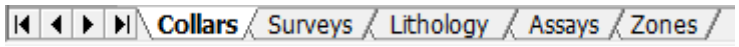
CAE Datamine International Ltd.
Kazakhstan Branch Office.
201, 2 Lenin St.,
100012 Karaganda,
Kazakhstan

Tel: +7 (7212) 42 51 38
Mob.: +7 701 881 71 32
cae.com/mining
sergo.cusiani@datamine.co.uk
scusiani@gmail.com

ODBC DATABASE CREATION IN MS EXCEL FOR DATAMINE STUDIO 3

Excel database file for drill hole, adit, trench or channel sampling data includes (but is not limited to) **Collars, Surveys, Assays, Lithology, Zone** sheets, all in one file.



1. COLLARS sheet :

BHID	XCOLLAR	YCOLLAR	ZCOLLAR	ENDDEPTH
VB2675	6085.686	5145.946	187.552	333.287

- Borehole name must begin with a letter and include numbers.
- **BHID** – borehole name, **XCOLLAR** –X coordinate of hole collar, **YCOLLAR** –Y coordinate of hole collar, **ZCOLLAR** – Z coordinate of hole collar, **ENDDEPTH** – hole total length;
- Columns should be named as indicated in the table above – BHID, XCOLLAR, YCOLLAR, ZCOLLAR, ENDDEPTH;
- Make sure your system uses dot as a decimal separator (i.e. 333**.**287 and not 333**,**287).

2. SURVEYS sheet

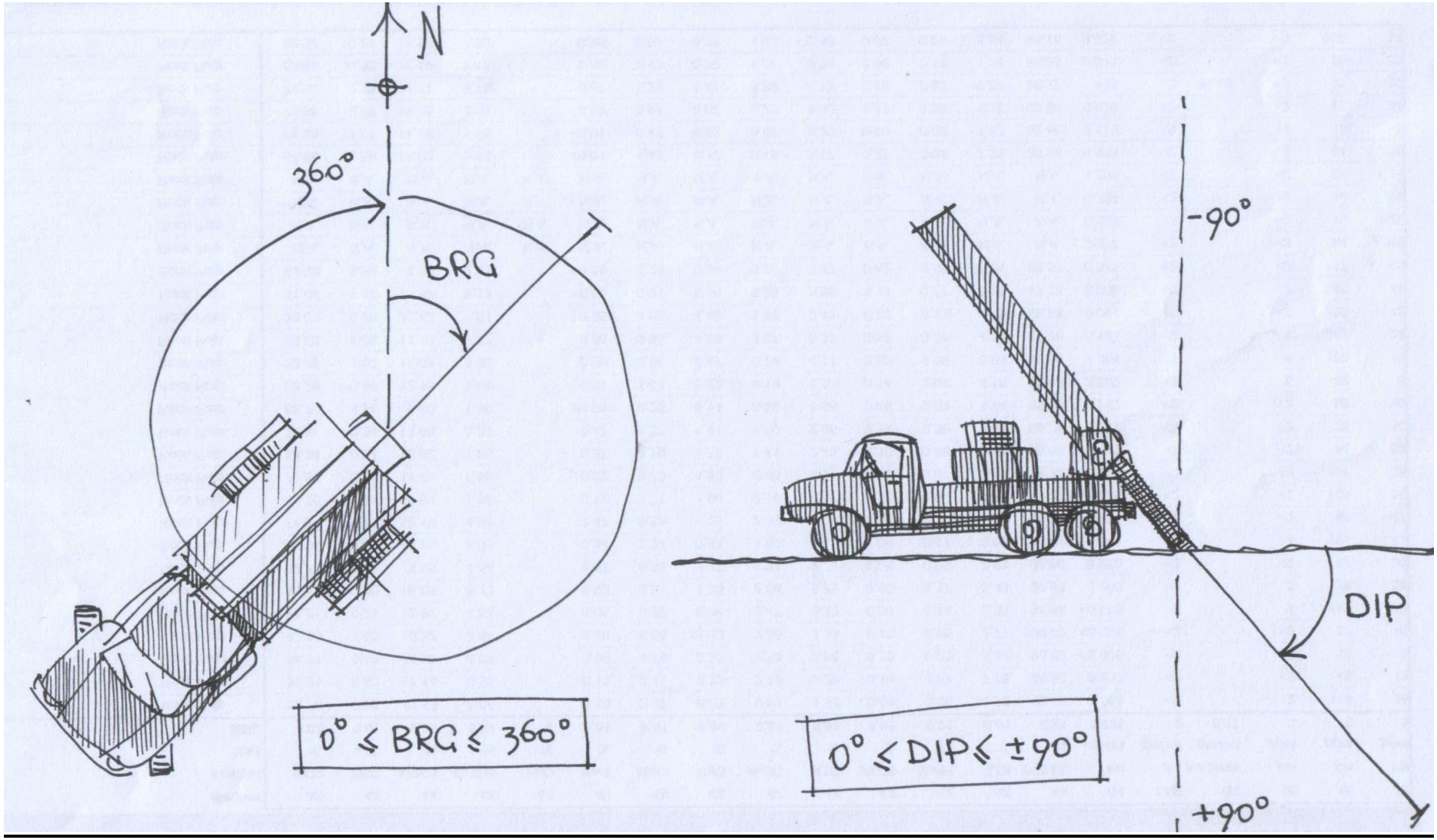
BHID	AT	BRG	DIP
VB2675	0.000	180.29	49.95
VB2675	50.000	180.29	49.95
VB2675	100.000	180.29	49.95
VB2675	145.887	180.29	49.95
VB2675	160.782	180.29	49.95
VB2675	195.887	180.65	50.20
VB2675	210.782	180.65	50.20
VB2675	245.887	181.30	51.40
VB2675	260.782	181.30	51.40
VB2675	295.887	183.40	53.50
VB2675	310.782	183.40	53.50

- **BHID** – hole name, **AT** – depth of the first point of a sampling interval, **BRG** – bearing, **DIP** – dip angle.
- Survey data entry should start from collar, that is from zero point. **AT** – depth of the surveyed point,
- **BRG** – bearing at the surveyed point. If a spreadsheet cell is empty, BRG is considered to be zero.
- Bearing is measured clockwise from Y axis.
- **BRG** value in the **Surveys** sheet must be positive only. If you use negative numbers, the HOLES3D
- command od Datamine Studio will generate an "Out of range" error report.

FILE (A20)	PROBLEM (A20)	BHID (A8)
_20190802_surveys	Out of range DIP/BRG	Z2281
_20190802_surveys	Out of range DIP/BRG	Z2282

- BRG ranges from 0 to 360 degrees. If out of range, HOLE3D process generates an error report.
- **DIP** – vertical angle between the drill hole interval and its orthogonal projection on a horizontal plane. **DIP** is positive if it is measured from the horizontal plane downwards. **DIP** is negative if it is measured upwards from the horizontal plane. If the DIP angle is zero, the drill hole is horizontal. If DIP angle is +90 degrees, the drill hole is vertical, oriented downwards.
- Both positive and negative values of **DIP** angle are accepted. If DIP angle is negative, the drill hole directs upwards at an angle from horizontal plane. The Dip angle ranges from 0° to ± 90°. If out of range, HOLES3D process generates an error report.
- DIP angle must be indicated in decimal system. Signs ° ' " are not acceptable.
- If all drill holes are vertical (that is DIP = 90), the Survey sheet may not be present.
- In a whole database even if only one hole is not vertical, the Surveys sheet must include the rest of the vertical holes with BRG=90.
- BRG and DIP must indicate beginning of each sampling interval.
- The last reading in a downhole survey is BRG and DIP at the total length of the hole, which just repeats BRG and DIP at the beginning of the last interval.
- Columns should be named as indicated in the table above – BHID, AT, BRG, DIP. Make sure your system uses dot as a decimal separator.

scusiani@gmail.com, July 2011, Karaganda – Oskemen – Temirtau, Kazakhstan.



scusiani@gmail.com, July 2011, Karaganda – Oskemen – Temirtau, Kazakhstan.

3. LITHOLOGY sheet

BHID	FROM	TO	LITH	NLITH
VB2675	0.000	3.000	Soil	
VB2675	2.500	226.187	Sandstone	1
VB2675	226.187	245.887	Siltstone	2
VB2675	245.887	259.887	Breccia	3
VB2675	259.887	330.887	Basalt	4

- Lithological description of the drill hole intervals must start from the collar. Hole traces must be out of blanks and overlaps of survey intervals.

- **BHID** – hole name, **FROM** , **TO**, **LITH** – lithological description, **NLITH** – lithological code (a number).

- Columns should be named as in the table – BHID, FROM, TO, LITH, NLITH.

- Make sure your system uses dot as a decimal separator.

scusiani@gmail.com, July 2011, Karaganda – Oskemen – Temirtau, Kazakhstan.

4. ASSAYS sheet

- First sampling record may start from the depth of the first assay rather than from collar. Starting from zero is arbitrary if either **Lithology** or **Zones** sheets (or both of them) clearly indicate sample interval FROM zero. Though from practical point of view it is recommended to begin Assay intervals FROM zero point even if no assay has been done within the interval(s).

- If you have neither Lithology nor Zones sheet, it is mandatory to start Assays from zero coordinate.

- It is recommended to leave the cell blank in case you have no assay data. Do not put "-" or "0" because it will mean there is no or zero grade in the sample, which might not be true.

- Columns should be named as in the table above – BHID, FROM, TO, AU, CU, DENSITY.

- Make sure your system uses dot as a decimal separator.

BHID	FROM	TO	AU	CU	DENSITY
VB2675	215.637	217.887			2.6
VB2675	217.887	219.887			2.65
VB2675	219.887	221.887			2.65
VB2675	221.887	223.887			2.66
VB2675	223.887	225.887			2.66
VB2675	225.887	226.187			2.66
VB2675	227.887	229.887	0.63	0.70	
VB2675	229.887	231.887	0.56	0.60	
VB2675	231.887	233.887	0.70	0.70	
VB2675	233.887	235.887	0.42	0.50	
VB2675	235.887	237.887	0.98	0.90	
VB2675	237.887	239.887	2.45	1.90	2.80
VB2675	239.887	241.887	2.03	1.60	
VB2675	241.887	243.887	2.38	1.90	2.80
VB2675	243.887	245.887	15.19	20.30	4.09
VB2675	245.887	247.887	0.70	0.70	3.21
VB2675	247.887	249.887	1.06	1.00	3.85
VB2675	249.887	251.887	1.25	1.20	4.18
VB2675	251.887	253.887	1.41	1.30	4.25
VB2675	253.887	255.887	1.42	1.30	4.25
VB2675	255.887	257.887	0.63	0.70	3.22
VB2675	267.887	269.887	0.02		
VB2675	321.887	323.887	0.13		2.76
VB2675	323.887	324.937	0.23		2.91
VB2675	324.937	330.887			2.93

scusiani@gmail.com, July 2011, Karaganda – Oskemen – Temirtau, Kazakhstan.

5. ZONES sheet

- Drill hole description must start from 0 point (collar). Make sure sampling intervals have no gaps or do not overlap throughout the whole length .
- Cells outside the mineralization zone must be empty.
- Columns should be named as in the table to the right – BHID, FROM, TO, ZONE. Make sure your system uses dot as a decimal separator, not a comma;
- Make sure your system uses dot as a decimal separator.

BHID	FROM	TO	ZONE
VB2675	0.000	226.187	
VB2675	226.187	245.887	1
VB2675	245.887	259.887	2
VB2675	259.887	330.887	

scusiani@gmail.com, July 2011, Karaganda – Oskemen – Temirtau, Kazakhstan.

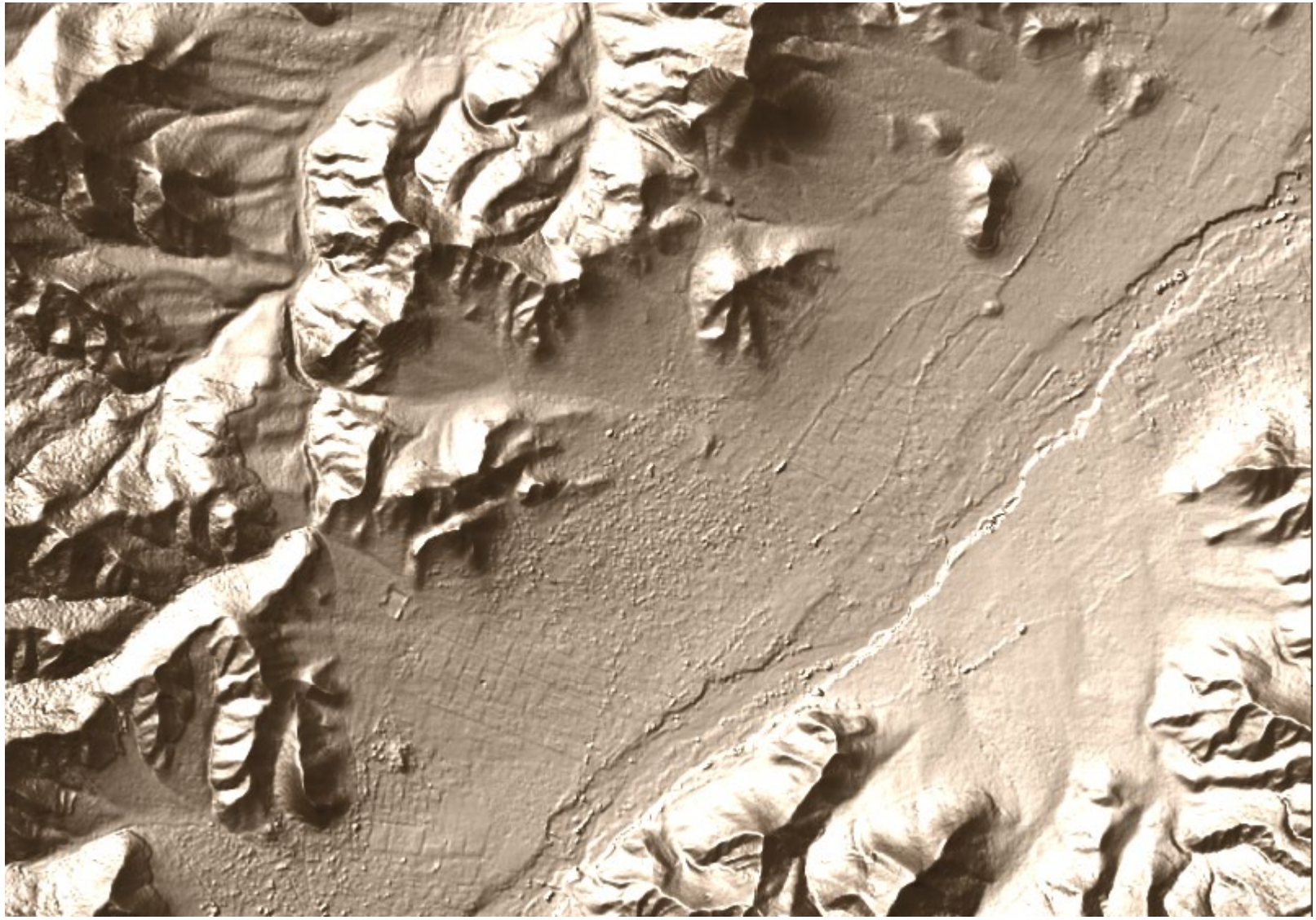
GENERAL NOTES

a) Any extra info may be entered in new columns, such as, sampling methods and sample numbers in Assays sheet, coordinate system in the Collars sheet, etc.
b) **XCOLLAR**, **YCOLLAR**, **ZCOLLAR**, **AT**, **FROM**, **TO** must be filled in with number. No empty cells!
c) Make sure you use numbers for measured data. Signs = > < ‘ “, / \ | are unacceptable. A record “>0.3” in a CU grade field means copper is above 0.3 for human being, but is nonsense for the machine.
d) For negative numbers (**BRG**, **DIP, XCOLLAR**, **YCOLLAR**, **ZCOLLAR**) use minus sign.
e) It is necessary and sufficient to have only one of the sheets, **Lithology**, **Assays**, **Zones**. All they belong to assays group.
f) Drillhole entry order does not matter. But for every drill hole, sampling intervals must be listed in consistency one after the other.

https://www.geo-logaritmica.com/datamine-studio-odbc-database-sergo-cusiani-2012.pdf a permanent address of the manual.

Useful links:
https://geo-logaritmica.com/datamine-studio3-course.html - Datamine Studio 3/RM Introductory Course.
https://geo-logaritmica.com/azimuth-regularisation-angle.html - Variogram Explained.

https://geo-logaritmica.com/armanis-gold-polymetallic-mine.html
https://geo-logaritmica.com/rotated-model.pdf
https://geo-logaritmica.com/zopkhito-antimony-gold.html
https://geo-logaritmica.com/kvemo-bolnisi-east-deposit.html
https://geo-logaritmica.com/madneuli.html
https://geo-logaritmica.com/GEODATAMINEr.pdf
https://geo-logaritmica.com/fault3d.html



scusiani@gmail.com, July 2011, Karaganda – Oskemen – Temirtau, Kazakhstan.