

Allegiance 2014 Drilling Database Analyses Extraction Project

The Allegiance 2014 database (TCR 15_5075) was utilised to identify and bulk extract analyses data that hadn't previously been captured by MRT's Samples and Observations database. The project initially aimed to capture only missing Allegiance drill hole analyses, but additional other company drill hole analyses were also present and identified for extraction. Only cursory verification was undertaken, given the large data volume and that both open and closed file data was captured.

Allegiance Database(s)

Two Allegiance databases were examined; Avebury DataBase Export_Data_Dec 2014.accdb and Avebury DataBase Export_Views_Dec 2014.accdb. The former holds individual analytes for each sample in row format, whereas the "views" dbase records each sample with elements in columns, matched to sample intervals. The latter was used for compilation of analysis results. The Allegiance Views dbase analysis table VW_EXP_DH_ASSAY_METHODS was used for analysis and interval extraction.

NB: Final over range element verification searches found additional data in the DataBase Export_Data_Dec 2014.accdb versus Views database. i.e. A250 641.7-642.7m is the deepest analysis for A250 in the Views database, but analysis data extends to 731.2m in the Data database (89 samples). It appears that the Views database had not been updated to current when the databases were forwarded to MRT.

Database Preparation

Drill hole names (& Drill_ID) were matched between MRT and Allegiance records, with minor differences confirmed via checking spatial and other drill hole specific characters (i.e depth, azimuth & dip). The entire analysis database (43927 records) was initially extracted with subsequent deletion of previously entered / existing MRT data undertaken. Notably, 8469 analysis matched with the initial surface drill holes target data capture list, meaning that significant gains were made via import of the entire database. Many analyses were of unknown analysis type, which can be updated at a later stage with further company report verification.

543 drill holes from the Allegiance database were not currently open file, with many being underground resource definition related holes. Whilst, 112 drill holes directly matched as open file within the MRT Drilling database. Note analyses data for closed file holes was entered. Data were extracted to appropriate MRT templates for data base import.

Analyses already in the MRT database were separated from Allegiance drill hole analyses via Access database query comparison to various tables detailing analyses and methods already captured for Allegiance related companies. MRT Samples and Observations data was from the area bounded by 336092mE, 5346805mN and 372842mE, 5370425mN (GDA). A further search criteria was the originators / companies Allegiance Metals Pty Ltd, Allegiance Metals Pty Ltd, Eastren Pty Ltd, OZ Minerals Australia Ltd, Allegiance Mining NL and MMG Australia Limited. Subsequently, records fitting these search criteria in the existing MRT S&O were identified, allowing exclusion from Allegiance analysis tables generated for data base entry. 3362 records from the Allegiance database were found to already be in the MRT S&O database.

Temporary field numbers (eg. A001 14.6-15.6m) were assigned to ensure the relevant Samples and Observations ID's could be matched to the various analyses data entry templates.

Analyses data were colour coded and sorted according to analyses types to ensure correct allocation to the appropriate analyses type entry templates (further notes below). The majority of laboratory analyses codes and their related treatments and detection limits were identified from various laboratory schedules (Mostly SGS and ALS Burnie laboratory related). Notably many analyses of “unknown” treatment were collated.

Minor problems were encountered with the large size of the Allegiance analyses table; some blank Allegiance fields were removed, with the table being initially split into analysis versus sample description data.

Further Notes

- Detection limits for various elements were determined via filtering tables to determine minimum data for analysis technique. Notably, detection limits were not always the same as those reported for the technique in Laboratory schedules.
- Laboratory batch records only exist for a limited number of more recent drill holes.
- Reported detection limits were maintained where appropriate, however spurious values were commonly apparent; -9999 was evidently reported where results were N/A (These were removed since no actual analysis was conducted). NB: Detection limits need not be reported if all values are above detection for a given batch; many limits have been applied to most tables, but the ICP (MS & AES) tables only list detection limits where applicable.
- Note entries for the fields Pb_pctpref, Zn_pctpref, Cu_pctpref & Ni_pctpref list prefM(method) as ppm_UNK, rather than pct_UNK; i.e. there appear to be a number of conversions within the database to maintain consistent concentration units. These instances were converted back to the appropriate original analysis method in most cases, which also assisted with determination of lower detection limits.
- Detection limits are not confidently verified for many analyses, but as noted above need not be reported unless the analyses was below detection.
- Detection limits were locally erroneous (eg. -1 when surrounding analysis are 0.02% or -25 adjacent to 20ppm) and where obvious are replaced with –lowest in the hole, a sensible number or derived from lab schedules. NB: Laboratory batch numbers are not preserved and consequently a complete drill hole or similar number of decimal points in results were considered to constitute a batch.
- Complete characterisation packages combining a variety of treatments and analysis techniques had elements split to relevant tables as appropriate. Eg. ICP method ME-MS42 combines Borate Fusion, Leco, Four acid and Aqua regia treatments, with Leco, ICP-MS and ICP-AES analysis determinations. For some samples, the AES and LECO analysis elements of the ME-MS42 package were apparently not reported. Another eg. Drill hole CP348 contained mixed ICP MS and AES results.
- Treatment methods are provided in a lookup. A missing treatment for addition is “Lead collection”.

Samples and Observations Table

- The Allegiance database is presented with GDA coordinates. GDA coordinates were matched with MRT Drill Holes entries for S&O table compilation.
- MRT records with an Easting (and N?) Error are reported in DH_Observations_AllegianceEastingErrors.xlsx. Data are corrected in the samples and observations table. No. = 8
- Numerous decimal point and up to 10's of metre differences were observed between MRT and Allegiance data. Eg. 5357778.9 v 5357779.662 mE GDA. Data in the Allegiance Dbase are

possibly re-surveyed following reporting? NB: Old drill holes were possibly re-located/surveyed by Allegiance. Eg. A241 which differs by 10m. Large discrepancies were checked.

- RYN001 & MF01 are clearly incorrectly located in the Allegiance Database, whilst MF44 was incorrect in MRT's data.
- Two MF25's are listed in MRT data with differing az / dip..... Drillhole_ID 22308 is not reported in 05_5162 as is recorded in MRT Drillholes; this hole is actually MF035, which is ID 90315. The Alleg reported / correct MF25 hole is 26055. Mike alerted.
- 3836 records already in the MRT database were excluded, leaving 38592. This only includes the Allegiance related companies search; others company data may also be present and should be checked for exclusion.
- The "status" field was not filled.
- References are largely filled, but comparison to Drilling records will provide additional entries.

Analysis Template Filling

- Data were sorted according to analysis technique to subset relevant data to fill templates. Combined techniques on some samples required careful filtering for extraction to relevant reporting templates.
- An Excel data filter was applied/checked on all technique columns to ensure only the relevant technique had been selected for extraction. This also allowed data bearing element columns to be identified (with coloured headers) to ensure no fields were missed. Additional "Find" searches were undertaken to further ensure various techniques were not missed. NB: more than one analysis technique on a sample was segregated / defined in some instances.
- Analysis date is unknown in most instances, but could be linked to drilling date.
- Laboratory is generally unknown, but filled where possible; in particular advised by the analysis code.
- Treatment field lists treatment codes derived from the preferred methods field.

Fire Assay Au

- Template largely reserved for fire assay with gravimetric determination.
- Fire assay results are included within various treatment templates; eg. ICP-MS, AAS.....

Results Unknown

- Extracted first with comparison to SamplesObservations_AllegianceDbaseNEW.xlsm imported to Access.
- Errors included results for B7 being multiplied by 10000 twice; cross checked with 04_5065 and replaced by correct numbers.
- Ni analysis method was "PERCENT_UNK" whilst values are reported in ppm
- Many samples report unknown analysis technique; whereas examination of the B7 example showed analysis was via I105 & F650; now updated but a big task to complete over the entire unknown analysis techniques in the database. NB: B7 Fe analysis not in database & S analysis ppm & pct scrambled with rounding errors (corrected)

XRF

LECO

- C_Total reported rather than CO2 present within the MRT templates
- Conversion to CO2 undertaken (times by 3.6644); is this appropriate?

ICP-AES

- A mix of % and ppm values are reported for some key elements (Ni & Zn) despite the field name defining ppm. The MRT units field corrects these errors with reference to lab analysis technique. Ti reports as ppm whereas the method states %. Filtering both values and methods highlighted errors.
- percent_Ni-OG62 reports as 1.001% Ni, with over range determinations not replaced! (No =30; 1 exception; A238 to A253 drill holes). *Units and values for over range Zn erroneously reported as % in the ppm reported column. Subsequent comparison back to the other Allegiance export rather than view database (Avebury DataBase Export_Data_Dec 2014) located the over range determinations for updating (Not located was D1406979 from A238A; NB A237, 238 & 238A are apparently missing from table "GB_SAMPLE_DOWNHOLE" in the Export database).*
- Other OG62 determinations are apparently updated.
- ALS Global and SGS Australia were used within the laboratory field in many instances, since the method code defines the lab, but samples are usually submitted to Burnie for initial preparation, then distributed to a mainland lab with the best current turn around time for analysis.
- All data were sorted by element to transpose detection limits; this field being left blank where above detection limit.

ICP-MS

- No = 92

Graphite Furnace

- Should "Graphite Furnace" be added to the Treatments list, whilst obviously being implicit in the loading template name?

AAS

- A number of laboratories were identified from codes.
- Code FA was included here with an assumed AAS finish; in part given that the field "Wt_GRAMSpref" was not filled to indicate a gravimetric true fire assay determination.
- Detection limits for elements were only filled where -ve values were recorded.