8 September 2014

ASX Announcement ASX Code: SFZ

UPDATED JORC RESOURCE STATEMENT

South American Ferro Metals Limited (ASX: SFZ) ("SAFM" or the "Company") is pleased to announce that its JORC Mining Resource has increased by 34%, from 301.1 Mt to 403.71 Mt , which is set out in the following JORC Resource statement:

Ponto Verde Iron Ore Project Grade x Tonnage Table – Cut-off Grade Applied: 20% Fe		
Resource Class	**Tonnes (Mt)**	**Fe (%)**
Measured	83.82	40.44
Indicated	157.79	41.01
Measured + Indicated	**241.61**	**40.81**
Inferred	162.10	39.68

Additional resource information has been gathered from an additional 12 diamond drill and 162 samples from 584.5 metres of trenching which confirms the continuity of the mineralization.

SAFM is currently re-evaluating the overall scope of its current Bankable Feasibility Study ("BFS") in light of this additional information with a view to enlarging the initial reserve for mining.

The majority of the updated Resource has been calculated to an average depth of 70 metres below the surface. However, exploration drilling at depth has highlighted that mineralisation extends to over 320 metres depth. Based on this, SAFM will plan a drilling program to target the core of the deposit at depth which will have the potential to further increase the size of the deposit.

SAFM Chief Executive Officer and Managing Director Stephen Turner said:

"The Board SAFM is pleased with this latest 34% increase of its Ponto Verde resource. The enlarged resource underpins SAFM's expansion plans. Work is underway to define a new JORC compliant resource calculation which we expect to be material."

--*Ends*--

For more information:

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About South American Ferro Metals Limited:

South American Ferro Metals Limited owns 100% of the mineral rights and property of the Ponto Verde Iron Ore Project, located in the heart of the Iron Ore Quadrilateral in Brazil, 55 kilometres from the town of Belo Horizonte in the state of Minas Gerais. The Iron Ore Quadrilateral is a prolific iron ore mining area, and the Ponto Verde Project is located proximate to established mining operations, iron and steel plants and existing infrastructure.

Competent Persons

The information in this statement which relates to the Mineral Resource is based on information compiled by Marcela Rodrigues who is an employee of Coffey Consultoria e Serviços Ltda and a Member of the Australian Institute of Geoscientists. Marcela Rodrigues has sufficient relevant experience to the style of mineralization and type of deposit under consideration and to the activity for which he is undertaking to qualify as a Competent Person as defined in the JORC Code (2012).

Mrs Rodrigues was supported by the geologist Fabio Valério Xavier, who is full time employee of Coffey Consultoria e Serviços Ltda and member of the Australian Institute of Geoscientists.
Mr. Porfirio Cabaleiro Rodriguez, a Mining Engineer with more than 35 years' experience in Resource estimation was responsible for supervised geology and estimation. Mr. Cabaleiro provided all peer review of the work

Forward Looking Statements

This announcement contains certain forward looking statements which by nature, contain risk and uncertainty because they relate to future events and depend on circumstances that occur in the future. There are a number of factors that could cause actual results or developments to differ materially from those expressed or implied by these forward looking statements.

Website: www.safml.com

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	The SAFM data accepted for the estimation of mineral resources was accumulated from comprehensive Diamond Drilling (DD) core, Auger Drilling and Trenches sampling programmes from 2008 to 2014. Sample quality data was generally regular; data was analysed against agreed criteria for acceptance into the resource estimate. ▪ Diamond Drilling (DD): Two campaigns (2008 and 2010/11). The 2008 sampling campaign was validated with full re-assaying on pulp reserve samples and twin holes; the campaign of 2010/11 has performed in accordance with industry practices procedures; ▪ Auger drilling: Sampling of entire hole (3 to 12m) in a single sample, used to model surficial material; ▪ Trenches sampling: data for grade control, related to comply with DD sampling. • 12 diamond drill holes became available from Vale exploration campaign, in neighbor area, were used to confirm the continuity of the mineralization. Sample quality was generally regular. QAQC data was not verified for Coffey.
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Validation of all drilling results ensured maximum acceptance of data. • No calibration was required but QAQC measures were applied in DD and Auger Samples. • Coffey did not receive enough data to conclude a validation of Vale drilling.
	• *Aspects of the determination of mineralization that are Material to the Public Report.*	• The contacts definition of surficial material was not possible to map. The Auger drilling was used to define those contacts.

Criteria	JORC Code explanation	Commentary
		• The recognition of deeply weathered Banded Iron Formation (BIF) was important to defining the mineral resources reported. Samples were submitted to chemical classification to be compared with geological description on mineralization zone definition.
	• *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralization types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• DD core samples were taken at 6m (±1.25m) intervals of HQ core (locally reduced to NQ core diameter on deep intervals) in the target lithology; core was cut with a diamond saw, one half was retained and the other half (approximately 23kg) submitted to the SGS laboratory in Belo Horizonte for assay following standard protocols. • Auger samples were taken at entire hole length, varying from 3 to 12m. • Trenches samples were prepared on site and at the ACME laboratory in Belo Horizonte following standard protocols. • Vale core samples were taken at 10m downhole intervals.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• DD (core), Auger and Trenches with assay results received by the effective date. ○ DD 12 897 m; 121 drill holes performed by SAFM; ○ DD 1 597.2m, 12 drillholes performed by VALE; ○ Auger drilling 159 m, 79 drillholes performed by SAFM; ○ Trenches sampling 584.5 m, 162 points • The downhole survey was performed only for drillholes with total lengths over 100m, to measure the hole deviation. • Deviation on DD less than 100m was considered not material. • All surveyed drillholes have been measured by survey deviation equipment not influenced by magnetism. The equipment used was MAXIBOR II for inclined holes (dip over 85°) and DeviFlex, for vertical holes. The deviation survey was performed by the drilling company, Geosol .
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• Driller records on drilling bulletins and geological management were usually adequate for the recording and assessment of DD sample recovery.

Criteria	JORC Code explanation	Commentary
	• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• It was used a quality criterion of acceptance limit, a minimum of 85% for sample recovery for each drillhole. •
	• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Fault zones with carbonatic veins and weathered dolomites presented lower sampling recoveries;
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	• All DD samples have been geologically logged at 6m intervals, at least, that is adequate for mineral resource estimation of this type of mineral deposit. • Geotechnical description was performed on all diamond holes where they were classified by geotechnical parameters W (degree of weathering), R (degree of hardness), spacing of fractures and RQD (rock quality designation) with degree of detail to one meter.
	• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.*	• Geological logging was generally qualitative. Core photography was standard throughout the program.
	• *The total length and percentage of the relevant intersections logged.*	• All core and trenches samples has been logged in full. • There are intervals no described in the Vale holes associate to a lack of correlation in the lithological codes used by Vale and SAFM. In this case a common sense was used.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	• DD core samples were sawn and half of the core was submitted for laboratory analysis.
	• *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.*	• Auger samples were homogenized and splitted in the field, using a conical pile and a cross shaped tool; The amount of material not exceeded 30 kg. These samples were stored in plastic bags, identified with the corresponding sample number and sealed. A total of 116 samples were taken, including QAQC samples. • Trench samples was not homogenized or splitted. The removed material was stocked in conical piles and sampled for randomical collect of material inside the pile. • Auger and trench samples were not dried.

Criteria	JORC Code explanation	Commentary
	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• The DD core sample preparation technique is standard and appropriate for the mineralization type and is considered medium quality for 2008 and high for 2010/11. • The auger sample preparation technique was appropriate for the type of mineralization but may not have been of the highest quality; • The trenches samples preparation technique was considered not appropriate, but could be assessed that the impact of this was not material. • Vale has not provided enough information about sample preparation. Coffey have assessed Vale procedure in other projects and considers them as in the industry practice
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	• DD half core samples were retained in the core boxes for future duplicate assay as required. • Neither auger or trench sampling reserves were preserved. • Split and grain size reduction was done according P. Gy theory.

	• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.*	• Assays of all duplicates demonstrate a medium level of representativeness for DD and auger samples.
		  • The results validation shows that physical sample preparation is generally being properly executed.
		  • The low precision associated with some elements was due to limitations of the analytical method or detection.
		• Duplicate field samples of trenches weren´t made. Resampling was performed in 5 trenches. Duplicate trenches were opened and sampled in the same location of the primary trenches, another channel sample in the wall of the trench was collected. Despite the low correlation between original and duplicate trench, one can observe a good correlation between channel sampling and pile sampling.

	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• The samples sizes are considered adequate in relation final grain size of sampling and the Fe grade (approximately 50%.Fe)
Quality of assay data and	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	• DD samples for global analyses were prepared through a coarse crush (31.5mm) of dried and weighed material as received, followed by quartering using a rotary splitter.

Criteria	JORC Code explanation	Commentary
laboratory tests		• The sample was crushed to 3mm, homogenized and then quartered to produce a sample. • The sample (~250g) was pulverized in a steel ring mill to 95% passing 150# size. • Auger an trenches samples for global analyses were prepared through a coarse crush (3mm) of dried and weighed material as received, followed by quartering using a rotary splitter. • The sample (~250g) was pulverized in a steel ring mill to 95% passing 150# size. .
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*	• Not applied
	• *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• For DD samples: ○ First campaign: minimum QAQC control, twin holes samples were analyzed, together QAQC control tools, like duplicates, standards and blanks) with results showing good correlation; ○ Second Campaign: Full QAQC controls. • Auger: Full QAQC controls; • Trenches: None QAQC control.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.*	• Verifications of mineralization intersections in the field and in core samples has been undertaken and reported by Coffey consultants.
	• *The use of twinned holes.*	• There are 6 twin holes. • Correlation of lithotypes and Fe grade among twin holes was considered inside acceptance limits.
	• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*	• A comprehensive library of protocols were produced and stored in physical and electronic storages.
	• *Discuss any adjustment to assay data.*	• No adjustments have been made to the assay data.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	After the conclusion of drilling work, the drillholes X, Y, Z coordinates were determined through a total station survey or geodetic GPS by a

Criteria	JORC Code explanation	Commentary
		hired specialized company. The accuracy of surveys is high, compatible with the phase of the project.
	• *Specification of the grid system used.*	• Projection: UTM - Zone 23 South; Datum: South American 1969.
	• *Quality and adequacy of topographic control.*	The topography used in model was created by level curves generated from aerophotogrametric surveing compatible with scale 1:2,000. The date from flight was used as Effective Date for Resource Estimation.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.*	• The drilling program was based on a grid of 100mx100m spacing to estimate resources through the modelling of units outcropping in the Ponto Verde Mine area with emphasis on the itabirites from Cauê and Gandarela Formations. Locally the drilling grid was reduced to 50mx50m and in some parts a 200mx100m pattern was used; • Additionally was used a mechanized auger drilling campaign to sample the surficial colluvial deposit with a drilling grid of 50mx50m. A set of 79 holes averaging 2m depth. • There is a set of 321 trenches in a regular grid of 50mx50m, this a total of 162 trench could be used in the resource • The used Vale Drillhole data set was in an irregular grid.
	• *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*	• The target density was planned for anticipated Measured and Indicated Mineral Resources. The mineral resource estimate is based on a combination and integration of DD, Auger and trenches sample data. • Vale drillholes were used to grantee continuity of mineralization on the property borders..
	• *Whether sample compositing has been applied.*	• For statistical data analysis, DD drilling data was composited to 6m downhole lengths. • Auger and trench samples was considered as punctual.
Orientation of data in relation to	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• The deposit has sub-vertical dip, sub parallel to most of the drilling. The inclination of holes ranges from -90 ° to -60 °, then due operational limitations, the samples are not perpendicular to the

Criteria	JORC Code explanation	Commentary
geological structure		structures of the deposit. The drillholes were positioned and directed to pursue the best condition of the intersection, trying to minimize the sampling biasing effect. The geological interpretation considering the data set of drilling intersections promoted the minimization of any inaccuracies in the volume of the mineralization zone.
	• *If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• No sampling bias is recognized as a result of drilling orientation and mineralized strata.
Sample security	• *The measures taken to ensure sample security.*	• Drilling and sample (DD 2008) custody were supervised by SAFM technical team. • Drilling and sample (DD 2010/2011 and Auger) custody were supervised by qualified and independent personnel (Coffey Staff). All samples were identified and registered at rig site; • Trenches sampling were performed by SAFM technical team; • Sample security is ensured through adherence to the steps described here; any discrepancies found on receipt at the laboratory are reported by email and corrected through teleconference between the laboratory and project geologist. • Measures were taken to ensure data integrity; • Drilling documentation was organized by hole, in physical files. The Digital database was validated, cross checking physical documents with the digital database; • The drilling and sample database was, later on, integrated in a database compatible with Surpac software, for further validation and checks; • Consistency checks included sensible ranges of values for attributes, drill hole collars matching topography (within expected limits), composite overlapping and missing intervals, (litho, density, sampling, recovery), depths, azimuths, dips and co-ordinates; • Inconsistent information was either fixed or excluded from the database.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• The peer review process continued intermittently. The review was based on a comprehensive checklist developed by Coffey for this

Criteria	JORC Code explanation	Commentary
		purpose. The outcome assisted in identifying issues that could be resolved at an early stage, as well as providing support to the confidence level of the data and resource classification.

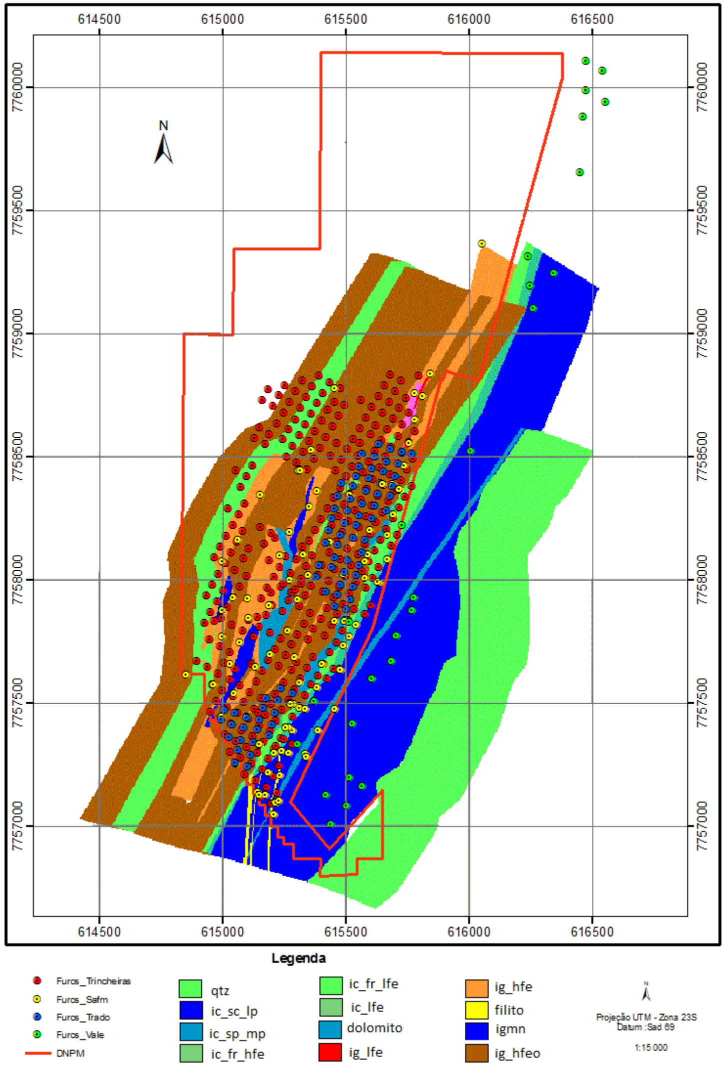
Section 2 Reporting of Exploration Results

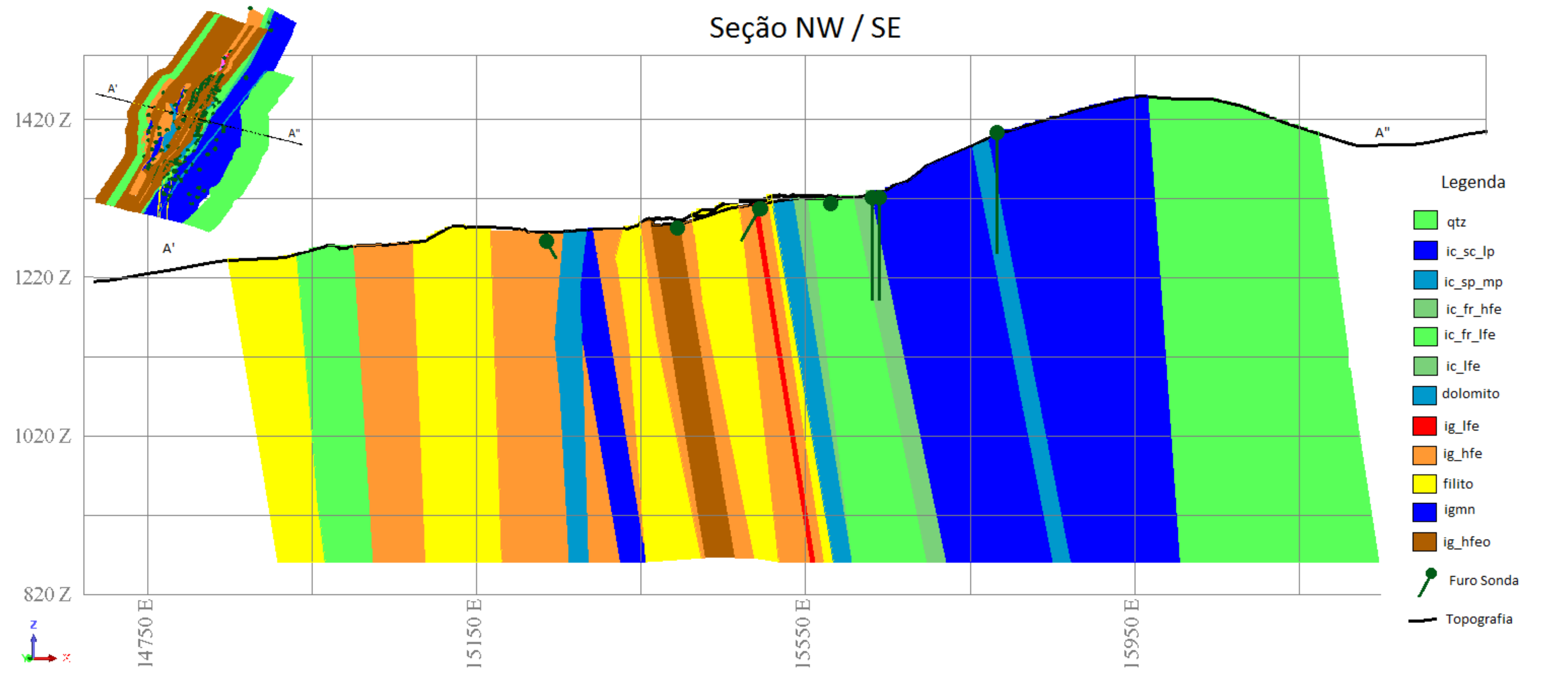
(Criteria listed in the preceding section also apply to this section.)

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td rowspan="2">Mineral tenement and land tenure status</td><td>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</td><td><table><tr><th>Mining Right #</th><th>Area (ha)</th><th>Type of Right</th></tr><tr><td>831929/1984</td><td>265.09</td><td>Mining Concession</td></tr></table>
SAFM holds a Mining Concession (DNPM-831.929/84) with an area of 265.09 ha, under which a Mining Permit has been granted. The Mining Permit is owned by SAFM.
Land ownership of partial area in SAFM mineral rights belongs to VALE.
There are no other third party issues.</td></tr>
<tr><td>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</td><td>NA</td></tr>
<tr><td>Exploration done by other parties</td><td>Acknowledgment and appraisal of exploration by other parties.</td><td>A set of 12 drillholes used in the resources estimate was provided by VALE.
VALE is the biggest iron producer in Brazil and an important player on the world market. Is recognizing as an Industry Practice Reference and Benchmark.
Although Coffey didn’t perform independent validation in VALE data set, it was used together SAFM data due its historical quality.</td></tr>
<tr><td>Geology</td><td>Deposit type, geological setting and style of mineralization.</td><td>The Iron Quadrangle, as a whole is characterized by an arrangement roughly made up of thick quadrangular synclines with the outcropping of shelf sediments from the Minas Supergroup, of the Paleoproterozoic Age.
The survey area finds itself within the Iron Quadrangle, a geotectonic unit from the Brasiliano-age, surrounded by orogenic belts sloping to the inside, located on the southern edge of Cráton do São Francisco, Brazil;
The iron ore deposits are hosted in Banded Iron Formations (BIF), locally called itabirite. The term BIF is used to describe chemical sediments which precipitated from seawater and are defined by fine</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		layering of silica and iron minerals (and which may include various facies including oxides, carbonates, silicates or sulfides). Most of the largest BIF deposits were formed during the Paleoproterozoic Era. Oxide facies iron formations, containing magnetite and/or hematite, are the most economically relevant, and may contain up to 35% Fe; • The main iron deposits from the Itabira group appear in hematite rich itabirite layers in the Cauê and Gandarela Formations, as well as in small superficial deposits, itabiritic colluviums, linked to these units. • The appearance of iron from the Cauê Formation includes itabirites, as well as dolomitic and amphibolite itabirites. The instances from the Gandarela Formation are essentially dolomitic iron formations
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* • *easting and northing of the drill hole collar* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* • *dip and azimuth of the hole* • *down hole length and interception depth.* • *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• Information attached •
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.*	• Weighting averaging techniques and high/low grade cutting have not been applied in reporting Exploration Results.Lower cut-off grades are discussed as part of the estimation and reporting of Mineral Resources in Section 3 of this checklist table. • No aggregation of high and low grade has been applied to the data for this project.

Criteria	JORC Code explanation	Commentary
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Metal equivalent values have not been calculated for this iron ore project.
Relationship between mineralization widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.*	• The drillhole intercepts of mineralization are at an angle ranging from 10° to 60° in relation to layering boundaries.
	• *If the geometry of the mineralization with respect to the drill hole angle is known, its nature should be reported.*	• Lithological units present in the area generally strike northeast-southwest (N10°E to N40°E) with mid to high dip (30° to 85°) to the southeast.; • The outcropping itabirite layer from the Cauê Formation demonstrates, in its northern part, a simple structure with compositional banding (Sn) striking northeast-southwest, and with a dip of 30° to 70° to the southeast. However in the region of the south pit, it shows a more complex structure, displaying parasitic folds in an S pattern (when viewed to the south) with a fold axis to the south.
	• *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• The geological model created for the mineral resource estimate incorporates an inherent correction for down hole length and true width of mineralization.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations* • *and appropriate sectional views.*	

Criteria	JORC Code explanation	Commentary
		



Criteria	JORC Code explanation	Commentary
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• NA
Other substantive exploration	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density,*	• NA

Criteria	JORC Code explanation	Commentary
data	*groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Various technical studies are in progress but do not form part of this report on estimation of mineral resources.
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	NA

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Data extracted from the database for Mineral Resource estimation purposes is run through general checks to ensure data is valid. Coffey performed a final check to ensure the database integrity for resource estimation purposes. • Checks on data include sensible ranges of values for attributes, drillhole collars matching topography and with expected limits, overlapping sample intervals, depths, azimuths, dips and co-ordinates for consistency. Any inconsistent information is either modified or excluded from use in estimation.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Multiple site visits have been made by all the Competent Persons contributing to the resource estimate and report. These include Porfírio Rodriguez, Marcela Tainã and Leonardo Moraes. • NA.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.*	• There is a comfortable degree of confidence with the mineralization interpretation. • Drill hole, assay and trenches data have been integrated to provide a robust geological model. • Spacing of drilling grid and the thickness of Gandarela Itabirites permits locally alternative interpretations only on depth portions. • Three types of iron deposits were recognized in the SAFM Brazil Concession area. • The first type of mineral deposit characterized by siliceous itabirites (with an estimated Fe grade of approximately 35 to 40%), which are friable and from the Cauê formation. The layers alternate between clear (quartz) and dark (hematite), measuring from millimetres to centimetres in thickness, and often presenting a range of structures such as

Criteria	JORC Code explanation	Commentary
		folds and ripples. • The second type of mineral deposit is represented by manganiferous itabirite from the Gandarela Formation. These are lode bodies. This mineral deposit is made up of a banded friable litho type, of a darkish gray to grayish blue color, with hematite, martite, magnetite and Mn Oxide layers interspersed with granular silica, (with a Fe grade estimated to be approximately 38%). • The third type of mineral deposit is represented by Cenozoic colluvium, which this report has called “Transported Soil and Magnetic Hardpan Slab Cover, as well as by elluvial cover, here called Transported Red Soil. These layers were formed from supergene enrichment and subsequent lateral transport from the Cauê and Gandarela formations.
	• *The factors affecting continuity both of grade and geology.*	• Continuity of geology and grade within the modelled mineralized units were validated by visual checks on geological 3D interpretations and by statistical analysis. • Location of twin holes showed high degree of accuracy on contact interception.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• First Type: The itabirite layers making up this deposit extend for approximately 950m to the northeast and southwest, with a thickness of approximately 100m, and potentially extending to the southeast of the southern zone, under Cenozoic cover, for approximately another 200m in the region’s south area; • Second Type: A potential extension of more than 800m and with an average thickness of 20m (estimated from exploration drilling boreholes), and a northeast-southwest orientation; • Third type: estimated thickness of 7m and appears covering a large portion of the southern part of the area;
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation*	• Ordinary Kriging of a suite of Iron Ore elements (Fe, SiO_2, Al_2O_3, LOI, FeO, P, and Mn) was completed using Gems Surpac software. • The concept of "Soft Boundaries" was used in the grade interpolation. Samples of subtypes within each major type (Cauê, Gandarela and

Criteria	JORC Code explanation	Commentary
	method was chosen include a description of computer software and parameters used.	colluvium) were grouped into a single composite file. Ordinary Kriging for grade interpolation within each subtype, including all the data of the neighborhood bounded by the major type and the anisotropy of the variogram is used.
	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*	• Coffey produced a JORC compliant resource estimate in 2012, using DD and auger drilling data.
	• *The assumptions made regarding recovery of by-products.*	• No assumptions were made regarding recovery of by-products.
	• *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).*	• Mass recovering of size fractions tests were estimated aiming to support reserves calculation. The results are not part of this report.
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*	• Block sizes used are 25m, 50m and 10m RL (x, y and z respectively), rotated 30°E, honoring the strike. The bulk of the drilling data is on 100mx50m. • Neighboring search was based on multiples of the variogram range, in a four step arrangement

Pass	Range Search	Search Strategy	Samples	
			Minimum	Maximum
1	170	Ellipsoid	8	30
2	250	Ellipsoid	8	30
3	380	Ellipsoid	8	30
4	>380	Ellipsoid	1	30

Criteria	JORC Code explanation	Commentary
	• *Any assumptions behind modelling of selective mining units.*	• No local estimation or SMU correction has been undertaken.
	• *Any assumptions about correlation between variables.*	• Correlations between elements were considered in a multivariate analysis of the data to assist in lithological domains definition
	• *Description of how the geological interpretation was used to control the resource estimates.*	• All estimation was completed within mineralization units using “soft” boundaries.

Criteria	JORC Code explanation	Commentary
	• *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Element distributions did not have extreme outliers therefore top-cutting was not used. • Validation was completed by checking the local and global bias, using a comparison between estimated grade by OK and estimated grade by Nearest Neighboring method. • Visual check of drillhole and block results. • Comparison between volumes in 3D wireframes and Block model lithological domains. • There aren't available reconciliation data.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• All tonnages have been estimated as dry tonnages.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The 20% cut-off grade for resource declaration was determined by the combined grade-tonnage characteristics at the minimum iron grade and/or maximum contaminant grades which will generate iron ore products matching commercial standards. This cut-off grade were applied in geological domains on mineralization modeling.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• Conventional open pit mining methods will be employed. Mining will be performed as a 'free dig' operation, where the rock formation is mechanically disassembled using small equipment without requiring any drilling or blasting. Mining activities will be conducted 24 hours a day, 365 days a year. All mineralized iron material will be mined and treated in the process plant and the host rock will be mined as waste, meaning no selective mining is required. As part of the mining process, waste is extracted from the Ore and transported to a dedicated waste area. The approximate final dimension at surface will have a north-south length of 2,400m and east-west width of 660m.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• A comprehensive metallurgical testwork program was carried out by SAFM, LogiCamms and Magma Projeto e Consultoria. The work was performed at Fundação Gorceix (FG), Universidade Federal de Minas Gerais (UFMG), Gaustec and Outotec, in Minas Gerais State, Brazil. The tests were conducted in four distinct stages based on representative samples from the drilling programmes. • The testing involved comminuition (crushing and grinding), magnetic concentration, thickening and filtration. Further lab tests were carried

Criteria	JORC Code explanation	Commentary
		out at Gaustec on a composite sample that represents the whole ore body, for testing the magnetic separation flowsheet configuration and the results are being used to develop the Process Flow Diagram and Mass-balance design. The average mass recovery of the whole process was 55% with 64% of Fe grade in the concentrate. • The testworks concluded that for the long term iron mineralization from Ponto Verde deposit can be processed and upgraded to the targeted specifications by three stage crushing, one stage grinding and wet high intensity magnetic separation (WHIMS). Final grinding size at 80% finer than 106µm was required to achieve the iron particle liberation and a concentrate with iron content of 64% and SiO2 content lower than 6%. The mass recovery averaged 55%, while the metallurgical recovery was approximately 73%. • SAFM combined the metallurgical test-work results above with a study of the current operation and concluded that for the short to medium term the iron mineralization from Ponto Verde deposit can be processed and upgraded to the targeted specifications by two stage crushing, low intensity magnetic separation (LIMS), Medium intensity magnetic Separation, and wet high intensity magnetic separation (WHIMS).
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• SAFM has applied to the preliminary and installation license for the 8 Mtpa ROM Expansion Project. The license is expected to be granted by the end of 2014. This license will allow SAFM to install and construct all the necessary structures required for the expansion. • The strategy for mine waste management is to co-dispose of mine waste rock with dewatered tailings (88% solids) in two areas located to the north and south of the plant site. The north area will be developed in two stages, in order to meet the project environmental licensing strategy. • The decision to dewater tailings was made due to the requirement for maximum water recovery to reuse in ore processing and the lack of available lands for conventional tailings dam. This strategy will have both environmental and disposal benefits (and thus assist in licensing) due to the reduction in required area, water management, etc. and ability to progressively reclaim the facility.

Criteria	JORC Code explanation	Commentary
		• Dry disposal of tailings with waste rock (co-disposal) also has a lower risk profile due to the inherent stability of the waste pile relative to a conventional tailings dam.

Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	• The density tests were performed according to the standards of the Brazilian Association of Technical Standards (ABNT): NBR 10838, NBR 7185 and NBR 09813 from samples taken in the field, in situ, and the drill cores (compact to semi-compact rocks).
		• Two methods were applied for density determination:
		  • In situ determination by the sand bottle method, for friable to semi-compact litho types outcropping in the field.
		  • Water Volume Displacement Method (Archimedes Method) on drillcore samples in semi-compact to compact rocks, performed at the drill core storage facility.
		• 28 tests using the Sand Bottle method; 12 samples in friable itabirite Cauê, 10 samples in friable Gandarela and 6 samples in colluvial surficial deposits. Water Volume Displacement Method tests were performed on 160 samples in ore and waste litho types in the drill cores.

	• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.*	• The water displacement method required waterproofing of samples with plastic film which ensures that voids (porosity) are accounted in the measurement. • The drying of the sample prior to waterproofing ensures that corrections for natural moisture content can be made through separate studies.
	• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Bulk density was estimated by simple average values from different geological domains.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.*	• The classification of the Mineral Resource is based on levels of confidence in technical factors observed and/or measured.

	• *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	• Account has been taken of:
		  • Quality and reliability of raw data;
		  • Confidence in the geological interpretation and continuity;

Criteria	JORC Code explanation	Commentary
		• Number, spacing and orientation of intercepts in each mineralized zone; • Geostatistical analyses; • Confidence in the continuity of grade and density obtained from observations and measurements ;
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The result information were used to guide digitizing of strings around defined classification areas in either long section or plan, depending on the orientation of the mineralization. The strings were then used to flag the classification to the model based on competent person knowledge and critical analysis of results.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No audit of the estimate has been undertaken but a continuous peer review process has been maintained through the field program and estimate.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	• The block model grade estimates were validated against the drill hole composites to ensure that the model reflects the input data. The Ponto Verde Mineral Resource models will be provided as a basis for long term planning and mine design, but are not necessarily sufficient for shorter term planning and scheduling. • Robust variograms were constructed, assuring confident control on continuity and searching strategies.
	• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*	• The resources is related to global resources, no change of support or no linear geostatistical procedures were used to allow direct use to define mineable resources.
	• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• Ponto Verde Project has only short-term historical data regarding initial production phase, but current production information was considered on review of resource estimate.

Hole_id	Depth_from mineralization	Depth_to mineralization	X	Y	Z	Max_depth	Azimute	Dip	Tipo
CH-00039	0	3.44	615198.1473	7757091.362	1283.108	3.44	0	-90	Trenches
CH-00040	0	3.46	615154.7429	7757116.419	1266.525	3.464	0	-90	Trenches
CH-00042	0	4.19	615223.1566	7757134.683	1289.034	4.187	0	-90	Trenches
CH-00043	0	4.51	615179.3848	7757159.164	1269.642	4.514	0	-90	Trenches
CH-00044	0	4.83	615136.5351	7757184.707	1273.349	4.83	0	-90	Trenches
CH-00049	0	4.74	615161.6144	7757228.033	1265.229	4.736	0	-90	Trenches
CH-00056	0	3.71	615186.4841	7757271.266	1264.162	3.705	0	-90	Trenches
CH-00065	0	4.07	615168.1269	7757339.636	1281.249	4.071	0	-90	Trenches
CH-00069	0	5.01	614995.0002	7757439.57	1278.767	5.005	0	-90	Trenches
CH-00073	0	2.8	615279.8104	7757332.898	1297.829	2.796	0	-90	Trenches
CH-00074	0	4.28	615236.4733	7757357.863	1283.028	4.275	0	-90	Trenches
CH-00075	0	3.98	615193.2145	7757382.866	1282.155	3.976	0	-90	Trenches
CH-00076	0	9.08	615149.8996	7757407.884	1297.93	9.077	0	-90	Trenches
CH-00078	0	5.24	615063.291	7757457.867	1289.276	5.24	0	-90	Trenches
CH-00079	0	4.82	615019.9881	7757482.849	1276.8	4.817	0	-90	Trenches
CH-00084	0	4.11	615261.5045	7757401.179	1292.61	4.109	0	-90	Trenches
CH-00087	0	3.01	615132.2183	7757477.133	1298.923	3.006	0	-90	Trenches
CH-00088	0	4.15	615088.3052	7757501.181	1286.298	4.148	0	-90	Trenches
CH-00089	0	4.75	615045.0175	7757526.195	1275.923	4.745	0	-90	Trenches
CH-00095	0	4.19	615286.5065	7757444.47	1302.946	4.19	0	-90	Trenches
CH-00097	0	4.65	615199.8967	7757494.443	1297.177	4.653	0	-90	Trenches
CH-00098	0	2.95	615157.1089	7757518.254	1298.513	2.945	0	-90	Trenches
CH-00099	0	3.95	615111.7714	7757543.168	1286.226	3.954	0	-90	Trenches
CH-00102	0	4.7	614983.3908	7757619.44	1269.267	4.695	0	-90	Trenches
CH-00108	0	3.78	615311.4789	7757487.804	1300.438	3.775	0	-90	Trenches
CH-00109	0	3.92	615268.207	7757512.805	1295.121	3.915	0	-90	Trenches
CH-00111	0	3.18	615178.1094	7757497.82	1293.194	3.18	0	-90	Trenches
CH-00112	0	4.41	615138.2882	7757587.756	1283.565	4.409	0	-90	Trenches
CH-00114	0	4.7	615051.7007	7757637.781	1271.813	4.698	0	-90	Trenches
CH-00124	0	2.51	615146.0575	7757460.351	1286.692	2.505	0	-90	Trenches
CH-00126	0	5.08	615120.0268	7757656.121	1282.931	5.08	0	-90	Trenches
CH-00127	0	3	615249.8292	7757352.537	1275.069	3	0	-90	Trenches
CH-00137	0	4.44	615280.3099	7757632.151	1295.629	4.443	0	-90	Trenches
CH-00148	0	3.25	615426.1134	7757596.575	1322.9	3.25	0	-90	Trenches
CH-00151	0	3.76	615299.8806	7757667.725	1296.764	3.762	0	-90	Trenches
CH-00153	0	4.08	615213.3373	7757717.635	1286.245	4.084	0	-90	Trenches

Hole_id	Depth_from mineralization	Depth_to mineralization	X	Y	Z	Max_depth	Azimute	Dip	Tipo
CH-00156	0	2.94	615083.397	7757792.69	1270.388	2.941	0	-90	Trenches
CH-00164	0	1.86	615411.6909	7757659.638	1308.82	1.863	0	-90	Trenches
CH-00170	0	3	615151.302	7757809.523	1276.779	3	0	-90	Trenches
CH-00185	0	4.14	615176.697	7757854.283	1276.277	4.143	0	-90	Trenches
CH-00189	0	3.67	615003.49	7757954.293	1270.1	3.674	0	-90	Trenches
CH-00200	0	3.72	615201.7335	7757897.569	1275.026	3.72	0	-90	Trenches
CH-00205	0	3.84	614985.1667	7758022.578	1264.222	3.844	0	-90	Trenches
CH-00215	0	3.31	615198.6257	7757948.272	1278.725	3.311	0	-90	Trenches
CH-00216	0	2.31	615183.378	7757965.898	1275.868	2.313	0	-90	Trenches
CH-00220	0	4.93	615010.1754	7758065.892	1263.808	4.926	0	-90	Trenches
CH-00224	0	2.41	615512.2146	7757835.96	1316.167	2.411	0	-90	Trenches
CH-00226	0	3.74	615423.8373	7757882.586	1307.535	3.736	0	-90	Trenches
CH-00227	0	4.45	615142.3897	7757848.218	1296.433	4.454	0	-90	Trenches
CH-00238	0	5.01	615578.6448	7757861.147	1316.181	5.012	0	-90	Trenches
CH-00239	0	3.27	615537.0675	7757878.868	1309.909	3.271	0	-90	Trenches
CH-00240	0	3.82	615492.2331	7757901.61	1303.904	3.821	0	-90	Trenches
CH-00243	0	3.11	615361.7417	7757976.593	1294.569	3.111	0	-90	Trenches
CH-00246	0	3.81	615233.3722	7758052.474	1277.734	3.813	0	-90	Trenches
CH-00251	0	4.25	615016.8956	7758177.481	1260.098	4.25	0	-90	Trenches
CH-00253	0	2.63	615602.7757	7757894.363	1315.196	2.627	0	-90	Trenches
CH-00254	0	3.6	614968.6333	7757832.849	1299.338	3.602	0	-90	Trenches
CH-00257	0	3.29	615432.959	7757996.045	1293.379	3.286	0	-90	Trenches
CH-00260	0	4.54	615302.6278	7758081.71	1281.15	4.539	0	-90	Trenches
CH-00264	0	3	615214	7758170	1278	3	0	-90	Trenches
CH-00272	0	2.56	615456.9968	7758040.751	1314.944	2.557	0	-90	Trenches
CH-00273	0	4.72	615405.3	7758056.562	1293.818	4.72	0	-90	Trenches
CH-00274	0	4.4	615364.8034	7758099.125	1294.445	4.401	0	-90	Trenches
CH-00278	0	4.45	615196.9588	7758188.518	1281.788	4.453	0	-90	Trenches
CH-00281	0	2.14	615066.8791	7758264.048	1263.038	2.139	0	-90	Trenches
CH-00286	0	4.4	615524.8924	7758057.461	1330.449	4.402	0	-90	Trenches
CH-00288	0	2.07	615436.3015	7758111.415	1311.389	2.067	0	-90	Trenches
CH-00299	0	2.95	615593.2567	7758075.697	1337.687	2.945	0	-90	Trenches
CH-00300	0	3.49	615550.9005	7758101.414	1336.79	3.486	0	-90	Trenches
CH-00316	0	4.43	615488.9252	7758194.701	1319.231	4.434	0	-90	Trenches
CH-00317	0	3.77	615445.5542	7758219.288	1315.507	3.772	0	-90	Trenches
CH-00329	0	3.51	615601.2845	7758185.06	1332.75	3.51	0	-90	Trenches

Hole_id	Depth_from mineralization	Depth_to mineralization	X	Y	Z	Max_depth	Azimute	Dip	Tipo
CH-00330	0	2.38	615556.4993	7758212.411	1337.778	2.376	0	-90	Trenches
CH-00331	0	3.02	615512.4852	7758236.429	1326.581	3.023	0	-90	Trenches
CH-00332	0	2.81	615471.6818	7758257.555	1313.62	2.805	0	-90	Trenches
CH-00345	0	3.91	615581.5705	7758255.503	1330.715	3.909	0	-90	Trenches
CH-00346	0	3.44	615537.5835	7758280.343	1328.803	3.438	0	-90	Trenches
CH-00347	0	2.55	615495.6863	7758304.454	1314.974	2.548	0	-90	Trenches
CH-00348	0	3.91	615451.7065	7758330.626	1294.449	3.911	0	-90	Trenches
CH-00357	0	2.16	615692.8091	7758247.679	1313.03	2.16	0	-90	Trenches
CH-00358	0	2.79	615649.8722	7758273.969	1324.257	2.791	0	-90	Trenches
CH-00359	0	3.81	615607.6826	7758300.486	1323.65	3.807	0	-90	Trenches
CH-00361	0	3.82	615519.7665	7758347.325	1312.963	3.815	0	-90	Trenches
CH-00372	0	1.3	615673.5912	7758318.861	1308.363	1.3	0	-90	Trenches
CH-00373	0	2	615631.3086	7758341.407	1305.118	1.998	0	-90	Trenches
CH-00377	0	3.64	615458.3813	7758442.199	1293.536	3.64	0	-90	Trenches
CH-00387	0	3.8	615655.169	7758384.681	1320.189	3.799	0	-90	Trenches
CH-00391	0	3	615484	7758486	1306	3	0	-90	Trenches
CH-00400	0	5.04	615724.9	7758403.812	1333.511	5.04	0	-90	Trenches
CH-00401	0	3.76	615681.599	7758428.812	1329.76	3.762	0	-90	Trenches
CH-00403	0	2.79	615594.996	7758478.812	1314.751	2.79	0	-90	Trenches
CH-00407	0	3.6	615421.8263	7758578.751	1296.454	3.597	0	-90	Trenches
CH-00416	0	4.47	615663.297	7758497.114	1320.951	4.471	0	-90	Trenches
CH-00418	0	2.74	615558.2574	7758554.938	1309.739	2.738	0	-90	Trenches
CH-00429	0	3.88	615731.5967	7758515.435	1331.444	3.878	0	-90	Trenches
CH-00431	0	2.94	615645.091	7758565.398	1320.025	2.937	0	-90	Trenches
CH-00443	0	4.62	615756.5987	7758558.718	1334.227	4.619	0	-90	Trenches
CH-00444	0	1.93	615713.336	7758583.747	1327.688	1.932	0	-90	Trenches
CH-00445	0	2.9	615670.011	7758608.776	1330.153	2.9	0	-90	Trenches
CH-00446	0	3.95	615620.9527	7758627.127	1324.74	3.947	0	-90	Trenches
CH-00447	0	1.77	615583.346	7758658.592	1323.577	1.771	0	-90	Trenches
CH-00457	0	4.37	615781.5748	7758602.047	1337.72	4.366	0	-90	Trenches
CH-00458	0	2.81	615728.3565	7758629.134	1329.653	2.809	0	-90	Trenches
CH-00459	0	4.02	615694.9895	7758652.031	1331.591	4.017	0	-90	Trenches
CH-00462	0	2.69	615565.0935	7758727.074	1333.668	2.686	0	-90	Trenches
CH-00470	0	3.43	615758.9536	7758676.226	1337.99	3.425	0	-90	Trenches
CH-00471	0	3.63	615719.123	7758696.797	1340.895	3.633	0	-90	Trenches
CH-00472	0	3.79	615676.6865	7758720.278	1348.017	3.79	0	-90	Trenches

Hole_id	Depth_from mineralization	Depth_to mineralization	X	Y	Z	Max_depth	Azimute	Dip	Tipo
CH-00473	0	1.3	615633.3284	7758745.299	1345.617	1.296	0	-90	Trenches
CH-00483	0	7.41	615745.019	7758738.568	1345.489	7.413	0	-90	Trenches
CH-00494	0	2.16	615727.6012	7758807.467	1337.557	2.163	0	-90	Trenches
MPV_SD_001	0.18	50.81	615491.728	7757732.371	1318.08	65	0	-90	Hole_DD_SAFM
MPV_SD_002	0	87.35	615669.13	7758082.605	1340.586	87.35	0	-90	Hole_DD_SAFM
MPV_SD_003	0	28.29	615384.48	7757562.328	1292.448	93.65	286	-70	Hole_DD_SAFM
MPV_SD_004	0	103.1	615235.995	7757205.797	1276	103.1	286	-70	Hole_DD_SAFM
MPV_SD_005	0	92.15	615476.849	7757637.577	1325.605	92.15	286	-75	Hole_DD_SAFM
MPV_SD_006	1.58	77.5	615213.596	7757099.496	1283.512	77.5	286	-70	Hole_DD_SAFM
MPV_SD_008	0.42	36.55	615592.956	7758101.977	1330.229	42.05	0	-90	Hole_DD_SAFM
MPV_SD_009	0	96.5	615185.724	7757218.68	1263.064	96.5	286	-80	Hole_DD_SAFM
MPV_SD_010	0	62.7	615383.948	7758360.878	1279.057	62.7	286	-60	Hole_DD_SAFM
MPV_SD_013	81.88	112.35	615273.459	7757997.631	1279.131	112.35	286	-60	Hole_DD_SAFM
MPV_SD_014	0.56	49	615598.895	7758201.774	1319.581	49	286	-60	Hole_DD_SAFM
MPV_SD_016	2.88	43.55	615107.316	7757844.863	1263.109	43.55	286	-60	Hole_DD_SAFM
MPV_SD_017	2.21	58.85	615133.521	7757645.679	1266.683	58.85	286	-60	Hole_DD_SAFM
MPV_SD_018	0.83	23.3	615000.843	7757767.509	1253.401	23.3	0	-90	Hole_DD_SAFM
MPV_SD_019	0.94	44.16	615491.787	7758023.173	1306.953	47.7	286	-60	Hole_DD_SAFM
MPV_SD_020	1.02	17.45	615350.042	7758020.658	1279.389	80.8	315	-60	Hole_DD_SAFM
MPV_SD_021	1.67	88.7	615434.484	7758154.556	1304.979	88.7	286	-60	Hole_DD_SAFM
MPV_SD_022	0.91	21.6	614999.141	7757875.553	1252.466	21.6	0	-90	Hole_DD_SAFM
MPV_SD_023	1.32	31.1	615056.07	7757254.423	1276.247	31.1	286	-60	Hole_DD_SAFM
MPV_SD_024	0.86	30.55	615000.305	7758072.68	1250.554	30.55	286	-60	Hole_DD_SAFM
MPV_SD_025	0	228.9	615266.096	7757793.53	1286.356	228.9	286	-60	Hole_DD_SAFM
MPV_SD_026	0.69	30.5	615311.444	7757478.288	1292.177	100.35	286	-85	Hole_DD_SAFM
MPV_SD_027	1.07	172.05	615736.242	7758462.563	1324.366	172.05	286	-60	Hole_DD_SAFM
MPV_SD_028	3.26	44.19	615514.943	7758344.628	1301.889	100.25	286	-60	Hole_DD_SAFM
MPV_SD_029	3.65	27.1	615273.2	7758193.832	1273.718	27.1	106	-70	Hole_DD_SAFM
MPV_SD_030	6.06	14.25	615099.421	7757441.779	1287.512	30.5	286	-60	Hole_DD_SAFM
MPV_SD_031	0.35	18.13	615101.589	7757922.871	1258.869	30.65	286	-60	Hole_DD_SAFM
MPV_SD_032	0	25.1	615232.967	7758099.737	1265.265	25.1	106	-60	Hole_DD_SAFM
MPV_SD_034	0.66	10.4	614963.057	7757575.26	1258.414	21.4	0	-90	Hole_DD_SAFM
MPV_SD_035	0.39	100.15	615141.018	7757138.377	1259.466	100.15	286	-70	Hole_DD_SAFM
MPV_SD_036	0.46	77.15	615286.91	7757387.188	1299.561	77.15	286	-85	Hole_DD_SAFM
MPV_SD_037	0.83	49.33	615268.174	7757400.719	1294.884	94.4	286	-70	Hole_DD_SAFM
MPV_SD_038	0.01	100.25	615173.846	7757126.171	1259.108	100.25	286	-70	Hole_DD_SAFM

Hole_id	Depth_from mineralization	Depth_to mineralization	X	Y	Z	Max_depth	Azimute	Dip	Tipo
MPV_SD_039	1.02	55.85	615048.961	7757540.661	1270.946	130.1	286	-60	Hole_DD_SAFM
MPV_SD_040	1.12	20.85	615154.602	7758343.01	1265.224	20.85	0	-90	Hole_DD_SAFM
MPV_SD_041	0.75	73.91	614994.495	7757445.235	1269.882	73.9	286	-60	Hole_DD_SAFM
MPV_SD_042	1.11	31.3	615063.321	7758161.576	1253.973	31.3	286	-60	Hole_DD_SAFM
MPV_SD_043	0	100.55	615241.052	7757306.46	1284.005	100.55	286	-85	Hole_DD_SAFM
MPV_SD_044	1.17	79.25	615208.969	7757298.59	1266.223	79.25	286	-85	Hole_DD_SAFM
MPV_SD_045	2.47	89.14	615782.007	7758648.338	1331.418	97.1	286	-70	Hole_DD_SAFM
MPV_SD_046	4.44	89.65	615811.959	7758742.946	1332.432	89.65	286	-60	Hole_DD_SAFM
MPV_SD_047	0	120	615208.7936	7757048.596	1288.366	120	0	-90	Hole_DD_SAFM
MPV_SD_048	0.61	155	615337.7126	7757292.408	1327.3	155	9.5	-86.5	Hole_DD_SAFM
MPV_SD_049	0.38	297.6	615390.6709	7757389.866	1363.74	297.6	345	-82	Hole_DD_SAFM
MPV_SD_050	0	300	615456.72	7757475.584	1357.252	300.1	11.5	-85	Hole_DD_SAFM
MPV_SD_052	0	24.4	615407.4671	7757658.093	1297.87	115	0	-90	Hole_DD_SAFM
MPV_SD_053	0	60.85	615516.472	7757766.934	1323.493	140.55	285	-81	Hole_DD_SAFM
MPV_SD_055	0	131.1	615638.7328	7757988.226	1321.595	131.1	0	-90	Hole_DD_SAFM
MPV_SD_056	0	205.2	615303.5509	7757918.021	1287.948	205.2	284.5	-56	Hole_DD_SAFM
MPV_SD_057	0.84	200.35	615196.1395	7757697.624	1272.367	200.35	279.5	-59	Hole_DD_SAFM
MPV_SD_058	0.65	100.75	615072.0848	7757745.397	1259.112	100.75	0	-90	Hole_DD_SAFM
MPV_SD_059	1.33	100.85	615031.3392	7757658.994	1258.721	100.85	286	-60	Hole_DD_SAFM
MPV_SD_060	2.64	81.68	615043.883	7757927.158	1256.385	100.4	286	-60	Hole_DD_SAFM
MPV_SD_061	27.59	200.7	615329.6917	7758102.121	1277.549	200.7	286	-61.5	Hole_DD_SAFM
MPV_SD_062	1.03	75.65	615652.5181	7758387.657	1308.811	111.05	0	-90	Hole_DD_SAFM
MPV_SD_063	7.9	96.26	615689.6876	7758386.194	1317.658	114.3	286	-70	Hole_DD_SAFM
MPV_SD_064	0.64	120.7	615217.168	7757095.316	1283.611	120.7	0	-90	Hole_DD_SAFM
MPV_SD_065	0.53	19.15	615290.8876	7757495.569	1287.498	80.1	0	-90	Hole_DD_SAFM
MPV_SD_066	1.33	93.71	615719.6959	7758365.92	1323.427	111.05	0	-90	Hole_DD_SAFM
MPV_SD_067	0	107.2	615844.5985	7758836.863	1314.063	107.2	0	-90	Hole_DD_SAFM
MPV_SD_068	0	127.05	615781.3163	7758758.051	1328.123	127.05	0	-90	Hole_DD_SAFM
MPV_SD_069	0	260.15	615341.6268	7757281.416	1327.541	260.15	332	-70	Hole_DD_SAFM
MPV_SD_070	1.61	41.44	615360.605	7758524.921	1278.79	180.2	289	-63	Hole_DD_SAFM
MPV_TD_0001	0	1.29	615632.997	7758550	1307.396	1.29	0	-90	Auger
MPV_TD_0002	0	1.3	615680.982	7758530.027	1313.463	1.3	0	-90	Auger
MPV_TD_0003	0	2.9	615730.003	7758519.973	1320.227	2.9	0	-90	Auger
MPV_TD_0004	0	5.25	615771.01	7758510.017	1326.686	5.25	0	-90	Auger
MPV_TD_0005	0	2.1	615716.018	7758470.012	1311.453	2.1	0	-90	Auger
MPV_TD_0006	0	0.01	615568.984	7758510.003	1300.967	0.01	0	-90	Auger

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MPV_TD_0007	0	0.8	615618.993	7758500.002	1306.729	0.8	0	-90	Auger
MPV_TD_0008	0	2.9	615668.035	7758479.981	1312.118	2.9	0	-90	Auger
MPV_TD_0009	0	3.73	615606.995	7758450.004	1306.895	3.73	0	-90	Auger
MPV_TD_0010	0	0.01	615557.016	7758459.988	1299.122	0.01	0	-90	Auger
MPV_TD_0011	0	2.1	615654.965	7758439.998	1314.54	2.1	0	-90	Auger
MPV_TD_0012	0	3.2	615703.99	7758419.993	1320.816	3.2	0	-90	Auger
MPV_TD_0013	0	1.6	615692.003	7758380.005	1317.756	1.6	0	-90	Auger
MPV_TD_0014	0	3.77	615594.959	7758410.017	1301.281	3.77	0	-90	Auger
MPV_TD_0015	0	3.44	615545.02	7758419.993	1292.175	3.44	0	-90	Auger
MPV_TD_0016	0	2.27	615616.999	7758299.993	1312.161	2.27	0	-90	Auger
MPV_TD_0018	0	2.25	615583.993	7758359.997	1294.648	2.25	0	-90	Auger
MPV_TD_0020	0	1.55	615505.967	7758279.995	1306.892	1.55	0	-90	Auger
MPV_TD_0021	0	1.63	615519.01	7758330.01	1304.848	1.63	0	-90	Auger
MPV_TD_0022	0	2.3	615494.015	7758230.01	1308.175	2.3	0	-90	Auger
MPV_TD_0023	0	2.1	615481.984	7758180.011	1307.119	2.1	0	-90	Auger
MPV_TD_0025	0	2.95	615418.999	7758149.977	1302.063	2.95	0	-90	Auger
MPV_TD_0026	0	3.32	615430.985	7758200.008	1304.677	3.32	0	-90	Auger
MPV_TD_0027	0	2.2	615444.005	7758249.974	1301.025	2.2	0	-90	Auger
MPV_TD_0028	0	2.34	615455.992	7758289.992	1297.328	2.34	0	-90	Auger
MPV_TD_0029	0	1.9	615468.999	7758339.99	1291.101	1.9	0	-90	Auger
MPV_TD_0031	0	1.9	615532.022	7758169.992	1324.211	1.9	0	-90	Auger
MPV_TD_0032	0	1.7	615544.986	7758219.997	1325.384	1.7	0	-90	Auger
MPV_TD_0034	0	1.8	615580.015	7758160.022	1330.762	1.8	0	-90	Auger
MPV_TD_0035	0	1.35	615567.984	7758109.965	1327.587	1.35	0	-90	Auger
MPV_TD_0036	0	0.98	615605.141	7758249.882	1314.772	0.98	0	-90	Auger
MPV_TD_0037	0	2.7	615666	7758280	1304.361	2.7	0	-90	Auger
MPV_TD_0038	0	2.25	615632.006	7758349.996	1293.606	2.25	0	-90	Auger
MPV_TD_0039	0	0.95	615554.991	7758060.018	1327.237	0.95	0	-90	Auger
MPV_TD_0040	0	0.76	615505.994	7758079.979	1320.425	0.76	0	-90	Auger
MPV_TD_0042	0	2.8	615644.002	7758390	1305.865	2.8	0	-90	Auger
MPV_TD_0043	0	1.1	615681.002	7758339.991	1307.653	1.1	0	-90	Auger
MPV_TD_0044	0	3.2	615543.003	7758020.031	1314.973	3.2	0	-90	Auger
MPV_TD_0045	0	1.9	615494.998	7758029.967	1306.949	1.9	0	-90	Auger
MPV_TD_0046	0	0.6	615529.999	7757970.012	1301.8	0.6	0	-90	Auger
MPV_TD_0047	0	3.3	615444.995	7758050.013	1300.653	3.3	0	-90	Auger
MPV_TD_0048	0	1.6	615481.996	7757980.008	1295.929	1.6	0	-90	Auger

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MPV_TD_0049	0	2.3	615394.008	7758059.966	1282.133	2.3	0	-90	Auger
MPV_TD_0050	0	2.9	615380.024	7758009.962	1281.309	2.9	0	-90	Auger
MPV_TD_0051	0	3.15	615419.005	7757949.987	1288.916	3.15	0	-90	Auger
MPV_TD_0052	0	2.2	615470.002	7757939.986	1293.526	2.2	0	-90	Auger
MPV_TD_0053	0	0.82	615518.001	7757920.029	1299.689	0.82	0	-90	Auger
MPV_TD_0054	0	3.54	615504.995	7757880.02	1302.257	3.54	0	-90	Auger
MPV_TD_0055	0	1.85	615457	7757890	1297.742	1.85	0	-90	Auger
MPV_TD_0056	0	2.18	615164.995	7757479.989	1295.62	2.18	0	-90	Auger
MPV_TD_0057	0	2.53	615177.005	7757519.987	1290.068	2.53	0	-90	Auger
MPV_TD_0058	0	0.81	615226.988	7757510.036	1295.653	0.81	0	-90	Auger
MPV_TD_0059	0	3.1	615287.01	7757539.965	1285.258	3.1	0	-90	Auger
MPV_TD_0060	0	1.3	615240	7757560	1280	1.3	0	-90	Auger
MPV_TD_0061	0	2.3	615274.995	7757500.051	1287.58	2.3	0	-90	Auger
MPV_TD_0062	0	2.95	615214.993	7757460.012	1303	2.95	0	-90	Auger
MPV_TD_0063	0	1.3	615200.992	7757410.014	1298.946	1.3	0	-90	Auger
MPV_TD_0064	0	2.5	615152.011	7757429.994	1296.705	2.5	0	-90	Auger
MPV_TD_0065	0	0.68	615101.033	7757439.995	1287.51	0.68	0	-90	Auger
MPV_TD_0066	0	1.3	615052.022	7757459.993	1281.813	1.3	0	-90	Auger
MPV_TD_0067	0	0.9	615006.998	7757470.006	1270.484	0.9	0	-90	Auger
MPV_TD_0068	0	1.95	614994.993	7757430.002	1271.446	1.95	0	-90	Auger
MPV_TD_0069	0	1.29	615041.032	7757409.987	1282.741	1.29	0	-90	Auger
MPV_TD_0070	0	1.91	615088.999	7757399.997	1288.813	1.91	0	-90	Auger
MPV_TD_0072	0	1.91	615189.986	7757370.008	1293.785	1.91	0	-90	Auger
MPV_TD_0073	0	1.25	615052.253	7757256.183	1275.952	1.25	0	-90	Auger
MPV_TD_0075	0	2.62	615076.009	7757350.016	1288.55	2.62	0	-90	Auger
MPV_TD_0076	0	1.95	615026.958	7757359.968	1281.936	1.95	0	-90	Auger
MPV_TD_0078	0	1.43	615064.028	7757309.994	1285.048	1.43	0	-90	Auger
MPV_TD_0079	0	1.3	615116.002	7757289.994	1284.656	1.3	0	-90	Auger
PVFS_01	0	105	615148.982	7757127.079	1258.419	105	0	-90	Hole_DD_SAFM
PVFS_02	5.76	120	615229.299	7757103.567	1295.333	120	0	-90	Hole_DD_SAFM
PVFS_03	3.55	39.05	615152.306	7757329.878	1291.651	126.95	0	-90	Hole_DD_SAFM
PVFS_03A	3.42	20.18	615148.794	7757330.916	1291.517	176.25	0	-90	Hole_DD_SAFM
PVFS_04	6.19	76	615271.17	7757295.712	1305.019	76	0	-90	Hole_DD_SAFM
PVFS_04A	6.81	120	615269.729	7757296.129	1305.019	120	0	-90	Hole_DD_SAFM
PVFS_06	0.62	75.75	615256.801	7757399.973	1294.72	123.3	0	-90	Hole_DD_SAFM
PVFS_07	0.99	40.5	615277.97	7757493.821	1287.486	113.9	0	-90	Hole_DD_SAFM

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PVFS_08	0	124.1	615338.457	7757476.604	1296.409	124.1	0	-90	Hole_DD_SAFM
PVFS_09	0.1	20.95	615403.477	7757657.402	1297.549	114	0	-90	Hole_DD_SAFM
PVFS_10	0	131	615479.202	7757635.367	1326.495	131	0	-90	Hole_DD_SAFM
PVFS_12	0.85	122.1	615545.131	7757817.268	1319.616	122.1	0	-90	Hole_DD_SAFM
PVFS_13	0.82	60	615580.662	7758006.508	1312.671	60	74	-68	Hole_DD_SAFM
PVFS_14	0	131.1	615631.525	7757991.583	1321.575	131.1	0	-90	Hole_DD_SAFM
PVFS_16	1.3	38.75	615672.001	7758180.711	1318.653	126.9	0	-90	Hole_DD_SAFM
PVFS_17	1.25	79.05	615718.274	7758369.491	1323.35	130	0	-90	Hole_DD_SAFM
PVFS_18	0.84	66.81	615651.971	7758388.947	1308.698	90.85	0	-90	Hole_DD_SAFM
PVFS_18A	1.03	58.16	615650.87	7758389.247	1308.802	114.4	0	-90	Hole_DD_SAFM
PVFS_19	2.83	96.25	615757.921	7758555.133	1323.286	115.35	0	-90	Hole_DD_SAFM
PVM_01	0	107.4	615354.843	7758294.695	1276.47	135	0	-90	Hole_DD_SAFM
PVM_03	1.02	28.4	615577.931	7758075.942	1329.97	146.25	0	-90	Hole_DD_SAFM
PVM_04	0	45.73	615190.312	7757895.812	1266.554	114.6	120	-60	Hole_DD_SAFM
PVM_07	6.57	133	615307.198	7757334.435	1307.314	133	0	-90	Hole_DD_SAFM
SAP-FSD-02-0037	0	48.75	616242.75	7759313.5	1330.396	126.4	301	-60	Hole_DD_VALE
SAP-FSD-02-0046	1.04	81.93	615731.188	7758222.5	1309.04	131.4	301	-60	Hole_DD_VALE
SAP-FSD-02-0049	0	19.68	615516.125	7757827	1312.077	79.25	301	-60	Hole_DD_VALE
SAP-FSD-02-0050	0	61.96	615372.563	7757505.5	1301.689	90.4	301	-60	Hole_DD_VALE
SAP-FSD-06-0001	0	247.7	616251.125	7759192.5	1335.119	247.7	301	-60	Hole_DD_VALE
SAP-FSD-11-0001	0	73.95	615440.688	7757007	1319.412	103.4	119	-64	Hole_DD_VALE
SAP-FSD-11-0005	0	71.55	615502.994	7757083.977	1336.063	112.5	116	-61	Hole_DD_VALE
SAP-FSD-11-0006	0	134.85	615420	7757126.5	1343.79	134.85	124	-64	Hole_DD_VALE
SAP-FSD-11-0009	0	74.15	615566.62	7757161.322	1353.514	129.4	118	-64	Hole_DD_VALE
SAP-FSD-11-0010	0	144.6	615514.938	7757199.5	1368.438	144.6	118	-65	Hole_DD_VALE
SAP-FSD-11-0036	0	144.15	615769.938	7757877.5	1415.354	144.15	296	-65	Hole_DD_VALE
SAP-FSD-11-0038	0	153.15	615777.313	7757929	1403.326	153.15	114	-64	Hole_DD_VALE